



'B' Grade
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Social & Cultural Association's
**SMT. NARMADABAI NAGO CHAUDHARI
ARTS, COMMERCE & SCIENCE COLLEGE,
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3.3.3 Number of books and chapters in edited volumes/books published and papers published in

National/international conference proceeding per teachers during last five years.

3.3.3.1. Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings year-wise during last five years

Findings of DVV:

Tabulated list of extension/outreach programs (activity conducted for outside community) showing: sl. no., name of program, date, year and duration, number of participants, name of location of programs, agency supporting the programs, Name of the collaborating agency ,for each year, for all the 5 assessment years, attested by Principal. 2. Detailed reports of each of the program, with specific mention of number of students participated and collaborating agency, attested by Principal. 3. Communication with sponsoring departments/agencies/NGOs mentioning the title of the program, attested by Principal. 4. Any other supporting document of relevance such as newspaper reports regarding the extension program, attested by Principal. 5. Please provide Geo tagged photographs with captions and date//screenshot of college website.

HEI Input:

2020-21	2019-20	2018-19	2017-18	2016-17
28	12	12	07	08

DVV suggested Input

2020-21	2019-20	2018-19	2017-18	2016-17
27	11	11	6	7

Change Input:

2020-21	2019-20	2018-19	2017-18	2016-17
28	12	12	07	08

Clarification:

As per HEI finding of DVV the information is irrelevant regarding criterion 3.3.3. The supporting documents for such criterion are given in SSR. But for your information we again sending the supporting document along with this please consider it and accept it.



S. G. Baviskar

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3.3.3 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years (10)

Year 2016-2017							
Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the proceedings of the conference	National / International	Year of publication	ISBN/ISSN number of the proceeding	Name of the publisher
1	Prof. Madhukar G. Kasar	Computation Organic Cheistry	Refrences	National	2017	978-935030-31-22	Oxford Book Company Jaypur
2	Dr.Siddharth B. Sonawane	Tourisum Geography	Refrences	National	2017	978-93-8712-03-03	Atharva Publication Jalgaon
Year 2017-2018							
1	Prof. Madhukar G. Kasar	Chemistry in Everyday Life	Text Book	National	Dec.2017	81-87318-86-4	Vrinda Publications. Jalgaon.
2	Prof. Madhukar G. Kasar	Fundamentals of Chemistry	Reference	National	2018	978-935030-41-98	Oxford Book Company Jaypur
3	Dr. Siddharth	Physical Geography	TextBook	National	2017	978-93-85027-69-7	Kumud Publication



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	B.Sonawane						Jalgaon
Year 2018-2019							
1	Dr. JitendraS. Girase	Vankatesh Mandgulkar Mandeshi Mansa (Samiksha)	Tex Book	National	Aug.2018	978-93-88113-20-5	Prashant Publication. Jalgaon MS.
2	Prof. H.M. Shaikh	Comparative Anatomy of Vertebrates	Tex Book	National	Dec.2018	978-93-85664-68-7	Academic Book Publication.
3	Prof. H.M. Shaikh	Animal Diversity-I	Tex Book	National	Aug.2018	978-93-85664-61-8	Academic Book Publication.
4	Dr. Siddharth B.Sonawane	Physical Geography (Atomosphere)	Text Book	National	2018	978-93-87129-90-0	Athrva Publication, Jalgaon.
5	Dr. Siddharth B. Sonawane	Physical Geography(Lithosphere)	TextBook	National	2018	978-93-87129-89-4	Kumud Publication Jalgaon
Year 2019-2020							
1	Prof.Govinda Onkar Choudhari. Dr. MilindS. Jamdhade	Plant Metabolism (Botany P-II:BOT-402)	Tex Book	National	Feb, 2020	978-93-89825-99-2	Nirali Pracation. Pune
2	Prof. Govinda Onkar Choudhari Dr.MilindS. Jamdhade	Plant Embryology (Botany P-I:BOT-401)	Tex Book	National	Feb, 2020	978-93-89825-96-1	Nirali Pracation. Pune
3	Prof. Govinda Onkar Choudhari Dr. Milind S. Jamdhade	Practical Course in Botany (Bot-403)	Tex Book	National	Feb, 2020	978-93-89944-09-9	Nirali Pracation. Pune



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
7	Prof. Madhukar G.Kasar	Basic Analytical chemistry (CH-304)	Tex Book	National	Feb-19	978-93-89406-37-5	Nirali Pracation. Pune
8	Prof. Madhukar G. Kasar	Indutrial chemistry	Tex Book	National	Feb-19	978-93-89406-17-7	Nirali Pracation. Pune
9	Prof. Madhukar G.Kasar	Advanced Analytical chemistry	Tex Book	National	Nov.2019	978-93-89533-81-1	Nirali Pracation. Pune
10	Prof. Madhukar G. Kasar	Indutrial chemistry	Tex Book	National	Jul-05	978-93-88706-85-8	Nirali Pracation. Pune
11	Dr.Siddharth B. Sonawane	Physical Geography of Maharashtra	TextBook	National	2019	978-93-88834-09-4	Kumud Publication Jalgaon
12	Dr.Siddharth B. Sonawane	Regional Planning and Development	TextBook	National	2019	978-93-88834-14-8	Kumud Publication Jalgaon
13	Dr. Siddharth B. Sonawane	Socio-Economic Geography of Maharashtra	TextBook	National	2019	978-93-88834-37-7	Kumud Publication Jalgaon
14	Dr.Siddharth B. Sonawane	Human Geography	TextBook	National	2018	978-93-88834-38-4	Kumud Publication Jalgaon
Year 2020-2021							
01	Prof. Madhukar G. Kasar	Green Chemistry	Tex Book	National	Oct,2020.	978-93-90437-94-8	Nirali Pracation. Pune
02	Prof. Madhukar G. Kasar	Indutrial chemistry (CH-504)	Tex Book	National	Oct,2020.	978-93-90437-24-5	Nirali Pracation. Pune
03	Prof. Madhukar G. Kasar	Chemistry of Industrially Important Products (604)	Tex Book	National	Apr-21	978-93-5451-124-0	Nirali Pracation. Pune
04	Prof. Madhukar G. Kasar	PracticyalChemisty (CH-607,608,609)	Tex Book	National	March .2021	978-93-93-5451-092-2	Nirali Pracation. Pune



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05	Dr. Sunil Ganpat Baviskar	The Wails of Outcasts in the Selected Novels of Toni Morrison	Tex Book	National	2020	978-93-89264-32-6	Visshwabharti Research Center
06	Dr. Siddharth B. Sonawane	ParyatanBhugol	Reference	National	Aug-19	978-93-88544-76-4	Atharva Publication Jalgaon
07	Dr. Siddharth B. Sonawane	General Cartography	Tex Book	National	Jul-19	978-81-939897-9-1	Prashant Publication Jalgaon
08	Dr. Siddharth B. Sonawane	Regional Planning and Development	Tex Book	National	Jul-19	978-93-85664-53-3	Prashant Publication Jalgaon
09	Dr. Siddharth B. Sonawane	Environmental Geography	Tex Book	National	Aug-19	978-93-88834-10-0	Kumud Publication Jalgaon
10	Dr. Siddharth B. Sonawane	SamanyaNakashashastra	Tex Book	National	Jul-19	978-93-88544-73-3	Atharva Publication Jalgaon
11	Dr. Siddharth B. Sonawane	ArthikBhugolshastra	Tex Book	National	Dec-20	978-93-90288-71-7	Atharw publication Jalgaon
12	Dr. Siddharth B. Sonawane	kshetratantraaniprakash awalachiolakh	Tex Book	National	Dec-20	978-93-90288-79-3	Atharw publication Jalgaon
13	Dr. Siddharth B. Sonawane	Aapatijokhimanche Bhugolshastra	Tex Book	National	Dec-20	978-93-90288-72-4	Atharw publication Jalgaon
14	Dr. Siddharth B. Sonawane	Parywaran bhugol shastra	Tex Book	National	Dec-20	978-93-90288-70-0	Atharw publication Jalgaon




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3.3.3 papers published in national/ international conference proceedings per teacher during last five year

Sr. No.	Name of the teacher	Title of the paper	Title of the proceedings of the conference	Name of the conference	National / International	Year of publication	ISBN/ISSN number of the proceeding
Year 2016-2017							
1	Dr. Anil Madhau Chaudhari	Need of Digital Libraries	Biodiversity and enviromental Impact	Biodiversity and enviromental Impact	National	2016	2231-0096
2	Mss. Madakini N. Chaudhari	Study of Dielectric Properties of Dry and Moist Bajara Grains at X-band Microwave Frequency	Biodiversity and enviromental Impact	Biodiversity and enviromental Impact	National	2016	2231-0096
3	Dr. H. M. Shaikh	Effect of coragen (Insecticide) and 2,4-D Ethyl Ester (Herbicide on Digestive Enzymees of earthworm, eudriluseugeniae	Biodiversity and enviromental Impact	Biodiversity and enviromental Impact	National	2016	2231-0096
4	Prof.G.O. Chaudhari, M.S. Jamdhade	Enhnobotanical uses of plants for cuts wounds form forest area of navapurtalukanadurbar district marathwada.	Biodiversity and enviromental Impact	Biodiversity and enviromental Impact	National	2016	2231-0096
5	Dr. Siddharth Bhaskar Sonwane	Spotio- Temporal Analysis of Forest Cover Area in Maharashtra.	Biodiversity and enviromental Impact	Biodiversity and enviromental Impact	National	2016	2231-0096



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6	Dr. Siddharth Bhaskar Sonwane	A Study on Development of tourism in Jalgaon District Maharashtra.	An Overview Recent Trends Of Socio-Economics and Environmental issues in india.	An Overview Recent Trends Of Socio-Economics and Environmental issues in india.	National	2017	978-93-24457-16-4
Year 2017-2018							
1	Dr. Siddharth Bhaskar Sonwane	Imbalance in Sex A Socio-Economic Study of Chopda City	Decelopment of Smart City Impact and Transformation due to Urbanazation	Decelopment of Smart City Impact and Transformation due to Urbanazation	National	2018	2319-9318
2	Prof. Shashikant Pawar	Synthesis Characterization and In Vitro Antidiabetic Studies of Vanadium Complexes form N2O2 donor Ligands		Asian J.ResearchChem 11(1)	National	2018	0974-4169/0974-4150
3	Dr. Shaikh H.M	Studies on Sub Lethal Feeects of Coragen And2,4D Ethyl Ester on Metabolism Earthworm Species EudrillusEugeniae Kinber,1867		Journal os Research and Development	National	2018	2230-9578
4	Dr. Sunil Ganpat Baviskar	Position of Children in Toni Morrison's The Bluest Eye		RESEARCH JOURNEY	National	2018	2348-7143



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
Year 2018-2019

1	Prof. Madhukar Kasar.	Phthalimide Derivatives An Advance Reserch Review		AJANTA , An international Multidisciplinary quaraterly research journal	National	2018	2277-5730
2	Prof.B.B. Gaykawad	Education and Opportunities		RESEARCH JOURNEY	National	2019	2348-7143
3	Prof.B.B. Gaykawad	Sarjanshill Lekhanani Anuwa dit Sahitaya		RESEARCH JOURNEY	National	2019	2348-7143
4	Prof. Shashikant Pawar, Prof. Avinash Gavit, Prof. Madhukar Kasar.	A Study of Important of Biodiversity Conservation		AJANTA , An international Multidisciplinary quaraterly research journal	National	2019	2277-5730
5	Siddharth Bhaskar Sonawane	A Geographical Study of Economic Condition of Schedule Cast (SC) Population in Anjanu River Basin of Erondol Taluka Jalgaon District MS		Shrinkhla Ek Shodhparak Vaicharik Patrika	National	2019	P 2321-290X, E 2349-980X
6	Siddharth Bhaskar Sonawane	A Geographical Analysis Of Tourism in Jalgaon District, MH		Remarking An Analisation	National	2019	P 2394-0344, E 2455-0817
7	Dr. Jitendra Shamshing Girase	Marathitil Gramin Sahitaya Paravah Ek Chintan		RESEARCH JOURNEY	National	2019	2348-7143



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Year 2019-2020							
1	Dr. Jitendra Shamshing Girase	Samkalin Marathi KavitaAniJagতিকারান		ShreevaniAmchi	National	2020	0971-6955
2	Prof G.O.Chaudhari	Diversity of Family Rutacease Form Forest Ara of NavapurTaluka,Nandurbar District,MS.		Jouranal of Resesrch and Development	National	2020	2230-9578
Year 2020-2021							
1	Dr. Sunil Naybrao Bawne	Analysis of Area Special Nature -Human Relationship in Jalna.		JK Pablicaton	National	2020	978-81-946685-8-9
2	Dr .Sunil Ganpat Baviskar	Human and Non Human as Counterparts to One Another in GirishKarnad's Naga Mandala		RESEARCH JOURNEY	National	2020	2348-7143
3	Dr. Sunil Ganpat Baviskar	The Eliment of Intra Caste Prejudice in Slected Dalit Autobiographies		RESEARCH JOURNEY	National	2020	2348-7143
4	Dr. Jitendra Shamshing Girase	StriwadiSahittaya :BadalteAayam		Akshara Multidisciplinary Research Journal	National	2020	2582-5429
5	Prof. B.B. Gaykawad	AnnabhauyancheParvasvar nan		Sanskrti International Multidisciplinary Research Journal.	National	2020	2455-1511


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6	Dr. Jitendra Shamshing Girase	SmajacheSahitayatilPrtibimba		Journal of Research and Development	National	2020	2230-9578
7	Dr. Sunil Ganpat Baviskar	A Psychoanalytical Approach in Tennessee Williams The Glass Menagerie		Journal of Research and Development	National	2020	2230-9578
8	Dr.SunilGanpatBaaviskar	The Agony of Double Outcaste :SharankumarLimbale's The Outcast		Journal of Research and Development	National	2021	2230-9578
9	Dr.Sunil Ganpat Baaviskar	A Study Moral Dilemma In Arthur Miller's All My Sones		Journal of Research and Development	National	2021	2230-9578
10	Dr .Sunil Ganpat Baaviskar	Manifestations of Maternal Archetype in Kishor Kale's Against All Odds		Journal of Research and Development	National	2021	2230-9578
11	Dr. Jitendra Shamshing Girase	Vitthal waghyanchayakavitamadhil krushi veshayakjaniva.		Tifan	National	2021	2231-573X
12	Miss. Mandakini N. Chaudhari	Thin film Deposition Methods: A Critical Review		International Journal For Research in Applied Science @ Engineering Technology	National	2021	2321-9653
13	Dr. Kasar Madhukar	Advance Synthetic Methods For Succinimides		Renewable Research Journal	National	2021	2321-1067



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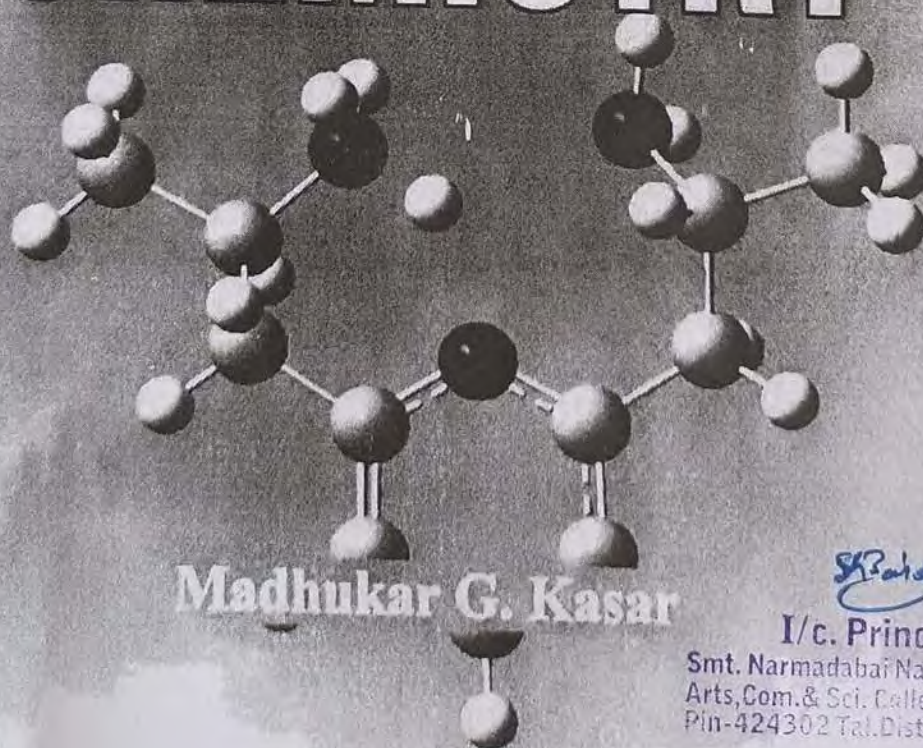
14	Dr. Kasar Madhukar	Advance Heterocyclic Methods of Medicinal Interest		Renewable Research Journal	National	2021	2321-1067
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COMPUTATIONAL ORGANIC CHEMISTRY



S.P. Patil

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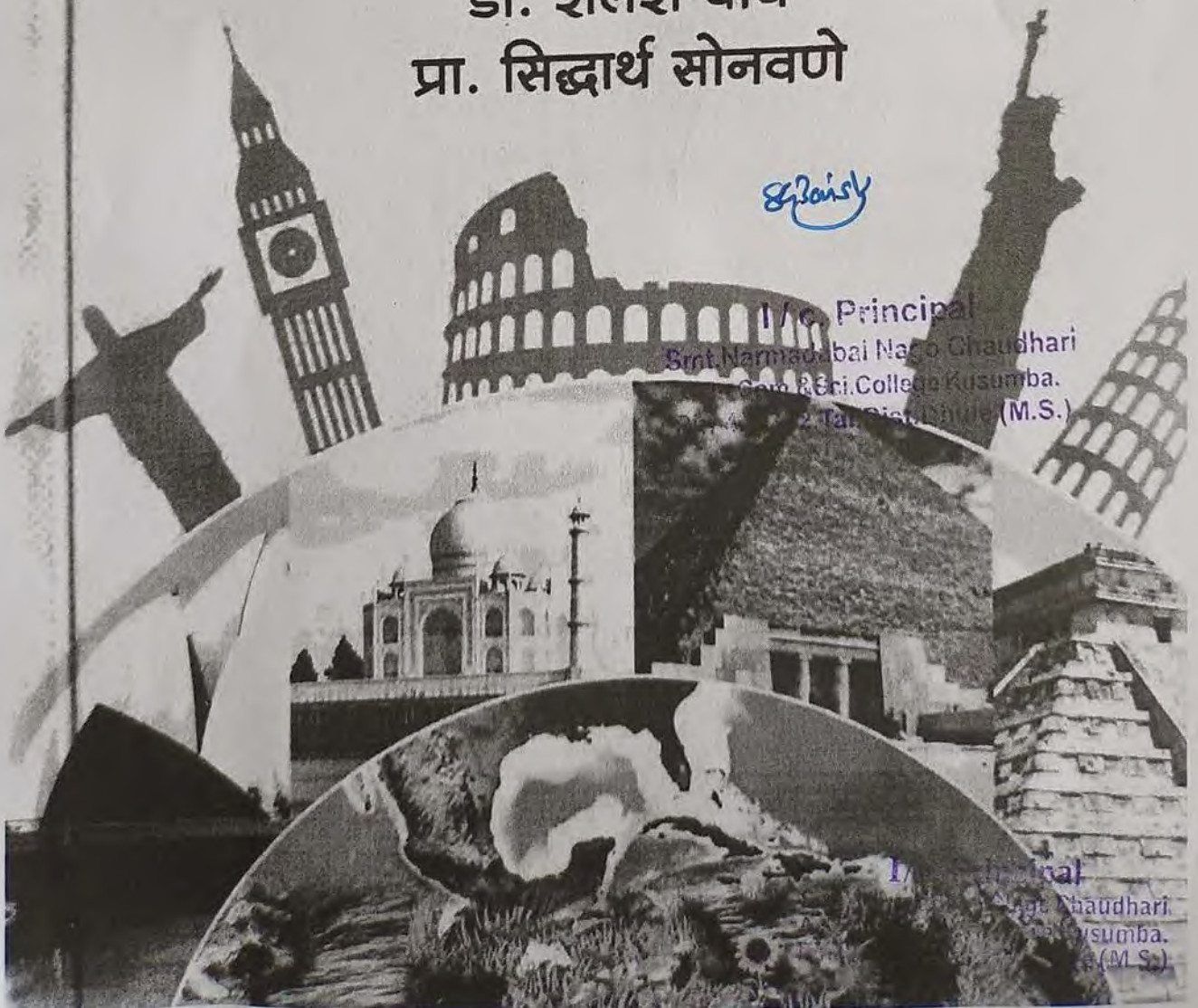


पर्यटन भूगोल

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प्रा. सिद्धार्थ सोनवणे

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- ४.३ पर्यटनाचे पर्यावरणातील अनुकूल परिणाम (Positive Impact of

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अथर्व पब्लिकेशन्स

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प्रकाशन क्रमांक : ५१२

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प्रकाशक

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धुळे - ४२४००१.

संपर्क ९४०५२०६२३०

जळगाव तळमजला, ओम हॉस्पिटल,
अँग्लो उर्दू हायस्कूलजवळ, ढाके कॉलनी,
जळगाव - ४२५००१.

संपर्क ०२५७-२२३९६६६, ९७६४६९४७९७

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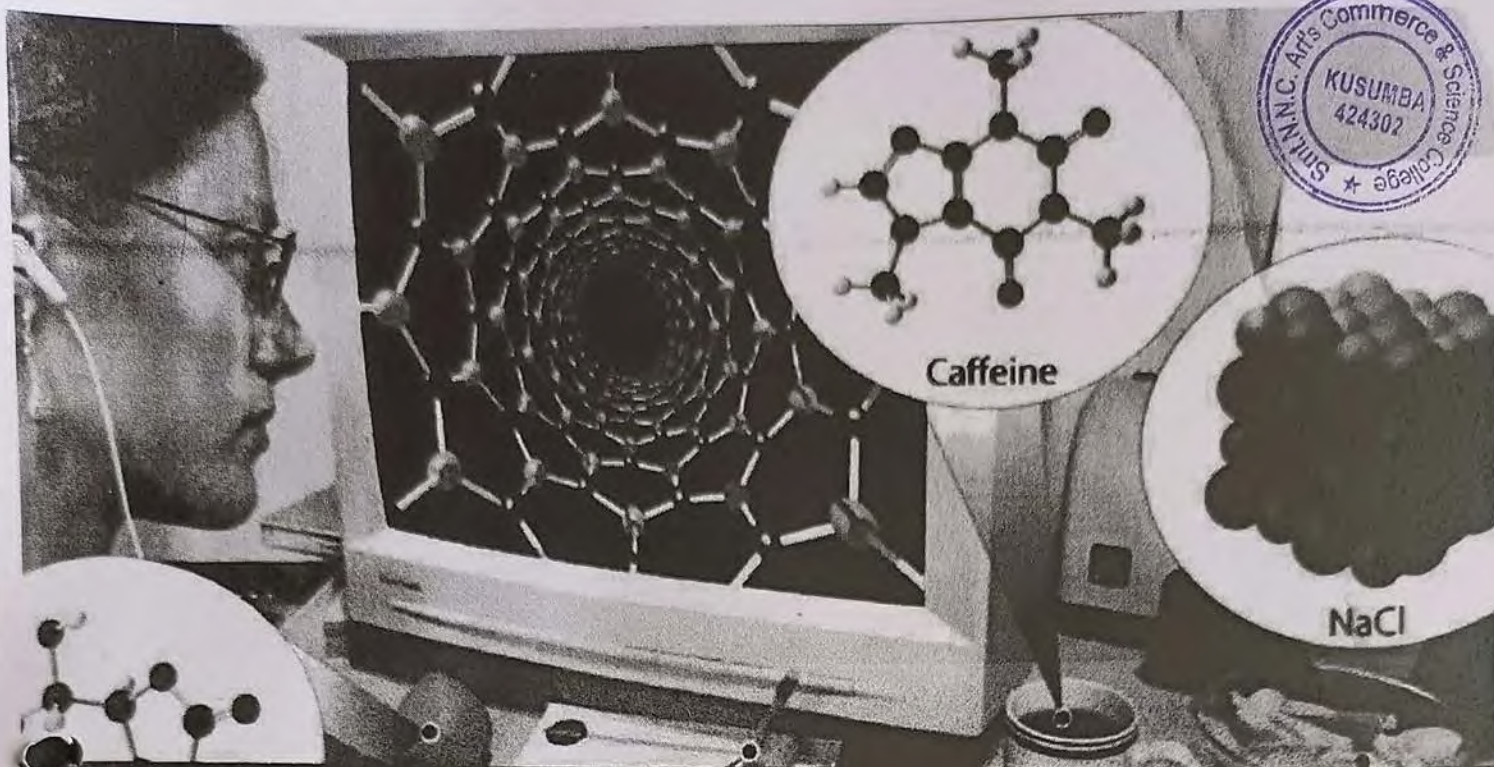
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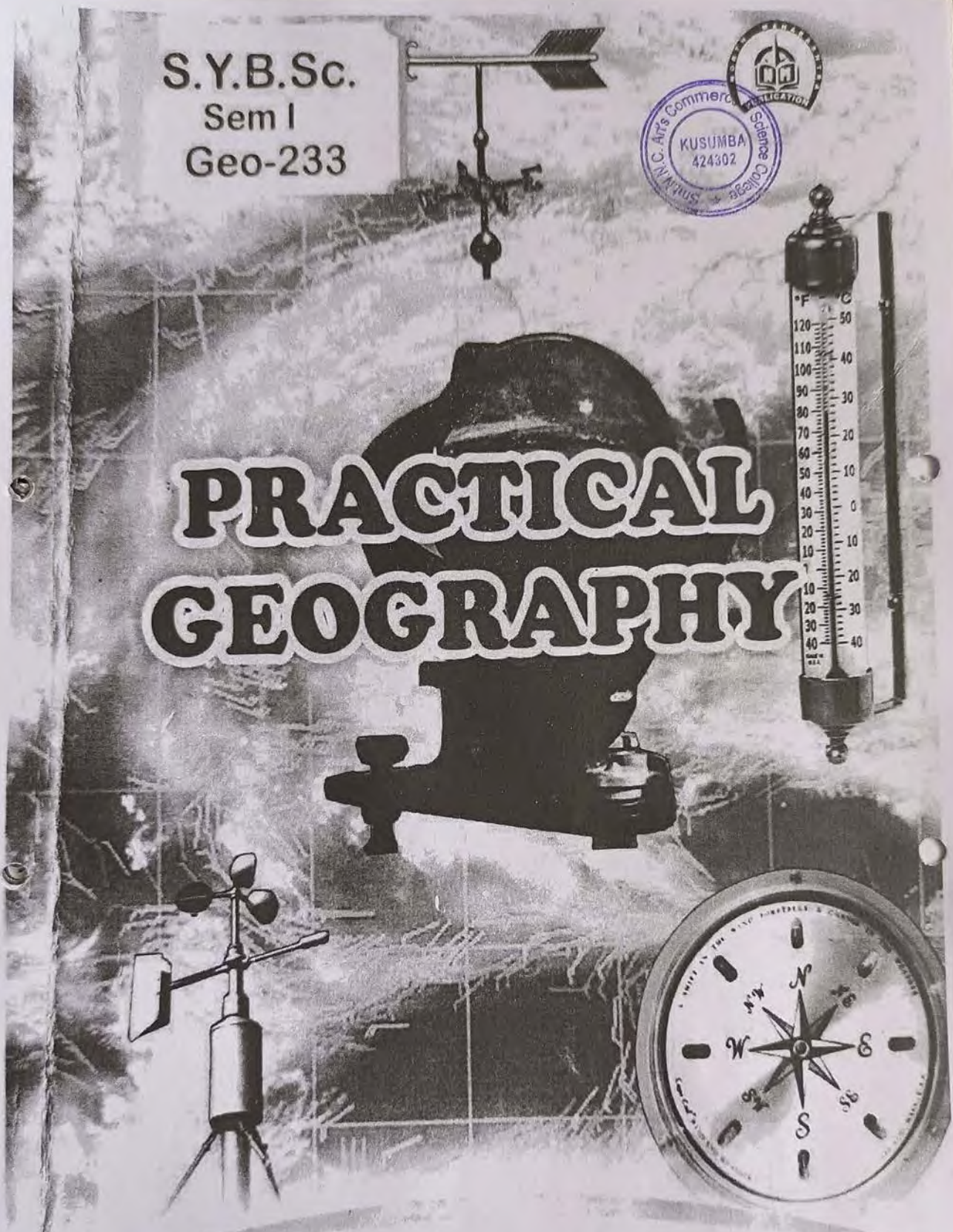
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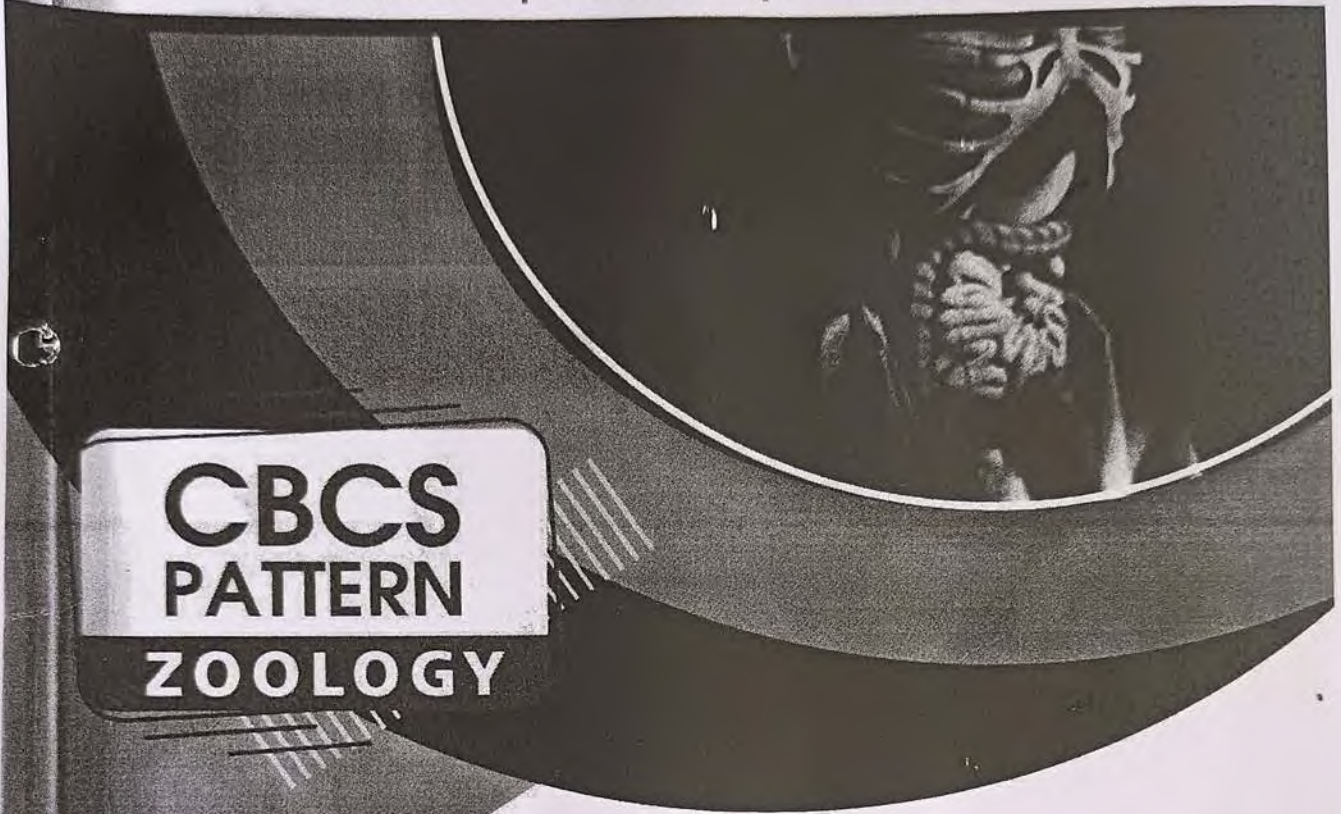
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

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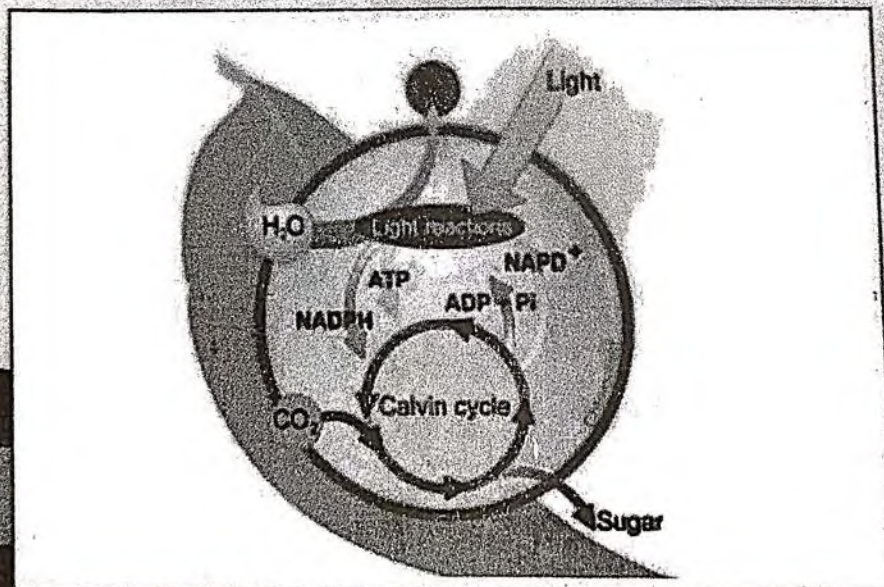
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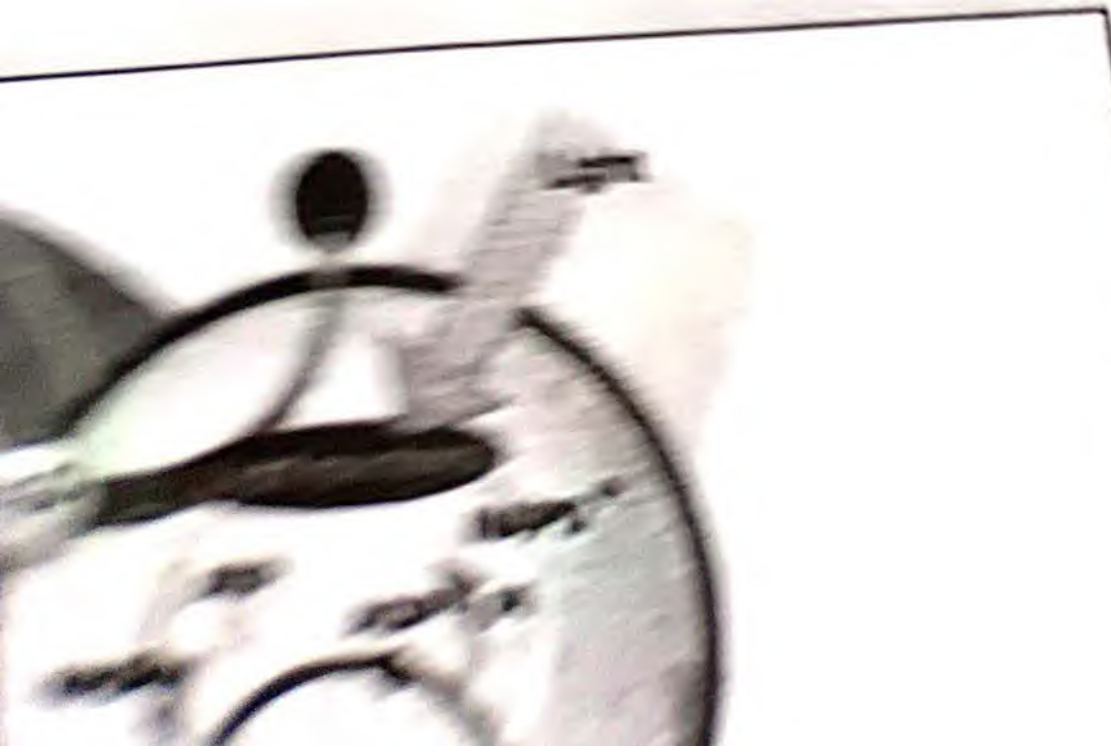
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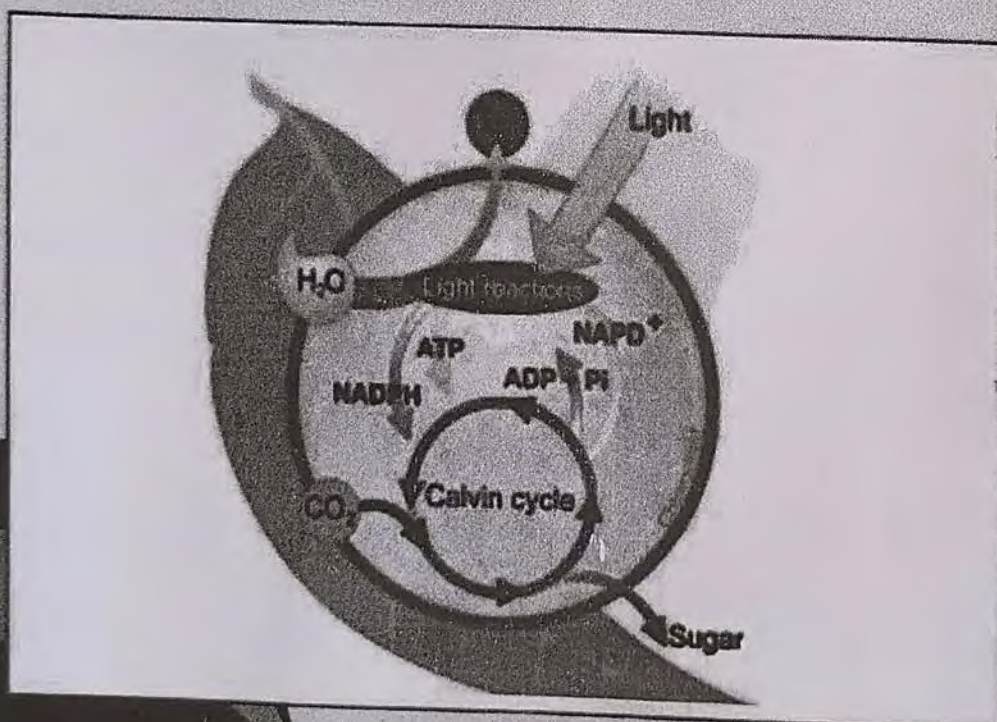
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SYLLABUS

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PLANT EMBRYOLOGY

(BOTANY PAPER-I : BOT-401)



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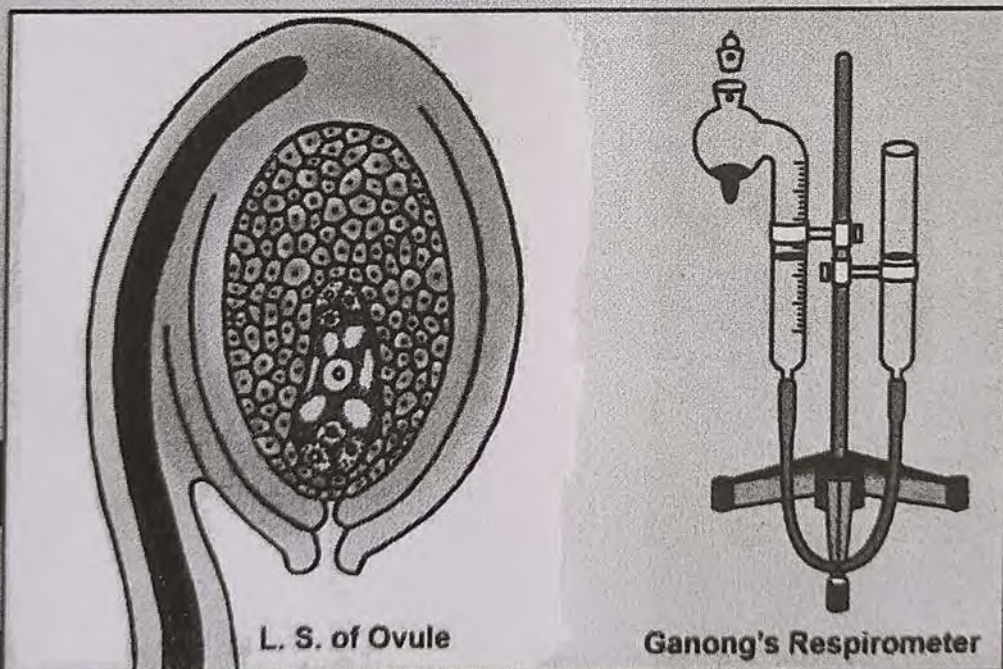
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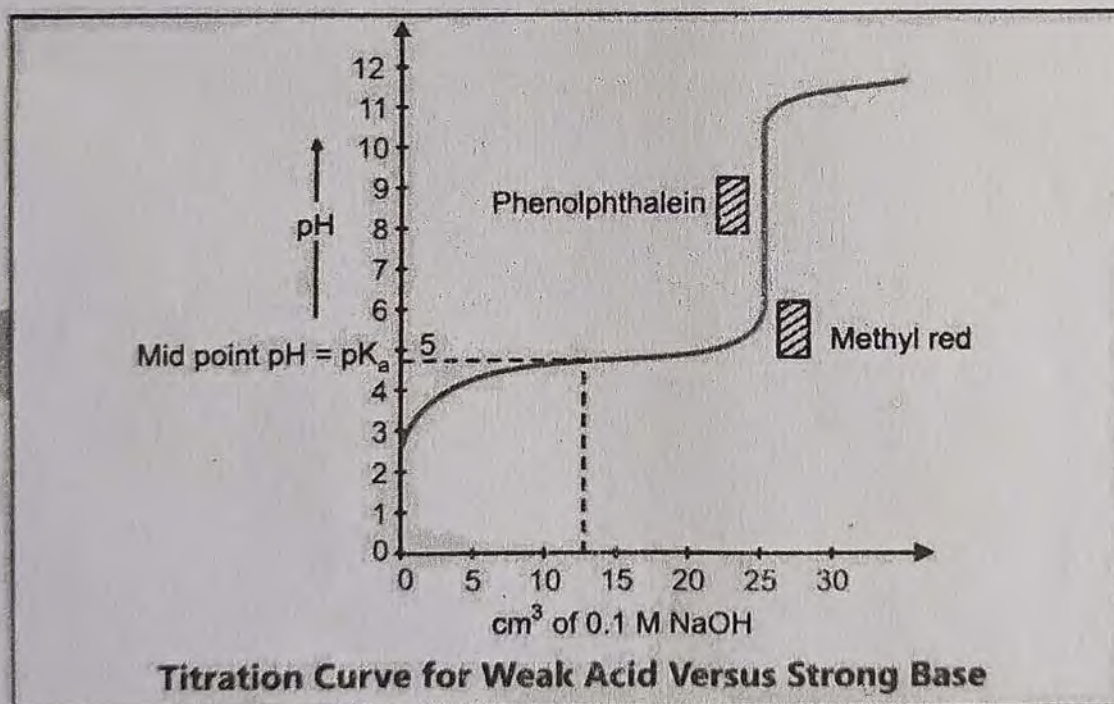
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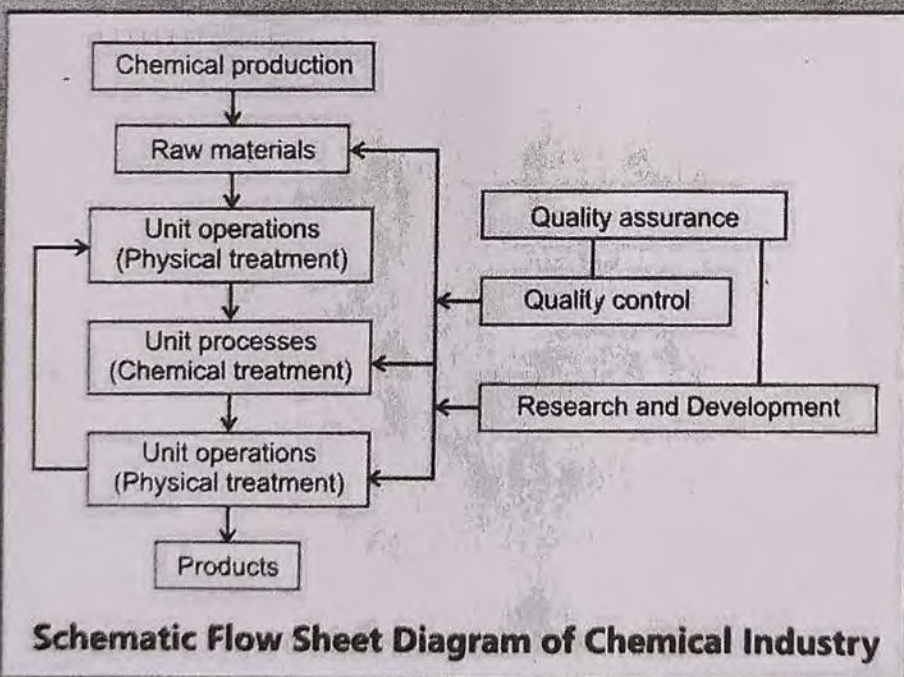
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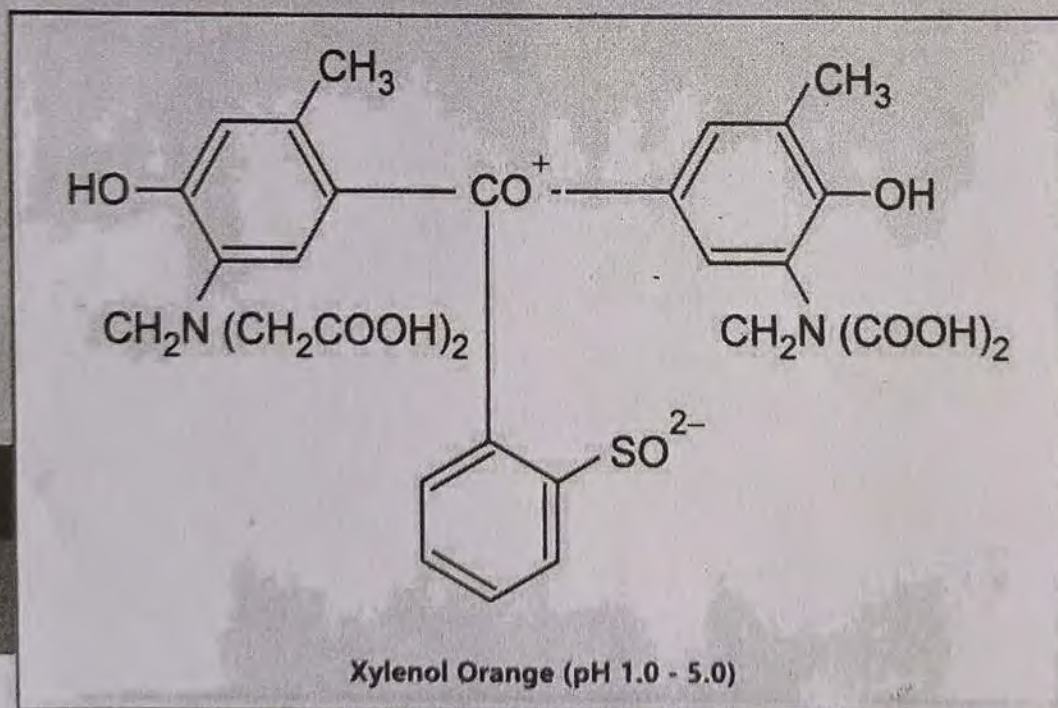
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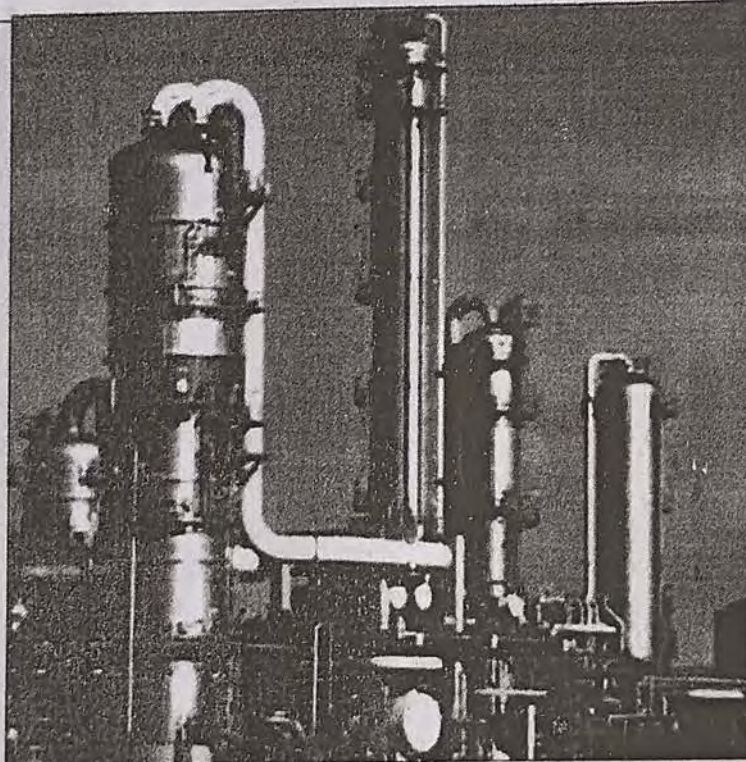
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GREEN CHEMISTRY

(CH-506 [B])

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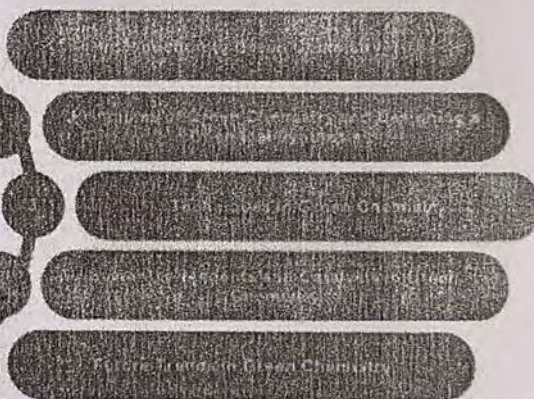
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[GEO - 401 : Human Geography]



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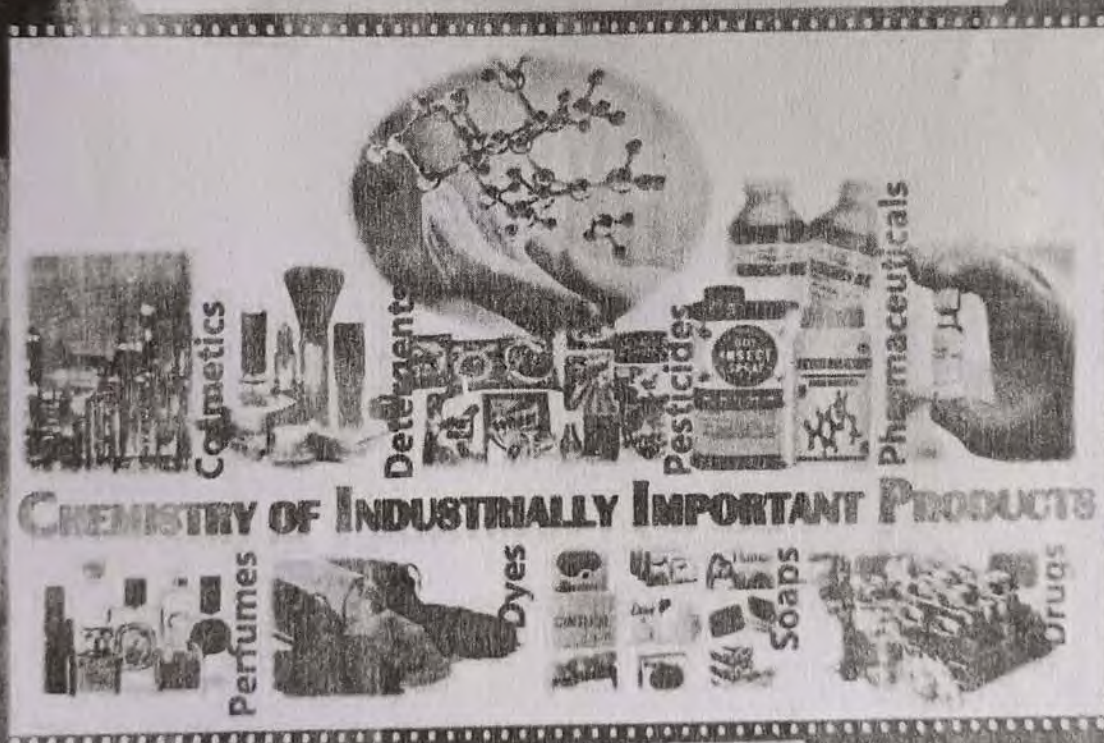
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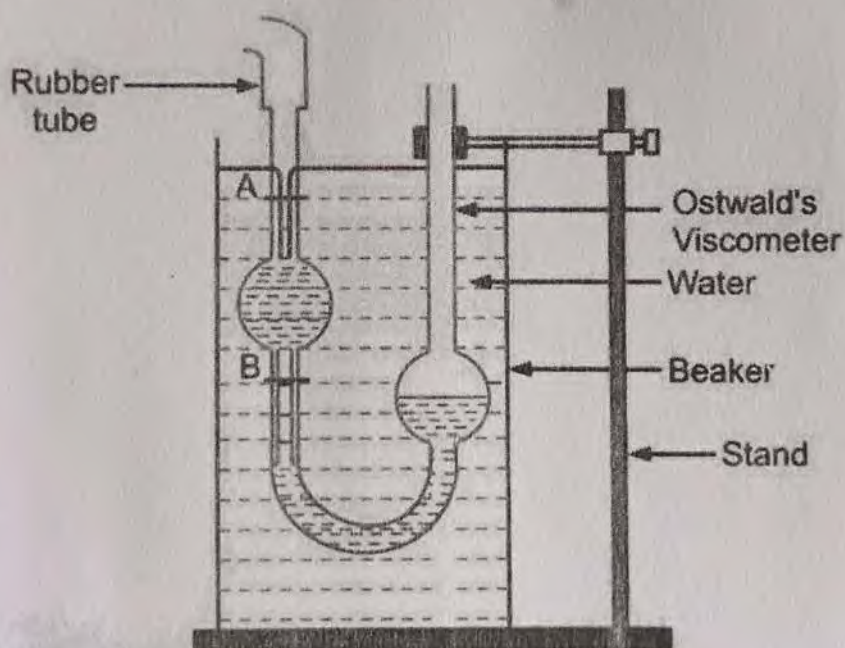
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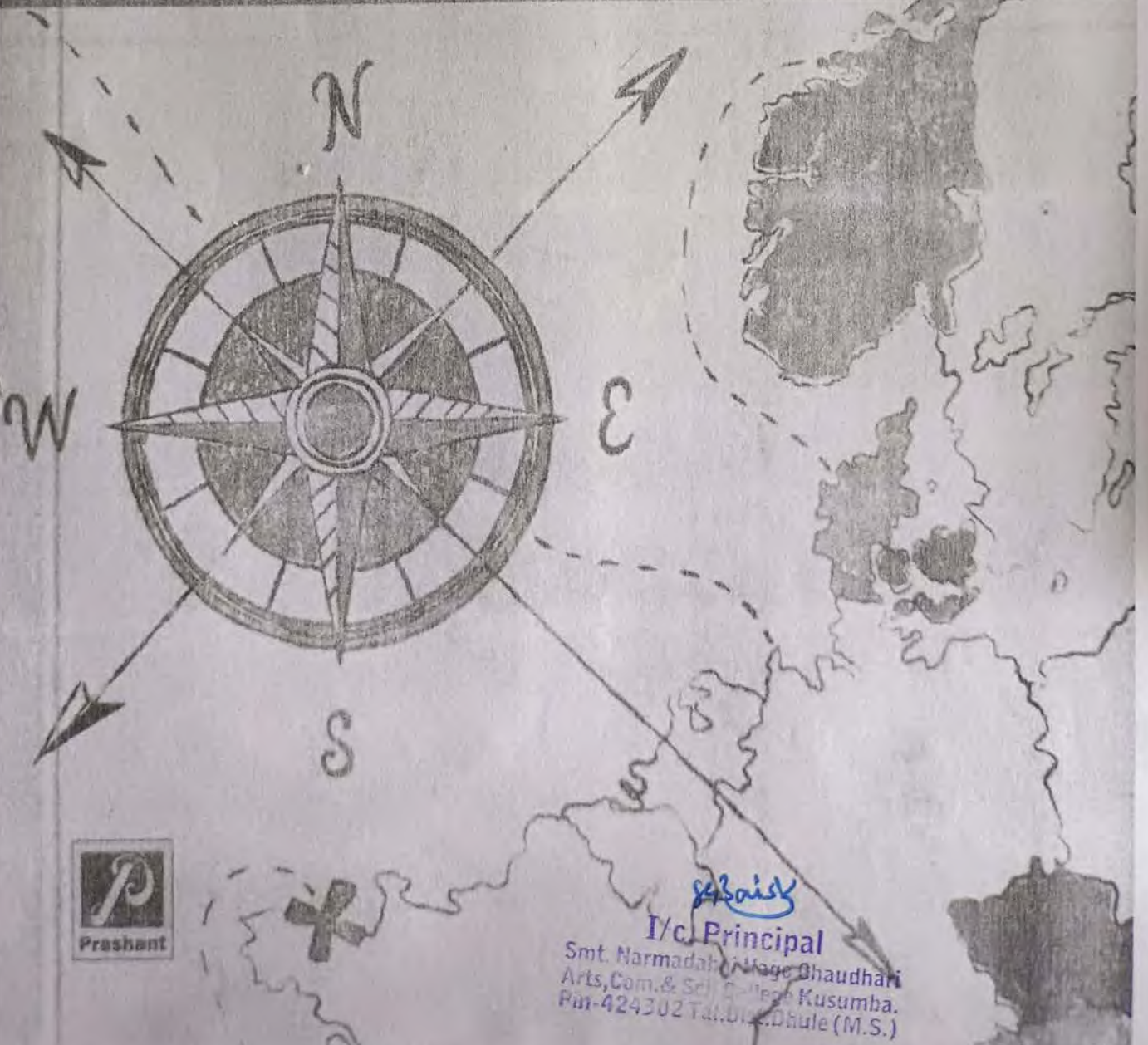


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या पुस्तकातील कोणताही मजकूर, कोणत्याही स्वरूपात वा माध्यमात पुनःप्रकाशित अथवा संग्रहित करण्यासाठी लेखक/प्रकाशक दोघांचीही लेखी पूर्वपरवानगी घेणे बंधनकारक आहे.

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REGIONAL PLANNING AND DEVELOPMENT



प्रादेशिक

नियोजन आणि विकास



Dr. Shilpa

Principals
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प्रकरण १.....७
 प्रात्यक्षिक घटक (Practical Components)

अ) सांख्यिकीचे सादरीकरण ब) प्रात्यक्षिके

प्रकरण २.....१७
 नकाशा आणि नकाशाशास्त्राचा परिचय
 (Introduction to Cartography and Map)

अ) नकाशाशास्त्र ब) आधुनिक भारतातील नकाशाशास्त्राचा विकास/ इतिहास
 क) नकाशाचे प्रकार ड) नकाशाची प्रमुख अंगे/नकाशाचे घटक इ) नकाशांचे महत्त्व व उपयोग.

प्रकरण ३.....२३
 नकाशा प्रमाण (Map Scale)

अ) नकाशा प्रमाण ब) नकाशाचे प्रमाण व्यक्त करण्याच्या पद्धती - १) शब्दप्रमाण किंवा विधानात्मक प्रमाण २) अंक प्रमाण / संख्या प्रमाण / प्रातिनिधीक अपूर्णांक ३) रेषाप्रमाण / आलेख प्रमाण क) प्रमाणाचे रूपांतर - १) शब्द प्रमाणाचे रूपांतर अंक प्रमाणात करणे - मेट्रीक मापन पद्धती : उदाहरणे, ब्रिटीश मापन पद्धतीची उदाहरणे २) अंक प्रमाणाचे रूपांतर शब्द प्रमाणात करा, ब्रिटीश मापन पद्धतीत अंक प्रमाणाचे रूपांतर शब्द प्रमाणात करा. ड) नाविक मैल अंतराचे फूट व मीटरमध्ये रूपांतर करणे

प्रकरण ४.....३३
 नकाशा प्रक्षेपण (Map Projection)

अ) नकाशा : अर्थ व व्याख्या, पृथ्वीगोल : अर्थ व व्याख्या ब) नकाशा प्रक्षेपणाचे प्रक्षेपण विकासावर (निर्मिती) आधारित वर्गीकरण क) नकाशा प्रक्षेपणांची निवड, घटकांमध्ये प्रक्षेपण निवड, ड) विविध प्रक्षेपणांची रचना, गुणधर्म व उपयोग - १) खमध्य ध्रुवीय गोमुखी किंवा केंद्रीय प्रक्षेपण, २) खमध्य ध्रुवीय व्यासांतर प्रक्षेपण, ३) दंडगोल समक्षेत्र प्रक्षेपण, ४) एक प्रमाण अक्षवृत्त शंकू प्रक्षेपण, ५) बॉनचे प्रक्षेपण किंवा समक्षेत्र शंकू प्रक्षेपण.

४३३३३३

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प्रकरण १..... ९

प्रादेशिक नियोजन

(Regional Planning)

- अ) प्रस्तावना -प्रादेशिक नियोजनाची संकल्पना, प्रादेशिक नियोजनाचे महत्त्व
- ब) प्रादेशिक नियोजनाची वैशिष्ट्ये.
- क) प्रादेशिक नियोजनाचे प्रकार-अल्पकालीन नियोजन, दीर्घकालीन नियोजन, भौतिक नियोजन/वस्तुनिष्ठ नियोजन, आर्थिक नियोजन, अत्यावश्यक विकास, प्रादेशिक, राष्ट्रीय आणि आंतरराष्ट्रीय नियोजन.
- ड) प्रादेशिक नियोजनाचे दृष्टिकोन-आदान-प्रदान दृष्टिकोन, वृद्धीचे निर्देशक, निर्यात.

प्रकरण २..... ३०

प्रादेशिक विकास

(Regional Development)

- अ) विकास व वाढीच्या संकल्पना
- ब) प्रादेशिक विकासाचे परीमाणे/निर्देशके-सूचक-आर्थिक, सामाजिक पर्यावरण.

प्रकरण ३..... ३६

प्रादेशिक नियोजन व विकासाचे प्रतिमान

(Models of Regional Planning and Development)

- अ) प्रादेशिक विकासाचे प्रतिमान - रोस्टोचा आर्थिक विकासाचे प्रतिमान, रोस्टोच्या सिद्धांतातील अवस्था, रोस्टोच्या विवेचनातील प्रतिमानाचे मूल्यमापन.
- ब) प्रादेशिक नियोजनाचे प्रतिमान - ध्रुवीय सिद्धांत.

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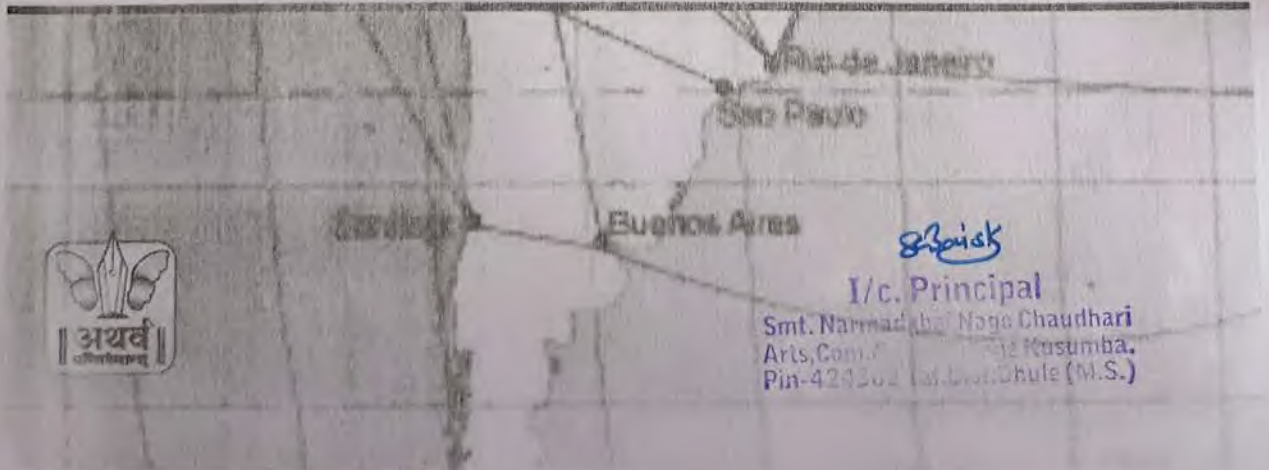
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I N D E X

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Introduction to Environmental Geography	
<i>I) Introduction to Environment</i> - Meaning, Concept - a) Types of Environment : i) Natural (Physical) ii) Biotic <i>II) Environmental approaches</i> - a) Deterministic b) Possibilistic c) Ecological <i>III) Ecosystem</i> - a) Meaning and Concept b) Structure - Components i) Abiotic ii) Biotic c) Function i) Nutrient Cycling a) Carbon Cycle b) Nitrogen Cycle ii) Energy Flow a) Food Chain b) Food Web	
UNIT - 2	16
Man and Environmental Relationship	
<i>A) Major environmental Dilemmas</i> - i) EL-NINO Imbalance ii) pollution concept <i>B) Human environment relationship</i> - i) Human life in- Equatorial region; Mountainous Region, Desert Region, Coastal Region	
UNIT - 3	29
Environmental Problems and Management	
<i>A) Pollutants and pollution</i> - i) Air pollution- causes, effect and control ii) water pollution- cause effect and control <i>B) Biodiversity- Definition and Type</i> - I) Types of Biodiversity a) Genetic Diversity b) Species Diversity c) Ecosystem Diversity <i>C) Threats To Biodiversity</i> - I) Pouching Of Wildlife II) Man-Wildlife Conflicts D) Environmental Management - A) Priority Sectors i) Pollution control ii) Power and mineral resources iii) Environmental education	
UNIT - 4	47
National Environmental Policy & Movement	
<i>A) National Environmental Policy (NEP)</i> - Introduction, Objective, And Principal <i>B) Initiatives or actions regarding</i> - i) Land Degradation ii) Forest And Wildlife Conservation iii) Fresh Water iv) Climate Change. <i>C) Major environmental movements</i> - i) The Chipko Andolan ii) Tehri-High Dam Project iii) Sardar Sarover Project	

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- अनुक्रमणिका -



प्रकरण १ ७

प्रात्यक्षिक घटक (Practical Components)

अ) सांख्यिकीचे सादरीकरण (Representation of Data) ब) प्रात्यक्षिके (Practicals) - १) नकाशा प्रमाणाचे वाचन (Reading of Map Scale) २) नकाशातील जमिनीचे नकाशा प्रमाणावरून मापन (Actual Measurements of Land as per Scale) ३) साधी प्रमाण रेषा/आलेख प्रमाण काढा (Draw a Simple Graphical Scale) ४) नकाशा सूची (Map Labeling) ५) जगाच्या नकाशात प्रमुख अक्षवृत्ते दाखवा. (Draw the Major Parallels of Latitudes on the world map) ६) जगाच्या नकाशात प्रमुख रेखावृत्ते काढा. (Draw the Major Meridians of Latitudes on the world map) ७) जगाच्या नकाशावर बृहदवृत्त काढा. (Draw the great circle on the map) ८) जगाच्या नकाशावर प्रमुख हवाईमार्ग काढा. (Prepare a one air route on a world map) ९) जगाच्या नकाशात महत्त्वाची शहरे/राजधान्या/कालवे दाखवा. (Filling the major cities/canal/capital on the world map) १०) हवेचे स्थितीदर्शक सांकेतिक चिन्हे व खुणा काढा (Draw the weather symbols) ११) शंकू प्रक्षेपण काढा (Construct the Conical Projection)

प्रकरण २ २०

नकाशा आणि नकाशाशास्त्राचा परिचय

(Introduction to Cartography & Map)

अ) नकाशाशास्त्र (Cartography) - नकाशाशास्त्राची व्याख्या, आधुनिक भारतातील नकाशाशास्त्राचा विकास/इतिहास (History of Cartography in Modern India); नकाशाचे प्रकार (Types of Maps) - १) विषय वस्तू/विषय बद्ध नकाशा (Thematic Maps) २) स्थानिक नकाशा (Topological Maps); नकाशाची प्रमुख अंगे/घटक (Elements of Map), नकाशांचे महत्त्व व उपयोग (Importance & Use of Maps)

प्रकरण ३ २८

नकाशा प्रमाण (Scale of Map)

नकाशा प्रमाण (Scale of Map) - नकाशाचे प्रमाण व्यक्त करण्याच्या पध्दती (Methods of Scale Presentation or Expressing A Scale)

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अनुक्रमणिका

१. आर्थिक भूगोलाची ओळख ११

(Introduction to Economic Geography)

१.१ आर्थिक भूगोल : व्याख्या, स्वरूप, व्याप्ती

(Economic Geography : Definitions, Nature, Scope)

१.१.१ आर्थिक भूगोलाच्या व्याख्या

(Definitions of Economic Geography)

१.१.२ आर्थिक भूगोलाचे स्वरूप

(Nature of Economic Geography)

१.१.३ आर्थिक भूगोलाची व्याप्ती

(Scope of Economic Geography)

१.२ आर्थिक भूगोलाच्या अभ्यासपद्धती (दृष्टिकोन)

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(Commodity Approach)

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(Regional Approach)

१.२.३ तात्त्विक पद्धती

(Principle Approach)

१.२.४ क्रिया-प्रक्रिया पद्धती

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१.३ आर्थिक भूगोलाची संकल्पना

(Concept of Economic Geography)

२. आर्थिक क्रिया आणि शेतीचे प्रकार २५

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२.१ आर्थिक क्रिया

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(Types or Classifications of Economic Activities)

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आर्थिक भूगोल । ७



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२। अथर्व पब्लिकेशन्स

अनुक्रमणिका



१. क्षेत्राभ्यासाचा परिचय..... ११
(Introduction to Field Work)
- १.१ क्षेत्र म्हणजे काय? (What is Field?)
- १.२ क्षेत्रकार्यातील साहित्य मुद्याच्यावर नितीमूल्य
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- १.३ क्षेत्र अभ्यासाची भौगोलिक संशोधनातील भूमिका
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- १.४ क्षेत्र अभ्यासाचे महत्त्व
(Importants of Field Work)
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(Preparation of Field Work)
- १.५.१ क्षेत्र अभ्यासासाठी लागणारे साहित्य
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- २.२ संशोधन प्रश्नांचे प्रकार
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- २.२.१ बहुपर्यायी संशोधन प्रश्न
(Multiple Choice Research Questions)
- २.२.२ श्रेणीबद्ध क्रमवार मांडणी संशोधन प्रश्न
(Rank Order Scaling Research Questions)
- २.२.३ लोकसंख्या संशोधन प्रश्न
(Demographic Research Questions)
- २.३ क्षेत्राभ्यासाचे फायदे आणि तोटे
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अनुक्रमणिका



१. आपत्ती जोखीमची ओळख ११

(Introduction to Disaster Risk)

- १.१ आपत्तीच्या व्याख्या
(Definitions of Disaster)
- १.२ आपत्ती जोखीम : व्याख्या व संकल्पना
(Definition and Concept of Disaster Risk)
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- १.४ असुरक्षा
(Vulnerability)
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(Assessment of Disaster Risk)
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(Disaster Risk Assessment)
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(Steps in Disaster Risk Assessment)
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(The Importance of Disaster Risk Assessment)

२. भारतातील आपत्ती ३९

(Disasters in India)

- २.१ नैसर्गिक आपत्ती
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(Flood)
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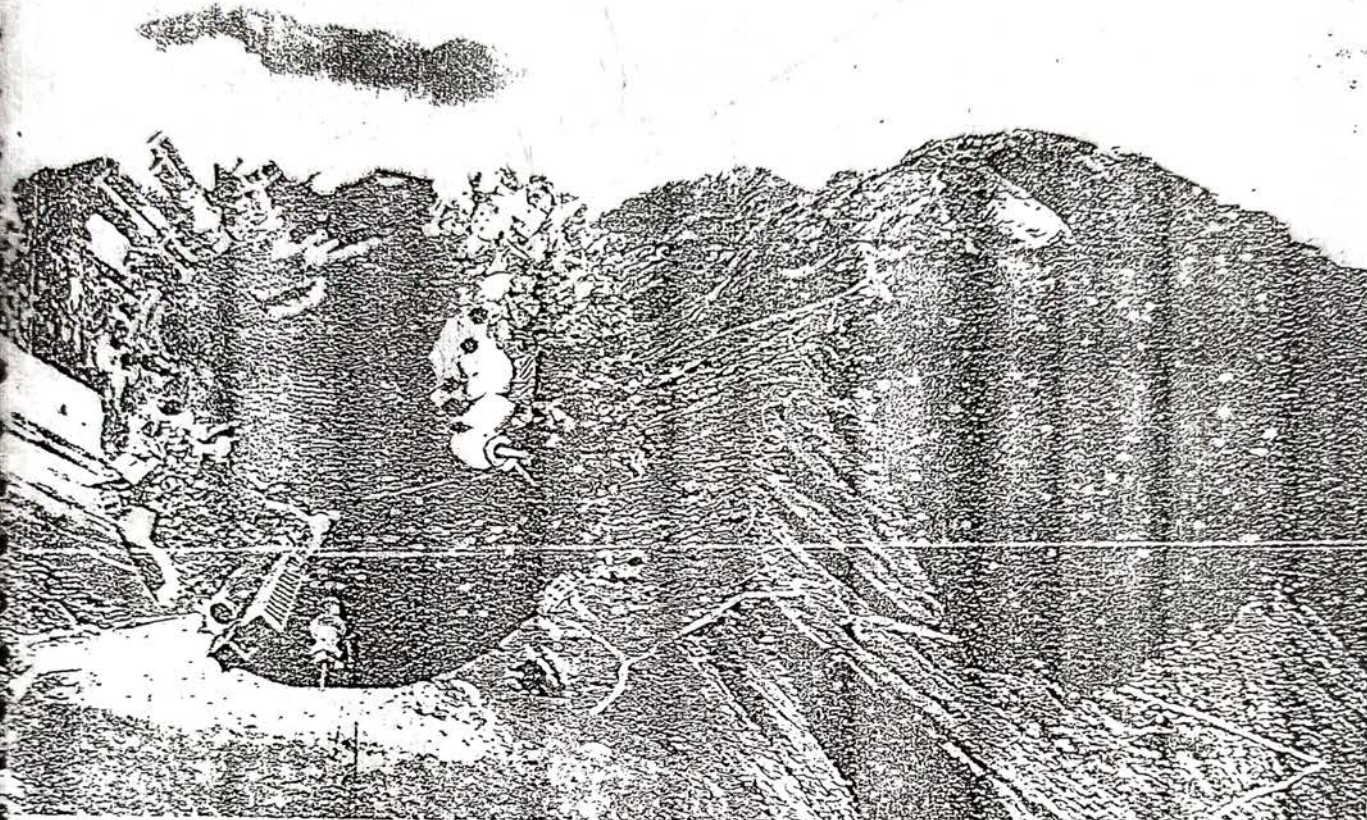
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Atharva Publications • 6

Need of Digital Libraries



- Dr. Anil Madhau Chauduri

Librarian Smt. N.N. Chaudhari Arts, Comm, Science College Kusumba Tal. Dist. Dhule.

Abstract :

The worlds of both communication and the production of information are changing at a very fast pace, and the convergence of these had huge impact on libraries. This impact is seen in the form of the digital library, the electronic library, the virtual library, the hybrid library, etc. In all these libraries are well known. However due to some constraints these kind of libraries are not emerging particularly in the developing countries. With the significant drop in the cost of hardware we hope that digital libraries will turn into reality in the coming future in these nations too and thus providing the facility of round the clock availability of information.

Introduction :

In the recent past, the information technology revolution has changed the face of many institutions. The influence of IT is seen even in the developing world which witnessed a rapid growth in mobile telephony, internet e mail, fax etc. In 1938 H.G. Wells dreamed of a world encyclopaedia in which all human knowledge would be available everywhere. In 1945 Vannover Bush had a vision of a scholar consulting any book by trapping its code on a keyboard. Today we can have this facility. This article mainly focuses on benefits of digital libraries. Its purpose is also to cover the need of having digital libraries and the technologies involved in building the digital libraries.

Digital Libraries :

Terms such as electronic library, virtual library, the hybrid library, the library without walls are often used synonymously. Different people have defined digital library is: a managed collection of information, with associated services, where the information is stored in digital formats and accessible over a network.

For the Digital Library Federation in the USA :

Digital libraries are organizations that provide the resources, including the specialized staff to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities.

Borgman opines that the term digital library has various meanings. However, for her, these cluster around two themes:

From a research perspective, digital libraries are content collected and organized on behalf of user communities. From a library practice perspective, digital libraries are institutions or organization that provide information services in digital forms.

In nutshell and more comprehensive words we can say that in digital library, the information arrives as needed at the users screen like the every attendant waiter filling your water glass before you know it is empty.

Why Digital Libraries :

There are number of reasons for building up digital libraries, such as information explosion, dwindling budgets of the library, space problem, high information demand, available technologies, etc. As know, today despite of having well stocked libraries and well equipped resource centers, users demand for information is never met. In 1990 Alvin Toffler estimated in his book "Powershift" that in one year the United States runs out 1.3 trillion documents. By now the number of documents may have risen to four trillion. According to another estimate, there are around 50,000 periodicals only related to Science and Technology. This state of information explosion requires larger funds for acquisition budgets. On the contrary, even in rich countries funds available for library and information services are limited. For example, UK universities typically spend 53-58% of their funds on staff costs. The pattern of expenses is not very much different in the USA, where libraries are spending only around one-third of the total budget on acquisition of materials.

Development In Technology:

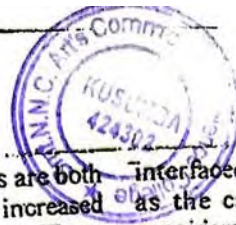
Until recently not many people were happy to read from a computer screen. Quality of display was one of the factors behind it. Recent advances in the field of Information Technology have improved not only the quality of computer display but also the font displayed on them. Beside, a variety of software are now available which are capable of manipulating and rendering information. Personal computers are getting cheaper and cheaper not only in the developed countries, but are also available at an affordable cost in the developing countries. With the availability of computers, capable of computing at a very high speed and having large disc storage space, it is feasible to digitize and store information in the form of high quality graphics colour images, voice signals and video clips at a low cost.

Digitization Hardware:

In the early years of computing, computers were so expensive that it was difficult to purchase by libraries. Today, computers are cheap and middle-sized libraries in India are having computers. Apart from this, in the past, lack of hardware and absence of proper technology was also a hindrance in creating a digital library. In the present time, however, we have many hardware equipments available for digitization process. Some of these are mentioned below:

Flatbed Scanner :

Till today, the flatbed scanner is probably the most common piece of equipment available having compatibility with any personal computer. The scanner has a glass plate onto which the source document is laid face-down. The charged coupled device (CCD), which allows to convert analog to digital, moves beneath the surface of glass and records the



collected light as an array of pixels. Flatbed scanners are both quick and economical to use. In the past their speed is increased and only single pass is required under the document. These flatbed scanners are often bundled with their own scanning software and sometime with Optical Character Recognition (OCR) software. The cost of these flatbed scanners have come down dramatically and now available at the rate as low as five thousand rupees. However, the main disadvantage of the flatbed is that it relies on contact scanning, and is thus unsuitable for rare or fragile material. It also requires the document to be placed flat on the glass, so any curvature of the source material will distort the image.

Sheet feeders :

Sheet feeders are very useful in case a library is having loose leaf documents for processing. The benefit of this type of scanner is its remarkable speed and one can leave it humming through the documents unattended. However, one can not load more than 100 pages into the feeder at one time. One more demerit of the sheet feeder is that it is unable to deal with fragile or brittle items. Furthermore, these are not suitable for oversized documents, though various models of these scanner are available in the market.

Drum Scanners :

These are called as drum-scanner because the source document is actually attached to a glass drum. Though these scanners offer the highest resolutions but rarely found outside a dedicated scanning agency because of their high cost.

Several other kind of scanners are also available such as Slide scanners and Microfilm scanners. Some of these, as mentioned above, are extremely cheap. Quality of scanning is normally in resolution, measured in dots per inch. For the textual material 300 dpi is a minimum quality for scanning and 600 dpi is considered a good-quality resolution.

Digital Camera:

The digital camera is particularly useful in case of fragile or brittle items as these item cannot bear the pressure of flatbed scanners. Many vendors have launched their products in the market over the past few years, for example, Kodak, DC215, Kontron Progress 3012, Minolta etc. Some of these are in use in libraries in India and overseas. For instance, the central library of University of Hyderabad (UOH) is using a model of Minolta for digitization project of these and dissertations. Large projects, such as those running at the National Library of Scotland, the Amamagnean Institute in Iclenad, British library, etc also uses high level cameras which are capable of giving an effective resolutions. However, there are some inherent problems with the digital camera in general. For example, the scan time can be quite long meaning thereby lighting conditions have to be maintained through a potentially damaging producer particularly when using warm lighting on documents. Also they are cumbersome pieces of equipments, which most of the time require some form of stand or cradle. Furthermore, these are not effective in the digitization of books that could not be opened beyond 45 degrees because of delicate binding.

Digitization Software:

Software for digital imaging covers three main area.

- capturing the image
- processing the image
- delivering the image

Initially, we will need a piece of software having

interfaced with the peripheral device used for scanning such as the camera or scanner. Important point to take into consideration when choosing the capturing software is the type of output file formats. This can be extremely significant particularly when it comes to create master images. TIEF (Tagged Image File Format) is perhaps the most important images format available at the movement. It is widely used as the cross-platform and archiving format in most digitization projects, particularly as it allows for high quality images to be saved without any loss in the original capture. Moreover, it is not tied to any particular scanner or display. Conversion from TIFF to other formats is relatively straight forward. Furthermore, images in TIFF are the best suited for universal accessibility and high resolution archival storage. However, the software should also be capable to produce JPEG (Joint Photographic Experts Group) derivatives for display on the world wide web. The JPEG and the GIF (Graphical Interchanges Format) are the most popular image filed delivered via the web and are ideally suited for displaying in all browser. Many digitization projects create JPEG or GIF filed format from their TIEF masters for subsequent delivery via the web. This is what known as processing the image and making it suitable for the end-purpose.

Once the actual conversion process over, the most important issue is the eventual delivery of the digital collection. In this step primary emphasis should be given on what does the user want to see? The catalogues should be searchable and browsable. Facility for simple and complex searches should be made available. Navigation aids should be both intuitive and apparent, and consistency maintained throughout. Additionally, there should be online help. On the one hand, the interface should be aesthetically pleasing while on the other hand it should be open to accommodate the latest development in technology.

Benefits :

Benefits of computer power today computers are available which can computer very high speed and also have large disc storage space. Computer power made feasible to digitize and store information in the form of high quality graphics colour images voice signals and video clips at a low cost. Internet a world wide network of thousands of networks interconnecting million of computers, located world wide, has become a most important channel for intercommunication, information exchange and information dissemination. World wide web (Web) technology based on Hyper Text Markup Language (HTML) and emergence of advanced web browsers have provided vast amount of multi media information stored on millions of web servers all over the world. Undoubtedly, paper documents are convenient to read out but hunting for information is not an easy task. Many people have already developed a feeling that computer system are better than manual methods for finding information. It is more true particularly for reference purposes that involves repeated leaps from one source of information to another.

As a facilitator for Information Sharing The most quoted and easily defended advantage offered by digitization is that it can increase access to particular resources. For digitization, usually rare or unique items are selected which has a limited public access. For example a visitor simple can not walk into the manuscript section of Maulana Azad Library, AMU, Aligarh to see any item her or she wishes. However, if those



ized manuscripts get digitized, these can be made accessible millions of users across the handling of original manuscripts which are sometime very fragile. Further, this starts a process of democratization as digitized collection will also be available to people from any background. Furthermore in case of manuscripts or any background Furthermore, in case of manuscripts or any item it is possible to copy from the original without any degradation. Precisely, all types of studies supports a point increase access to the collection when it is digitized. The focus Group, attached to the Library and information Commission which met in October 1997 to discuss at selection criteria for digitization also reached to the conclusion that:

- Improving access was the main priority for digitization
- the main criterion for selecting a resource was its uniqueness.

References :

- 1) Arms, William Y. digital libraries. London MIT Press, 2000.
- 2) Borgman, C.L. From Gutenberg to the global information infrastructure: access to information in the networked world. London MIT press, 2000.
- 3) Darnley, James and Feather, John. The Wired World: an introduction to the theory and practice of the information society. London : Library Association, 2001.
- 4) Greenstein, D. Digital Library federation draft strategy and business plan. Digital library federation, available at www.dglib.org/about/strategic,
- 5) Kaura, H.K. "development of Network for digital information sharing". Proceedings of the conference on recent advances in information technology, October 28-29, 1999, Kalpakkam
- 6) Lesk Michael. Practical Digital Libraries : Books, Bytes and Bucks, San Francisco: Morgan Kaufman, 1997.
- 7) Rait, David ed. Libraries for the new millennium: implication for managers, London : Library association 1997.
- 8) Stern David ed. Digital Libraries: Philosophies, Technical Design Considerations, and example scenario, New York: Hawort Press, 1999.

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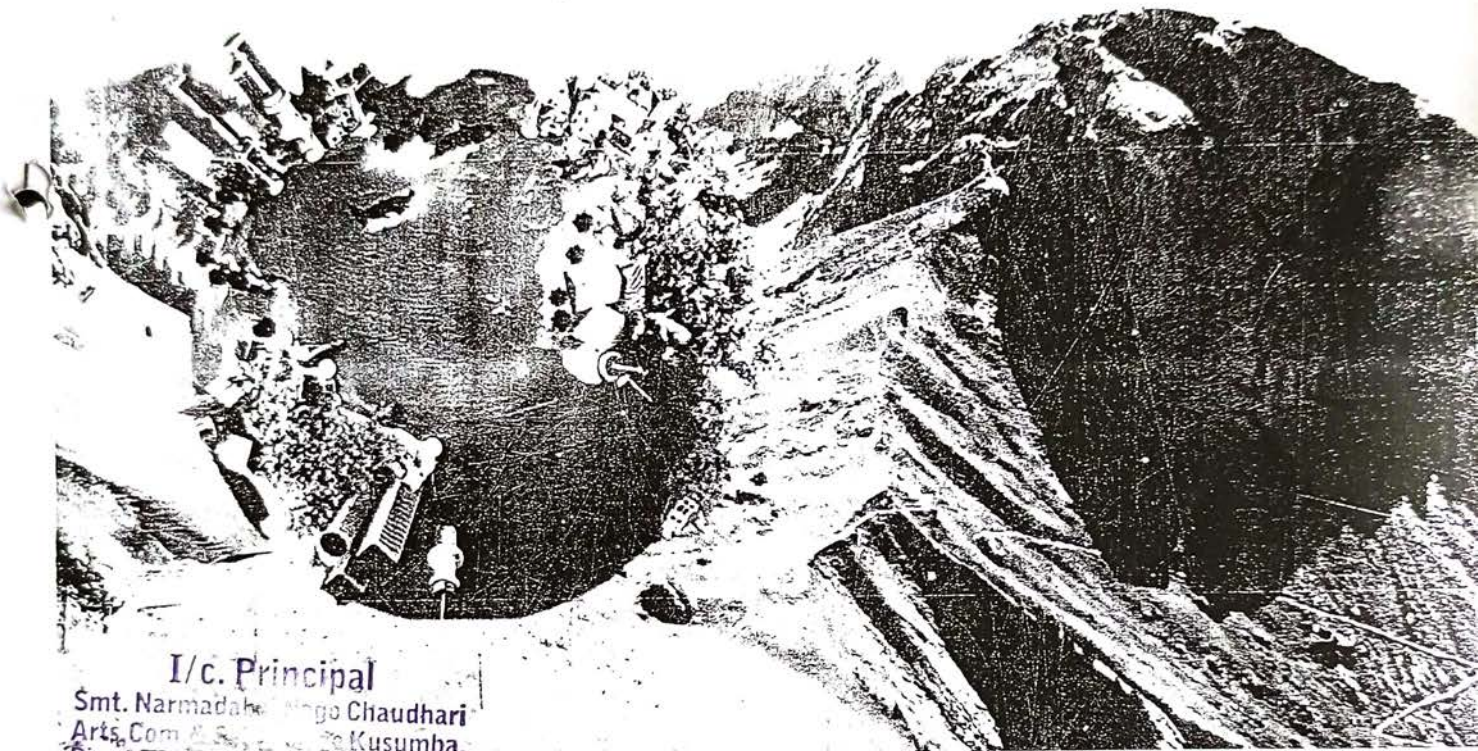
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Study of Dielectric Properties of Dry and Moist Bajara Grains at X-band Microwave Frequency



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Abstract :

Present study provides the experimental data on dielectric constant ($\hat{\epsilon}'$) and dielectric loss ($\hat{\epsilon}''$) of Bajara (*Pennisetum Glaucum*) grains having different moisture contents at X-band microwave frequency 11.4 GHz. This data is further used to estimate the a. c. conductivity (i) and relaxation time (δ) for these grains. All these dielectric parameters of Bajara grains are found to increase with increase in percentage moisture content. Variations are non-linear and the rate of increase are faster at higher MC (%) values. Results reported here are useful in designing the moisture meters, possible selective dielectric heating and also for control of insects that infest stored grain.

Keywords: Dielectric constant, dielectric loss, a. c. conductivity, relaxation time, frequency

I. Introduction :

The dielectric properties of foods and other biological products are important in food engineering and technology. These properties have fundamental importance in predicting the rate of heating and describing the behaviour of food materials when subjected to high-frequency radiation. Microwaves play an important role in the moisture detection in cereal grains or seeds, other agriculture products and soil. Hence, dielectric properties of cereal grains are highly correlated with moisture content. Thus, for the development of microwave process and control systems, it is important to have the knowledge of dielectric properties of the materials.

Nelson S.O. [1] reported the dielectric properties of grains and seeds at R.F. range and at different microwave frequencies. Venkatesh M. S. and Raghavan G. S. V. [2] also reported an overview of dielectric properties measuring techniques of various agricultural food. Nelson S. O. [3] studied the dielectric properties of grain and seed samples at 8 to 12 GHz. Nelson S. O. et al [4] pointed out different applications such as sensing of product maturity. Further, Nelson S. O. [5] also reported the dielectric properties of agricultural products such as grain and seed and their application in RF and microwave dielectric heating.

Trabelsi S. and Nelson S. O. [6] summarized that dielectric properties of the agricultural and food products and studied the influence by the factors like addition of moisture content, temperature of the material, composition and structure of material. Similar studies were also attempted by the several other researchers [7,8,9,10]. Ahire D. V. and Chaudhari P. R. [11] have studied the Transmission and reflection behaviour of X-band microwaves passing through wheat seeds. These investigators have also studied insertion loss, return loss and VSWR for X- band microwaves passing through oilseeds [12].

In the present research work, we have designed the experiments to determine the dielectric parameters such as

dielectric constant ($\hat{\epsilon}'$), dielectric loss ($\hat{\epsilon}''$), a. c. conductivity (i) and relaxation time (δ) values for the Bajara (*Pennisetum Glaucum*) grains at X-band microwave frequency 11.4 GHz.

II. Materials And Methods

A. Materials

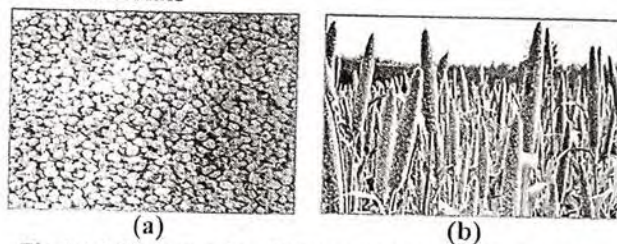


Fig.1 (a) Photograph of Bajara grains (b) Bajra crop

Bajra is the most widely grown cereal crop. It survives in soils with high salinity, soil with low fertility and under drought conditions. It is grown in bulk in African and Indian sub continents. Rajasthan is the largest producer state of pearl millet in India. Bajra is high in protein as compared to other cereals. It contains all essential amino acids and is particularly high in lysine, methionine, and cysteine. It is rich in foliate, potassium, magnesium, copper, zinc, vitamin E and B-complex. It is also rich in calcium and iron. It helps maintain cardiovascular health and helps reduce acidity problems.

B. Methods

i) Preparation of sample and experimental set-up

Bajra grains used in these experiments are purchased from local market. Initially, distilled water is sprayed on these grains and they were kept for few hours in order to acquire uniform moisture content. Then gravimetric moisture content of cereal grains will be gradually reduced by drying it in a hot air oven at 400C to 450C. For transmission of electromagnetic energy at microwave frequency range, waveguides are preferred to transmission line. The electric and magnetic fields are confined within the space of guide in rectangular waveguide. A waveguide cell method has been used in these measurements. It is used at normal incidence in TE₁₀ Mode. An automated X band set up (Fig. 2) used in TE₁₀ mode Gunn power supply, PC based slotted line control and data acquisition system is so used. The solid dielectric cell with and without sample is connected to the opposite ends of the source. The signal is generated from microwave source. That signal allowed to incident on the cereal grain sample. The sample from its front surface reflects part of incident signal. The reflected wave combined with incident wave produces a standing wave pattern. The values of shift in minima resulted due to before and after inserting, the sample is determined using these standing wave patterns.

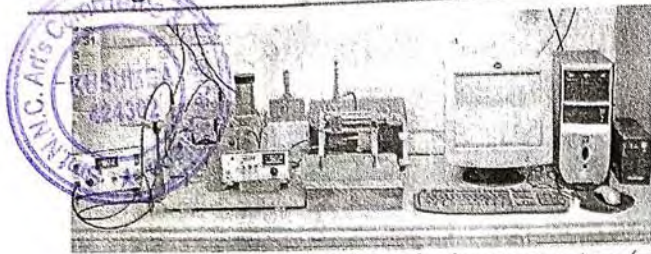


Fig. 2. Photograph of X-band microwave set-up (along with PC-Based Software) for measuring dielectric constant of Bajara grains.

ii) Measurement of dielectric constant and Dielectric loss in Bajra

The dielectric parameters of Bajara grains are estimated by using following formulae:

a) Dielectric constant (ϵ')

$$\epsilon' = \frac{\epsilon_0 + (\lambda_{gs}/2a)^2}{1 + (\lambda_{gs}/2a)^2} \quad \text{----- (1)}$$

b) Loss factor (ϵ'')

$$\epsilon'' = \frac{\beta_z}{1 + (\lambda_{gs}/2a)^2} \quad \text{----- (2)}$$

c) Microwave conductivity (σ)

$$\sigma = \omega \epsilon_0 \epsilon'' \quad \text{----- (3)}$$

d) Relaxation time

$$\tau = \epsilon'' / \omega \sigma \quad \text{----- (4)}$$

- Where
- a = inner width of rectangular waveguide
 - λ_{gs} = wavelength in the air-filled waveguide
 - g_z = real part of the admittance
 - β_z = imaginary part of the admittance
 - $\omega = 2\pi f$
 - f = microwave frequency
 - ϵ_0 = permittivity of free space.

III. Results and Discussion

Experimental results on the variation dielectric parameters such as dielectric constant (ϵ'), dielectric loss (ϵ''), a. c. conductivity (σ) and relaxation time (τ) with % moisture content values (0-30%) for the Bajara (Pennisetum Glaucum) grains at X-band microwave frequency 11.4 GHz are rep % moisture content. However, this variation is non-linear indicating that the rate of increase is faster at higher MC (%) values. In Fig.3 (b), the dielectric loss (ϵ'') increases gradually with increase in % moisture content. However, this variation is relatively more non-linear and also indicating that the rate of increase is faster at higher MC (%) values. Our results are in fairly good agreement with the results of earlier investigators [1,2,3,4,8].

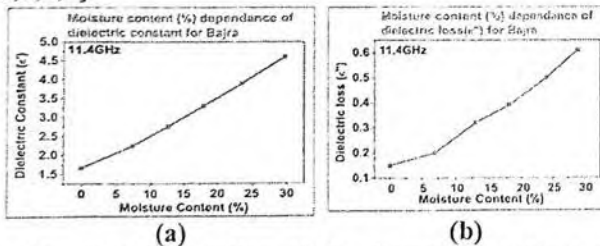


Fig. 3. (a) Variation of the dielectric constant with moisture content of Bajra and (b) Dielectric loss factor with moisture content of Bajra for frequency of 11.4 GHz.

From Fig.4 (a), it is seen that the a. c. conductivity (σ) increases gradually with increase in % moisture content. However, this variation is non-linear and indicates the dependence of σ on the ϵ'' . increase is faster at higher MC (%) values. This result is expected, because the motion of charges

in the dielectric (Bajara) gives rise to the conduction current and hence polarizes the dielectric. This dielectric polarization is thus found to increase with the MC level of soils.

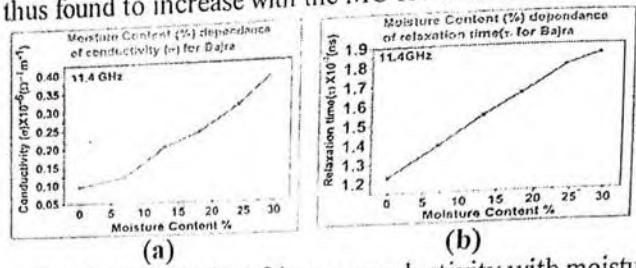


Fig. 4. (a) Variation of the a. c. conductivity with moisture content of Bajra and (b) Relaxation time with moisture content of Bajra for frequency of 11.4GHz

In Fig.4 (b), the relaxation time (δ) is also found to increase gradually with increase in % moisture content. Further, this variation is relatively more non-linear and also indicating that the rate of increase is faster at higher MC (%) values. This suggests that the mobility of the molecules (dipoles) of soils is found to increase with the MC level of soils. This result is expected, as δ is proportional to the dissipation factor (ϵ''/ϵ'). Our results are in close agreement with the results of earlier investigators [7,8,9].

IV. Conclusions

1. Dielectric constant (ϵ') and the dielectric loss (ϵ'') of Bajara grains gradually increases with increase in its percentage moisture content. This variation is non-linear and the rate of increase is faster at higher MC (%) values.
2. The a. c. conductivity (σ) and relaxation time (δ) of Bajara grains increases with increase in its percentage moisture content. This variation is also non-linear and the rate of increase is faster at higher MC (%) values.

V. Applications

1. An important application of determination of dielectric properties of dry and moist cereal grains is in the design and development of electronic moisture meters.
2. The dielectric properties of the materials have been studied for such use in grain drying, milling and also in selective dielectric heating for control of insects that infest stored grain.
3. The studies of microwave absorption by different types of food grains may also useful in efficient design of microwave oven and microwave cooker.
4. One of these was the possible selective dielectric heating for control of insects that infest stored grain.

Acknowledgement

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References

- 1) Nelson S. O., Trans. of the ASAE, 1999, 42(2), 523-529.
- 2) Vaenkatesh M.S. and Raghavan G.V.S., Canadian Biosystem Engineering, 2005, 47, 7.15-7.30.
- 3) Nelson S. O., Trans. of the ASAE, 1972, 15(6), 1094-1098.
- 4) Nelson S. O., W. R. Forbus Jr., and K. C. Lawrence, Trans. of the ASAE, 1995, 38(2), 579-585.
- 5) Nelson S. O., RES. AGR.ENG., 2008, 54(2), 104-112.
- 6) Nelson S. O. and Trabelsi S., J. of Microwave Power and Electromagnetic Energy, 2012, 46(2), 93-107.
- 7) Botcher C. J. and Bordewijl, Theory of electric

polimerization, 1974, J. American, Oxford, New York, Elsevier Scientific publishing company

F) Cole E. S. and Cole R. H., *J. of chemical physics*, 1941, 9, 341-351

W) Dawson and Cole, *J. of chemical physics*, 1971, 36(12), 1811-1890

M) Henschke and Wagner, V., *Polymer*, 1967, 8, 342-352

(11) Akter D. V. and Choudhury P. K., *Journal of Chemical, Biological and Physical Sciences*, 2016, 5(12), 402-408

(12) Akter D. V. and Choudhury P. K., *Proceedings of the 3rd International Conference on Microscopy, Arsenic, Propagation and Remote Sensing (ICMARS), 2013, 291-296.*



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Ethnobotanical Uses of Plants For Cuts & Wounds From Forest Area of Navapur Taluka, Nandurbar District, Maharashtra

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Abstract

The flora of this region is highly diversified in vegetation, rich in floristic composition and contains considerable number of economically important species. The communities of tribal are poor and unable to afford the expenses of modern medicinal treatment. They have the indigenous knowledge of medicinal plants, therefore they depend on the traditional medicines. They use various plant parts or entire plant for cuts & wounds. The present study deals with medicinally important plants for the treatment of cuts & wounds.

Key words: Ethno botanical, Cuts & Wounds, Forest, Navapur, Nandurbar District.

Introduction

The world health organization (WHO 1978) reported that 80% of the world's population depends upon traditional medicines. The tribal and certain local communities of this region are poor and unable to afford the expenses of modern medical treatment therefore they depend on traditional medicines. They practice herbal medicines to cure various diseases and disorders. They collect and preserve locally available wild and cultivated plant species.

The objective of the study was to assess the richness of ethno-medicinal plant species used by tribal of forest area of Navapur taluka and the traditional medical practice of the people. The authors tapped the first hand ethno medicinal information from Bhagat, Buwas (Witch Doctors), Medicine men (Vaidu) and tribal old ladies. Medicinal plants used for various ailments are reported throughout India. Memon (1919) on influenza, Biswas (1956) on skin disease, Lal and Lata (1980) on fertility, Hemadri (1981) on rheumatism, Bhamare (1998) on skin diseases, Garud, Yadav and Borale (2009) on snake bite, Garud (2009) on stomach pain. The present paper deals with the information of 35 medicinally important plants used on cuts & wounds and it has been tabularized in table. It includes alphabetically arranged Botanical names, Local names, Family, Parts used and treatment.

Material and Methods

The present study is the outcome of two years of critical field survey in the different parts, of forest area of Navapur taluka, Nandurbar District. The information was collected from elderly persons, tribal peoples, local medicine men called vaidu etc. all the specimen were deposited in the herbarium of Department of Botany, Jaihind Educational Trust's Z.B. Patil College, Dhule, During the time of field survey, several places have been visited and information were collected of the medicinal plants which are used to cure the cuts & wounds

Table I

Sl. No.	Botanical Name	Local name	Family	Part used	Treatment
1	Asplenium nidus L.	Bh...	Asplenaceae	Leaf	...
2	Agave americana L.	...	Agavaceae	Leaf	...
3	Asplenium nidus L.	...	Asplenaceae	Leaf	...
4	Asplenium nidus L.	...	Asplenaceae	Leaf	...
5	Asplenium nidus L.	...	Asplenaceae	Leaf	...
6	Asplenium nidus L.	...	Asplenaceae	Leaf	...
7	Asplenium nidus L.	...	Asplenaceae	Leaf	...
8	Asplenium nidus L.	...	Asplenaceae	Leaf	...
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Sl. No.	Local Name	Family	Part Used	Medicinal Use
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Result and Discussion

The present study deals with medicinal plants which are being used traditionally on cuts & wounds in forest area of Navapur Taluka, Nandurbar District. These plants belonging to 35 species 34 genera and 25 families. Various parts like root, stem, fruits, leaves, bark, seeds etc. or entire plant are used on cuts & wounds. The most dominant families are Asteraceae, Euphorbiaceae, Fabaceae & Labiatae

Acknowledgement

Authors are grateful to forest Department of Maharashtra State, Principal Dr. P.H. Pawar, Dr. Neelima Patil Head Department of Botany, & Dr. M. Varghese Jaihind Educational Trust's Z. B. Patil College, Dhule for providing necessary facilities and support.

References

- 1) Bhamare P.B. (1998). Traditional Knowledge of Plants for skin ailment of Dhule and Nandurbar district, Maharashtra (India). *J. Phyto Res.* 11(2). 195-196
- 2) Bhamare P.B. (2005). Ethno-Botanical invention and wisdom of Tribals in Dhule and Nandurbar District of Maharashtra. *Plant diversity and Biotechnology.* Pp. 205-208

- 3) Biswas K. (1956). Vegetable drugs in the treatment of leucoderma. *J. Asiat. Soc.* 22: 61-66.
- 4) Garud B.D. (2009). Ethnobotanical uses of plants for stomach pain from Dhule District, Maharashtra. *Research Journal of Social and Life Sciences* Vol. 07: 165-170
- 5) Garud B.D., S.S. Yadav and R.P. Borale (2009). Traditional knowledge of plants of Western Khandesh region of Maharashtra for snake bite. *Int. J. of plant sci.* Vol.5: 337-339
- 6) Himesh Soni and Akhlesh Kumar Singhat (2012) Recent Update of Botanicals for Wound Healing Activity. *International Research Journal of Pharmacy* Vol. 3(7) 17
- 7) Lal S. D. & K. Lata (1980). Plants used by the Bhat Community for regulating fertility. *Leon. Bot.* 34 (3), 273-275
- 8) Patil D. A. (2003) Flora of Dhule and Nandurbar District (Maharashtra). *Bishen Singh Mahendra Pal Singh, Dehradun India.*
- 9) Sachin D. Kuvkar and U. C. Bapat (2010) Medicinal Plant used by Kokani tribals of Nashik district Maharashtra to cure cuts and wounds. *Indian Journal of Traditional knowledge* Vol.9(1), 114-115
- 10) Memon C.K. (1919). *Embelia ribes*- a medicine for influenza. *Indian For.* 45: 210
- 11) S.L. Patil and D.A. Patil (2007) Ethnomedicinal Plants of Dhule district, Maharashtra. *Natural Product Radiance*, Vol. 6(2) : 148-151
- 12) S. Y. Kamble et al. (2012) Studies of plant used in traditional medicine by Bhilla tribe of Maharashtra. *Indian Journal of Traditional knowledge* Vol.9(3), 591-598
- 13) World Health Organization (1991). *Guidelines for the practice of traditional medicines (TRM/Geneva p.6)*

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Spatio – Temporal Analysis of Forest Cover Area in Maharashtra.



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Abstract :

Forest cover is an important and valuable natural resource on the earth which should be conserved on priority base for sustainable environmental management. FAO Global Forest Resource Assessment 2005 has used parameters of minimum tree height 5 mt, canopy cover more than 10 % and minimum land area 0.5 ha. is the definition of the forest. For the present study data of district wise forest cover collected from secondary sources, mainly from Annual Administrative Reports of the Forest Department. Main objective of the proposed research work was to identified or demarcation of how much changing forest cover in Maharashtra state from last two decades. And to find out station temporal changes in forest cover in the study region with their major causes. After collection of spatial data from various sources, tabulate them and interpreted them with the help of cartographical techniques. i.e. graphs and maps. Conclusion of the research is changing forest cover area in the state positively due to the awareness of the society and well policies conducted by the forest department of the Maharashtra state. Some districts having positive changes in forest covered area between the period of 2001 to 2015. And some districts having negative changes in forest covered area between this period.

Introduction :-

Forest is one of the most important and valuable natural resource on the earth. proportion of forest covered land to the total geographical area of the globe is identified as minimum 30%. But recently this proportion is continuously declined by various causes. Out of them, human impact is much responsible to reduce this proportion.

In, India only 20% area comprises under forest. Out of them few percent area was occupied by dense forest cover. This is a serious and red alarming problem arises to the human as well as biological society. Reducing forest cover harmful impact on various factors. Biodiversity is one of them. Changes in forest area affects vegetation as well as animals and decomposers biodiversity.

Observed continuously forest area was increasing or decreasing in different district from last two decades in Maharashtra state. With the realization of an ever-increasing pressure on forests, loss of biodiversity due to changes in land use and the impact of forests on climate change. Depletion of forest affects many ecological social economic consequences including biodiversity. The impact of reducing forest cover on biodiversity hotspots like Western Ghats in Maharashtra. In various districts positively changes occurred in the forest cover due to awareness about forest and their importance with strictly ruled by Government.

Objective of the study:-

Main objective of the present research work is to

identified or demarcation of how much changing forest cover in Maharashtra state from last two decades. And to find out station temporal changes in forest cover in the study region with their major causes.

Hypothesis:-

Hypothesis of the proposed research work is continuously reducing forest cover in Maharashtra state from last two decades and its impact on natural as well as cultural factors.

Methodology:-

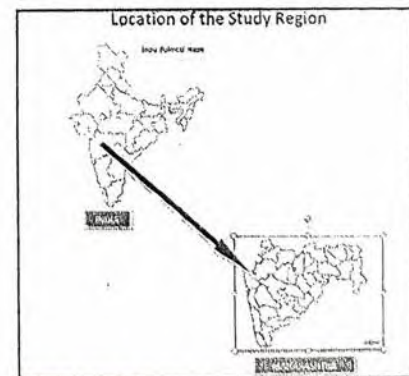
For the conducting present research work secondary data has been collected from secondary and tertiary sources. Report of economic survey of Maharashtra, annual Administrative Reports of various years and other Government and NGO's reports had used for the present study.

Simple analytical method used for the data analysis. After collection of spatial data from various sources, tabulate them and interpreted them with the help of cartographical techniques. i.e. graphs and maps.

Study Region:-

Maharashtra is one of the socio-economically developed state in the country. Maharashtra is in the western part of India with a long sea coast of Arabian Sea. It lies between 15° 3'N to 22° 2'N latitude and 72° 36'E to 80° 54'E longitude. With comprises an area of 3,07,713 Sq. Km. Physiographically, the state can be divide into Three distinct regions. Such as coastal plain, the Sahyadri ranges and plateau region with major river basins.

The Maharashtra state has a tropical monsoon climate with average annual temperature ranging between 25°% to 27.5°% and average annual rainfall between 160 to 200cm.



Discussion:-

Forst is a most important and valuable natural resources on the earth. Physical as well as human factors are responsible for global level. Maharashtra state of the western Ghat and satpuda ranges having dense forrst area. otherwise moderately or less proportion acquiring by forest area.

Table No.1.1 – Density wise Distribution of Forest , 2001 and 2015.

Year	Density wise Distribution of Forest		
	Very Dense	Moderately Dense	Open Forest
2007	8739	20834	21077
2015	8712	20747	21169

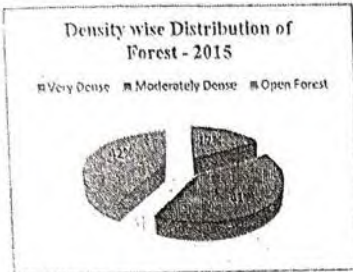


Table and graph shows, density wise distribution of the forest of Maharashtra was constant between the year 2007 and 2015. Only minor changes occurred in sub-category cover area of forest density.

Here, clearly seen from the following tables day by day reduce the percentage in land use under forest or natural vegetation.

Table No.1.2 District wise Forest cover and Change between 2001 and 2015.

Sr. No.	District	Geographical Area in Km ²	Forest Area in Km ²				Change between 2001-2015	Changes in %
			2001	2003	2007	2015		
1	Ahmadnagar	17043	312	213	236	232	-29	-9.29
2	Akola	5980	261	321	322	322	-39	-10.50
3	Amravati	12210	3137	3069	3137	3137	50	1.59
4	Aurangabad	10157	489	408	557	557	65	13.91
5	Bhandara	5588	927	836	591	584	-43	-4.64
6	Beed	15882	281	117	178	175	-56	-32.98
7	Buldhana	2651	619	594	589	590	-29	-4.68
8	Chandrapur	11443	3947	3940	4074	4073	126	3.19
9	Dhule	759	493	474	321	316	-177	-35.99
10	Gadchiroli	14470	16356	10069	10029	10027	41	0.41
11	Gondia	2732	2174	2160	2011	2008	-166	-7.61
12	Hingoli	4856	117	125	114	114	-5	-2.26
13	Jalgaon	11765	1242	1261	1195	1182	-69	-4.75
14	Jalna	7719	102	51	45	45	-31	-36.27
15	Kolhapur	7685	1814	1706	1775	1782	-32	-1.76
16	Latur	7397	64	11	5	5	-61	-92.42
17	Mumbai City	157	1	1	2	2	1	100.00
18	Mumbai Suburb	445	82	56	120	121	39	47.55
19	Nagpur	3822	1962	1954	2025	2011	49	2.50
20	Nanded	10228	853	860	914	914	61	7.15
21	Nandurbar	3961	1458	1214	1214	1203	-135	-16.34
22	Nashik	14392	1093	1075	1039	1039	-9	-0.82
23	Osmanabad	769	92	70	45	45	-49	-63.26
24	Parbhani	6355	134	57	50	50	-64	-62.69
25	Pune	15843	1514	1539	1733	1734	420	31.96
26	Raigad	7112	2288	2314	2844	2875	587	78.66
27	Ratnagiri	3208	2211	2111	4199	4196	1995	89.73
28	Sangli	3572	156	151	144	145	-5	-3.33
29	Satara	10430	902	877	1276	1276	367	40.31
30	Solapur	14825	53	48	47	48	-5	-9.43
31	Sindhudurg	4207	2378	2323	2575	2577	199	8.37
32	Thane	6558	2671	2729	2812	2901	237	8.87
33	Wardha	6592	844	824	859	859	13	1.54
34	Washim	3184	335	292	352	332	-3	-0.99
35	Yavatmal	13582	2550	2606	2603	2604	54	2.13
Maharashtra State		3,07,712	47,487	46,865	50,650	50,628	3146	6.63

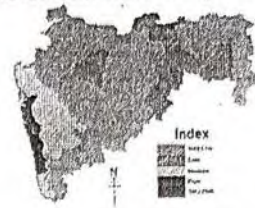
Source : Annual Administrative Report of above Years, Govt. of Maharashtra



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Maharashtra State: Forest Area Change Between 2001-2015



Maharashtra State: Forest Area Changing In %



District wise Changes in Forest Area in %

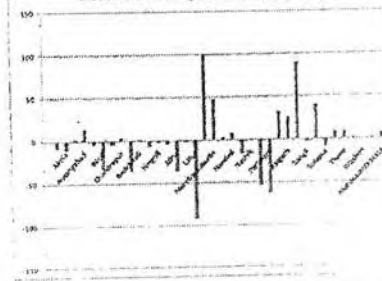


Table no. 1.1 and graph represents, area under the forest in the state distributed in all district was continuously changes with negative or sometimes positively. Aurangabad, Amravati, Chandrapur, Gadchiroli, Mumbai city, Mumbai suburbs, Nagpur, Nanded, Pune, Raigarh, Ratnagiri, Satara, Sindhudurg, Thane, Wardha and Yavatmal districts having positive changes in forest covered area between the period of 2001 to 2015. Reason of the positively changes is awareness about forest cover arising in society as well as strictly ruled by the Governmental policies. Social forestry is one the major responsible factor for increasing proportion of forest area in some districts of the state.

Ahmadnagar, Akola, Bhandara, Beed, Buldhana, Dhule, Gondiya, Hingoli, Jalgaon, Jalna, Kolhapur, Latur, Nandurbar, Nashik, Osmanabad, Parbhani, Sangli, Solapur and Washim districts having negative changes in forest covered area between this period. These districts are comprises most part of the different hilly region. Mostly inhabited tribal population living in the district and mainly in forest area. Recently, in various parts of the hilly area deforestation made for the agricultural practices by various native groups in the state. Hence, reduce forest cover in the concerned district or part of the district.

Table No.1.2

Circle wise Forest cover and Change between 2009-10 and 2014-15.

Sr.No.	Circle	Forest Area		Changes in Area	Changes in %
		2009-10	2014-15		
1	Thane	5129	5756	626.39	12.22
2	Nagluk	5147	5339	191.9	3.73
3	Dhule	6108	6456	347.81	5.69
4	Pune	2311	2545	234.68	10.15
5	Kolhapur	3689	4516	827.15	22.42
6	Aurangabad	2801	3092	291.2	10.40
7	Amravati	3128	4659	1530.65	48.93
8	Yavatmal	4096	3873	-267.93	-6.54
9	Nagpur	7539	7726	186.7	2.21
10	Chandrapur	6786	4823	-1963.37	-28.93
11	Gadchiroli	10377	12833	2456.35	23.81

Source: Annual Administrative Report of above Years, Govt. of Maharashtra

Spatio – Temporal Analysis of Forest Cover Area in Maharashtra.

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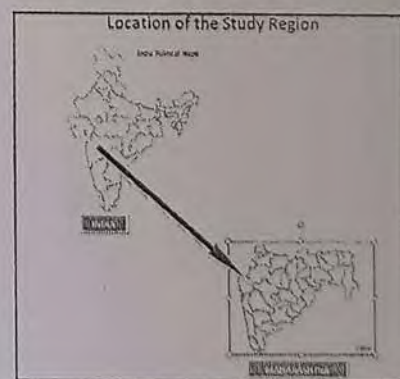
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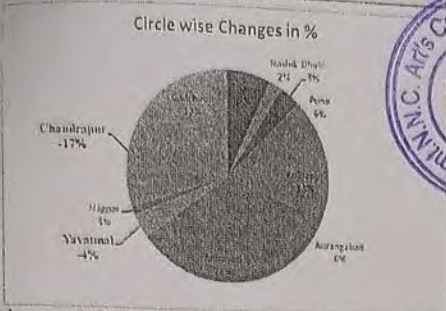
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various districts
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various local purposes. Forest Department of the state had strictly ruled and governed their policies for the protecting forest cover and tried to increasing in them. Various NGO's and environmentalists are supporting to increasing awareness in the society towards forest, tree plantation and environmental management.

Table no. 1.2 shows, circle wise forest covered area in the state. Maharashtra Forest Department divided forest region into the 11 circles. Here, use of figures from forest department annual administrative reports of year 2009-10 and 2014-15 and compare the forest cover. All circles having positive changes in increasing forest covered area except only Yavatmal (-4 %) and Chandrapur (-17 %) circle.

Conclusion :-

Conclusion of the present research work is positive changes occurred in forest cover area in the Maharashtra state. About 6.63 % area increasing under forest cover between the year 2001 to 2015. It is a good sign for the sustainable environmental management. Only in which districts comprises more hilly or mountainous area, decreasing forest cover area between the same period due to the deforestation activity for

Reference :-

- 1) A Statistical Outline – Current Silent Forest Statistic, 2013, Forest Department, Government of Maharashtra
- 2) Annual Administrative Report AAR, Forest Department, Government of India, 2001, 2007, 2009, 2015.
- 3) Economic Survey of Maharashtra, Government of Maharashtra, 2001, 2008, 2015
- 4) Elsevier (2015) : Introduction to the changes in Global Forest Resources from 1990 to 2015, Editorial Essay, Forest Ecology and Management 352,1-2
- 5) Panigrahy, R.K., Kale, M.P., Dutta, U, Mishra, Asima (2010) : Forest cover change detection of Western Ghats of Maharashtra Using satellite remote sensing based visual interpretation techniques, Current Science, Vol 98, No. 5, Pp.657-58
- 6) Reddy, S.C., Dutta, K. and Jha, C.S.(2010) : Analyzing the gross and net deforestation rates in India, Current Science, Vol. 105, No. 11, Pp.1492-94
- 7) Van Aachhadan- hand book 2015, Forest Department, Government of Maharashtra

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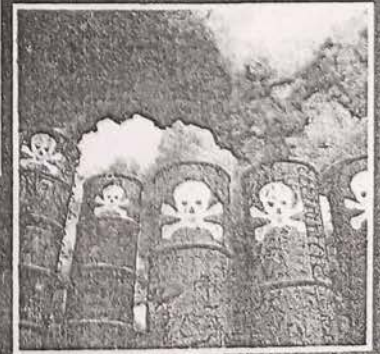
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A STUDY ON DEVELOPMENT OF TOURISM IN JALGAON DISTRICT, MAHARASHTRA

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Abstract

Jalgaon is the district in the Indian state of Maharashtra. It was formerly known as East Khandesh district. Jalgaon is near the world famous Ajanta Caves and is one of the key attraction places for tourists all around the World. Tourism in Jalgaon district offers a number of beautiful sights to the tourist. There are many places for the visitors to choose from, ranging from forts, places of natural beauty and even a number of temples for the pilgrims. These include the Sri Padmalaya temple, Saint Muktabai temple and the Changdeo Temple, Patna devi Temple, Manu devi Temple, Unpdev, Mangal graha Temple among others.

Introduction

Jalgaon has a plethora of culture, wildlife and natural scenery tourism potential. However, the district has seldom promoted or marketed itself as a tourist destination. Most of the tourists visiting Jalgaon are from neighbouring districts of Maharashtra, Gujarat and Madhya Pradesh, making it a local tourism destination. The tourists are restricted to the summer vacations, or religious days. Jalgaon's greatest advantage is in being closest railway stop over destination for the world heritage site of Ajanta caves which in itself witnesses more than 5 million tourist arrivals from across the world

Jalgaon is most famous for world-class quality banana and cotton production. The district is rich in producing cotton and hence has various textile industrial clusters, especially in the Jalgaon, Bhusaval and other tehsils. Jalgaon Market is mainly known for Gold, Pulses, Wholesale Tea, Agriculture, Grains Trading. 'Banana' is Jalgaon's main crop with 'cotton' having second priority.

Other towns in the district are connected through state highways. Jalgaon district is amongst the most central districts of the country. This is reflected in the fact that it enjoys excellent rail connectivity. Bhusawal railway junction is one of the largest railway yards of the Indian subcontinent and the famous world heritage site of Ajanta is about 60 km (via Jamner) from Bhusawal. The district receives most visitors from the adjoining states due to the good connectivity by Roads



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Objectives

To examine the importance of tourism development in Jalgaon District.

2. To study the problems of tourism in Jalgaon District.

Methodology-

The present study is based on the secondary data of Jalgaon tourism office. The data has been procured from the related articles, research papers, reports and 11th plan document of the government of India. Some data has been furnished from the website of the Ministry Of Tourism And Culture for the Government of Maharashtra.

Study Area

The Jalgaon district is located at the north-west corner of the state of Maharashtra. It has the Dhule district in the west, Madhya Pradesh in the north, Buldhana in the east and Aurangabad in the south. The district headquarter is Jalgaon which is connected to major towns of Gujarat and Maharashtra through broad gauge rail. The nearest airport is at Aurangabad which is 150 kms away.

The district is divided into 15 tehsils, namely, Jalgaon, Jamner, Erandol, Dharangaon, Bhusaval, Bodwad, Yaval, Raver, MuktaiNagar, Amalner, Chopda, Parola, Pachora, Chalisgaon, and Bhadgaon. Jalgaon district is one of the Tourism, socially and economically developed districts in the Maharashtra state of India. Northern part of the district is occupied by Satpuda Mountain and Southern part is by Ajanta hills. The central part is occupied by Tapti river fertile agricultural prosperous area. The total forest area of the district is 1707 Sq km which is almost 17 % of the total geographical area of the district

Climate & Rainfall

The climate of this district is generally dry except in the monsoon. The average annual rainfall in the district is 740.7 mm. December is the coldest month with the mean daily minimum temperature at 11.9 degree C. and the mean daily maximum at 29.8 degree C. Temperatures begin to rise steadily from about the beginning of March and by May, the hottest month of the year, the mean daily maximum temperature reaches 42.5 degree C. The highest maximum temperature recorded at Jalgaon was 47.8 degree C.

Existing Tourist Destinations

A brief description of the major tourist destinations is listed below to understand the potential of tourism in Jalgaon. The map showcases the major and minor tourist destinations in the district. For more descriptive assessment of each of the destinations, please refer to Annexure

1) Muktabai Temple –

Muktai or Muktabai was a very popular saint of the Varkari tradition. The Muktabai located in close proximity to Muktainagar and located on the banks of Tapi River, is one of the many scenic religious places in the district. It holds a fair in the month of Jan-Feb which witnesses a crowd of more than 3 lakh tourists a day. Currently, the area is being developed as a tourist destination and is under construction.

2) Chang Deo –

Changdeo in Maharashtra is regarded to be a holy place because of Purna and Tapi rivers. People flock here once a year to take a holy dip. It is also a place where saint Markandeya is believed to have practiced penance. The place is about 6 km away from Edlabad. A fair, which is attended by nearly 80,000 pilgrims, is held at this place during the month of Magha (January-February) every year. These pilgrims are mostly from the Vidarbha region of Maharashtra.

3) Pal –

A mini hill station of northern Maharashtra, Pal highlights the flora and fauna of the district. A cool place for the summers, the Pal village is scenic and displays cultural heritage of the local Bhil tribe. The forest has a government guest house and two dams, Suki and Mor Dam where adventure sport opportunities can be explored.

4) Tarsod Ganpati –

The 14th Century naturally appeared Ganpati statue marks the fascination of the people. Few kms off the NH6 connecting Jalgaon to Bhusawal, this temple witnesses about 75000 tourist arrivals during the peak religious days.

5) **Manu Devi –**

Manudevi Temple is located in beautiful natural surroundings near Adgaon village in Yawal Taluka. Manudevi is the kuldevi (family deity) of 70% people in the district. There is a nice water fall with breathtaking view. The way to the temple is a very good trek with the path going through a small river 7 times. The temple is surrounded by forested hills. A fair is also held annually. The temple is fully covered with Satpuda hills and turns lush green during Monsoon making it a more pleased family tourist spot. Another attraction of the Manudevi is that it has a 400-foot high fountain having flowing water for 6-7 months in a year, a beautiful mini lake. Also the recent development allows even a vehicle to reach the temple. A local family diety, Manu Devi is picturesquely set on the banks of River Tapi and the Satpudas. It also has a waterfall and is made out of remains of an ancient temple. Every year in the Shrawan season the temple witnesses over a lakh visitors.

6) **Parola Fort –**

Believed to be the birth place of Rani Laxmi Bai of Jhansi, Parola is a 17th Century fort which is encroached by the Parola city currently. The Fort has a moat and a tunnel which opens on the other side of the city used as safe passage. The present condition of the fort is deteriorated and it is in urgent need of conservation.

7) **Swinging Towers Farkande –**

The small village of Farkande is famous for the swinging towers. Swinging Towers located 16-km from Erandol on the bank of Utawadi River are a great example of old construction techniques. Both the towers are 15m long and when one of them is waved the other towers also starts waving automatically. It is believed that the construction is 250 years old.

8) **Padmalaya –**

Among the two and a half Shree Ganapati Peeths in India, this is regarded as the half Peeth. Another religious tourist place famous for the twin idols of Lord Ganesha, Padmalaya gets its name from the famous Lotus Lake which forms part of the temple compound. Along with the temple, Bhimkund is another famous place at a distance of a km where in the historic setting of Mahabharatha, Bhim kills the demon Bakasura. Currently there is only a narrow pedestrian pathway to the scenic locale, but has immense potential for development.

9) **Patna Devi –**

At the edge of the district, Patna Devi is a cluster of ancient temples and caves in the Chalisgaon Forest Ranges. The cluster has temples of Chandika devi, Bhaskaracharya, Pithalkhora caves etc. All these places are connected by trekking routes and in need for conservation.

10) **Nateshwar Temple –**

An Ardhanarishwar Shiva Temple, It is located in the village Lasur in the Chopada Tehsil. Noted by the ENVIS centre for conservation of Ecological heritage and sacred sites, it dates back to the period of Sultanshahi's beautifully carved in Hemadpanthi style. People across the Jalgaon & Dhule district visit the temple in the month of Shravan.

11) **Kapileshwar Temple –**

Located at the edge of the district with Dhule, Kapileshwar temple lies on the banks of the Tapi River, it is a 17th Century temple constructed by Ahilyabai Holkar of Indore.

12) **Unapdeo –**

Unapdev is located at a distance of 25kms from Chopda city and 4kms from Adavad. Unapdev is listed as an ASI site. Hot-water springs are situated in the Satpudas at Unapdeo in Chopda tehsil. Like Unapdev, Sunapdev, Nijhardev are two other hot water breezes generated in Satpuda hills range. All these three places have special mention in ancient holy 'Ramayana' and had auspicious touch of Lord Rama during his fourteen years expulsion from Ayodhya.

13) **Rameshwar Temple –**

Ancient Mahadev temple at confluence of rivers Tapi, Girana and Anjani, Rameshwar is another scenic place that is undergoing construction presently.

14) **Saint Sakharam Maharaj Temple**

The Saint Sakharam Maharaj Temple is one of popular religious places in the region and is named as the copy of Pandharpur (West Maharashtra). The Temple has various Deity temples inside it. The Annual Saint Sakharam Maharaj Festival is very popular throughout Maharashtra.

★ 13) Proposed New Destinations with Tourism Potential

Apart from the existing tourist locations, which currently hold touristic value, there are other tourist destinations in the district which show potential to attract visitors. Some of them have been listed below:

16) Mangal Mandir –

India has just two Mangal Graha Temples and Amalner's temple is one amongst those. Located on Chopda Road in Amalner Tehsil, this temple holds utmost religious importance and has various activities every week.

17) Kanashi –

The Mahanubhav Panthi temple witnesses pilgrims from as far as Punjab and Haryana during the annual fair in February. Located in a small village of Kanashi, the Temple run by the trust is believed to have medicinal powers and attracts patients from all over India.

References

- 1) Collins, A. (1999). Tourism development and natural capital. *Annals of Tourism Research*, 26(1), 98-109
- 2) Dowling, R. (1993). An Environmentally-based Planning Model for Regional Tourism Development. *Journal of Sustainable Tourism*, 1(1), 17-37.
- 3) Lane, B. (1994). Sustainable rural tourism strategies: A tool for development and conservation *Journal of Sustainable Tourism*, 2(2), 102-111.
- 4) ram well, B. & Lane, B. (2010). Sustainable tourism: an evolving global approach. *Journal of Sustainable Tourism*, 1(1), 1-5.
- 5) Simmons, D. (1994). Community participation in tourism planning. *Tourism management*, 15(2), 98-108. doi: 10.1016/0261-5177(94)90003-5

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Development of Smart City : Impact and Transformation due to Urbanization

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MAHARASHTRA BHUGOLSHASTRA PARISHAD'S

35th Annual International Conference

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an institution, has always been a symbol of civilization in history, and it notions as an engine of growth in the contemporary world. There is a direct and positive association between the level of urbanization of a country and her economic prosperity is usually expressed in GDP. The view of many experts that the income of the rich countries of the world like the United States of America, Germany and Japan is generated through the service sector and it raises GDP and a major section of population resides in cities. On the other hand, in the poor countries, most of the income comes from the agriculture sector. In developing countries the major population resides the suburban and the rural areas. The increasing urbanization in the developing countries is an indication of the importance given by people to the service sector. Proper development of cities should run through proper planning. A smart market zone could be developed, where accommodation, transportation, parking area and banking network are available. Biodiversity Park and open space are necessary for nature conservation and environmental balance. To absorb the rural population in services, it is essential to create more employment, and more resources, with planning and find the solutions of the problems like housing shortages, heavy traffic, inadequate medical services and health issues, safe drinking water, undesirable misuse of land, declining trees cover, quality of air, noise pollution, market area planning, sanitation, garbage cycling etc. Obviously, such solutions and remedial measures can be involved with the appropriate studies on planning with a geographical approach.



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"IMBALANCE IN SEX RATIO : A SOCIO-ECONOMIC STUDY OF CHOPDA CITY"

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Abstract:-

The main purpose of this study is to present the research in the field of gender ratio, in component of sex ratio measurement by social economical study of the imbalance. Relevant research methods for the selection of the sample in stratified layer of sample section. The survey of questionnaire is analyzed with the help of methods on her version of the primary statistics.

In 2011 census, the chopda city total population of 72783. In male population 37601 and female population 35182. As compared to the rate for women were 926 thousand men. The present research appears in the growth of the city chopda during period (2011-2017) the rate of the proportion between women. The rate of thousand men as 941 women. Act one gender test ban, abortion females for law, education, and population growth has a positive impact, public awareness of the number of women as a result of this entire component.

The present research paper in Chopda city population of sex ratio in 941 his triplets

is sex ratio is 913. His thoughts of population the total increase in sex ratio appears when the tender would e social study 16 per thousand among women's religious has been reduced. Hindu religious population rate among women is 16 per thousand declines.

Muslim, Buddhist and Christian religions seems to have been an increase in the population ratio. The appointment of a gender ratio imbalance appears to be ethnic. Other backward class and other lopes caste population rate per thousand women found that 16 and 17 respectively stored. SC, ST and tribe woman have increased in the nomadic communities. Secondary and higher education has increased the proportion of women in the population. The illiterate populations the proportion of women was found less.

The study of the area diversity of population is in the form of business. Gender structure of the population appears more physical labor works imbalance. The service sector seems to be decreasing proportion of the population sex ratio is imbalance. Depending on the nature of the business income of low income group of population sex ratio is increase. The population decline in the gender composition of the social economical impact parameter and gender ratio imbalance appears.

Introduction:-

The global background was the only topic of contemplation has become a serious concern for the imbalance in the population structure of gender. Nature is difference between male - women. It the thought of healthy social condition. Should be the same but that does not appear outside the country. If there think the global level gender composition is consider as the basic features and community. This is less than number of men and women in the overall economic development and natural five to by depend on the position. It is depending on the social

system is not a little or few worlds in India are as low as a man gently number of relatively women.

The presented dissertation is to the study of the social and economic aspect of city of chopda the factors responsible for the imbalance in the ratio of the population. The presented dissertation the survey of the year, including during the period 2017 to the 223 household in chopda city. Information obtains from the questionnaire and interview techniques collected to layered ideal choice method. Information obtained statistical formulas version of the information is analyzed.

Objectives of the study:

- 1) Chopda city to measure the gender ratio.
- 2) Sex ratio the study of imbalance the wise socio economical factors.

Study Area:

Jalgaon dictrict in the north of the city of north Maharashtra in khandesh chopda loction is north- west of jalgaon district. Chopda country side in east – yawal, west of the shirpur (Dhule) in country. Northof the satpuda mountain, Madhya Pradesh is the state border and south of the Tapi River. Chopda city area is 8 sq. km.

Chopda City population is estimated at 72783 (2011). The population of city S.C. population 5439 (7.47%) of the population is under S.T. 5848 (8.03%). The average annual precipitation is 60 to 75 cm and average annual temperature in taluka is 29° C. Chopda city situated at the 189 meter height above sea level.

Research Methodology :

Proposed research study is made on primary as well as on secondary data. Primary data was collected from 233 households in the Chopda city. Randomly choosen this household data in all parts of the city. Secondary data was collected from the census handbook of the Jalgaon district. Census of year 2011 and 2017 was utilized for the analysis of present study.

Field survey of households conducted for the proposed collection of primary data. Survey method and after that analytical method was used by researchers. After the collection of data, researchers

had tabulate data, processing on them and apply statistical tests i.e. percentage, mean for the presentation. Graphical analysis made by the help of computerized cartographic techniques.

Interpretation:

Chopda total population of the city was under 2011 census 72783. The total population of males 37601 to female against 35183 in the city can be found in the course of chopda. Chopda sex ratio is imbalance. In the 2011 census, according to the city's number of women behind the rate of 936 per thousand male. The present research appears in the period of (2011-2017) increase in (941). Law on gender diagnostics test ban, abortion. center rate, the population is a result of growth in the number of women in all aspect of education and awareness favorable impact in educating the public. Sex ratio imbalance are many factors. Ex-biological components, social economic, political and cultural factors etc. Chopda present research article in social and economical factors have been studies with the wise ratio imbalance.

Table No. 1.1: Religion Wise Sex Ratio

Religion	Total Number Of Family	The Number Of Family Member		Family Sex Ratio	Total Boys	Total Girl	Sex ratio
		male	Female				
Hindu	152	377	349	925	211	180	853
Muslim	25	77	72	935	35	38	1085
Bouddha	38	68	70	1029	31	32	1032
Khristian	08	24	23	958	11	13	1181
Total	223	546	514	941	288	263	913

Source: computed by authors

Table No. 1.1 shows, Chopda city Hindu religion sex ratio of the population 925. So the sex ratio is found 853 triplets similarly, the Muslim religions population family and gender sex ratio is 935 found in the development of gender ratio. Similarly, the population sex ratio is 1029 Buddhism. The ratio appear to increase triplets league(1032) and the sex ratio of the population at the end of the christen religious, family sex ratio is 914.



If the sex ratio of the triplets found in the development of their gender ratio (1181).

Hindu religion, we see a social custom tradition, social factors have an adverse impact on the number of women like these supper stations, dowry methods, the opposite in Muslim, Buddhist form the social, religious population consists of girls increased number of result appear. Christian religions become of religious and social restrictions on christion eligious population appears to increase the opulation sex ratio.

Educational Level	Total Number Of Family	The Number Of Family Member		Family Sex Ratio	Total Boy	Total Girl	Sex ratio
		male	Female				
Higher	47	45	49	1088	16	16	1000
Secondary	80	156	154	987	83	81	976
Primary	70	211	184	872	125	107	856
Illiteracy	26	134	127	947	64	59	921
Total	223	546	514	941	288	263	913

As observed above chart, academic status, gender composition of the population is the result of clear guidelines. Educational level increases to balance gender ratio being found in nature. If the deteriorating educational level seems to increase when the structure of gender imbalance. In Chopda city completed in well educated, secondary education, primary education and the gender ratio, of the children of illiterate population respectively 1000, 976,856 and 921 appears. The educational level appears unbalanced sex ratio – wise.

Table No. 1.2 : Category wise sex ratio of the population

Category	Total Number Of Family	The Number Of Family Member		Family Sex Ratio	Total Boys	Total Girl	Child Sex ratio
		male	Female				
	30	64	62	969	32	30	937
	25	49	51	1040	25	28	1120
	22	48	45	937	22	20	909
C	105	266	246	925	141	123	872
a	41	119	110	924	68	32	911
al	223	546	514	941	288	263	913

Chopda city is caste wise sex ratio can found in various differences. The family sex ratio (941) and only the gender ratio in the family triplet (913) also appear imbalances. Chopda cities family population sex ratio for educated caste (969) if triplet's sex ratio (937) appears S.T. family, the sex ratio of the population (1040) and the sex ratio of triplets (909) appear. Nomadic tribes and caste family sex ratio of the population (937) and the ratio of the triplates (909) appear. Similarly, other backward caste family sex ratio (925) and its triplets (872) found the sex ratio of the population thanks to the appointment of family sex ratio is 924. The gender ratio of 11 triplets found sex ratio imbalance is Chopda city in caste – wise.

Table No.1.4: Gender wise business population

Religion	Total Number Of Family	The Number Of Family Member		Family Sex Ratio	Total Boy	Total Girl	Sex ratio
		Male	Female				
Business	124	389	365	938	157	137	873
Service	82	114	110	964	99	97	979
Farmers	17	43	39	906	32	29	906
Total	223	546	514	941	288	263	913

The result of business form appears when sex ratio. As well as difference in the population show obvious difference was seen also dumped its population sex structure. As has been observe in the table no. 4, Chopda city family in the sex ratio of 938. Who work for the wages that the sex ratio is 873 triplex family sex ratio of the various services and the service sector 964 and its triplets found is 979. If the same trade industry 906 triplets gender ratio of the area of business can be found.

Population gender ratio is imbalance Chopda wages in the business. The government / semi government/ private sector but the real variation in the population sex structure of the population in the service on the occupation is less than gender sex ratio

Table No.1. 3 : Education Level wise sex ratio

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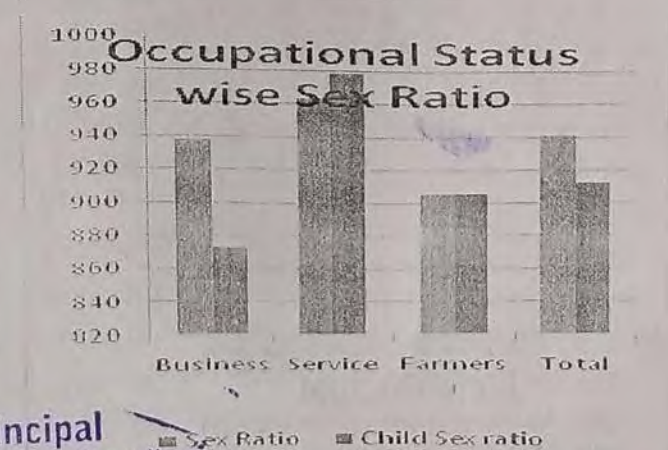
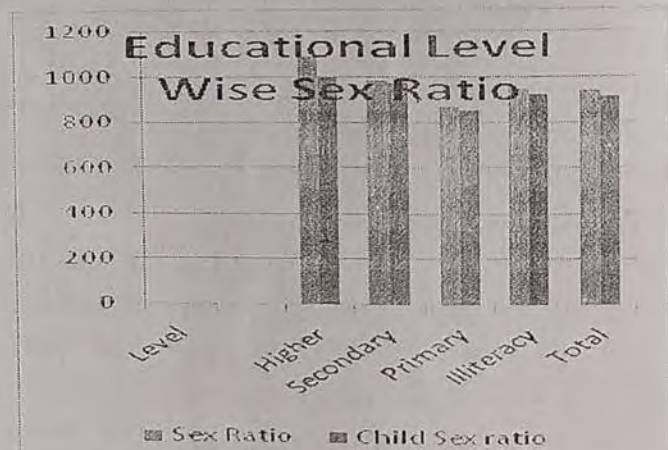
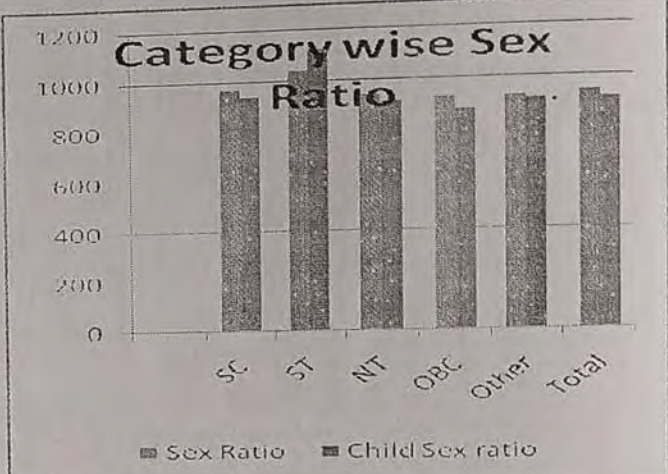
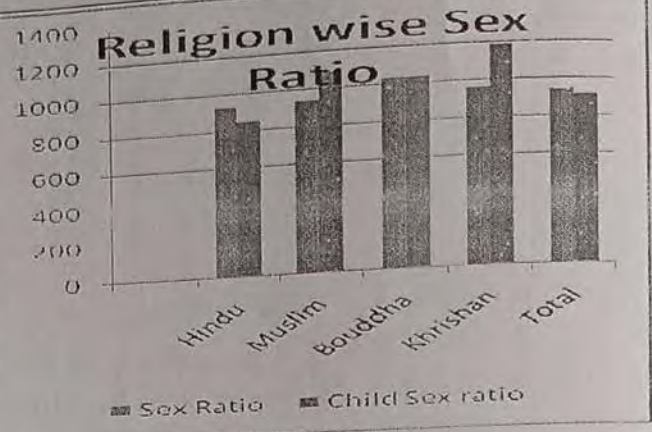
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in imbalance. Service sector 55% population is highly education has been the effect mainly of the education.

Table No. 1.5 : Income group wise sex ratio

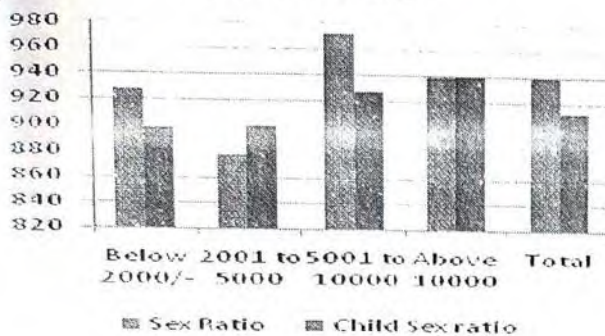
Income	Total Number Of Family	The Number Of Family Member		Family Sex Ratio	Total Boy	Total Girl	Sex ratio
		male	Female				
Below 2000/-	109	252	234	928	148	133	898
2001 to 5000	08	33	29	878	10	09	900
5001 to 10000	71	178	173	972	96	89	927
Above 10000	53	83	78	939	34	32	941
Total	223	546	514	941	288	263	913

Since different income households in the city of Chopda tools found their wonderfully contrast appears reduced monthly income. if the monthly income with the sex ratio of men and women. Monthly income from Rs. 2000 loss than the family's gender ratio 928. With the sex ratio triplets 989 and their family income from Rs. 2000 to 5000 with sex ratio is 878 and the ratio of triplets 900. Their family income in monthly income Rs. 5000 to 10000 in the ratio is 939 and its triplet's sex ratio appears in 941. Chopda city is the result of the sex ratio in smaller monthly income of the



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Income group wise Sex Ratio



25

Spatial Distribution of Market Centers in Hingoli District: A Geographical Study.

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Conclusion:

In 2011, the Chopda city total population, the number of women (936) compared should that the increase present. Although this increase in the number of women per thousand men is less compared the total population sex ratio compared to population of the city Chopda religion, caste, education, occupation, income such as social and economic constituents are found in a child sex ratio imbalance wise from the gap. The nature of the source. Education level of the population, business, religion, economic status and social factor are responsible for the result Chopda and the sex ratio imbalances.

References :

- K. Siddharth (2001): Population Geography Kisalaya Publications Pvt. Ltd., New Delhi.
- Bhende, Asha and Kanitkar, Tara (2005): Principles of Population Studies, Popular Publishing House, Mumbai.
- Hassan, M.I. (2005): Population Geography, Rawat Publications, Jaipur.
- Primary Census Abstract (CD) : 2011
- Census Hand Book, Jalgaon District
- District Statistical abstract 2016-17

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Abstract:

Marketing Geography describes the various facts of retailing as aspect of Geography which is concerned with territory economic activities and especially the distributive trades. The distribution of market centers is influenced by different physical and cultural factors. rural economy market plays a vital role in the interactions and exchanging the local products through certain norms where 'system of rural market serves as the nodal points for the collection and distribution of large range of goods and services of both local and external origin' Therefore attempt is made here to analyze spatial distribution of market centers in Hingoli District. The paper is based on secondary data. To analyze spatial distribution of market centers Statistical techniques i.e. mean and Standard Deviation has been utilized. The study reveals that there is great influence of geographical factors on distribution of market centers in Hingoli District.

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City as an institution, has always been a symbol of civilization in history, and it functions as an engine of growth in the contemporary world. There is a direct and positive association between the level of urbanization of a country and her economic prosperity is usually expressed in GDP. The view of many experts that the income of the rich countries of the world like the United States of America, Germany and Japan is generated through the service sector and it raises GDP and a major section of population resides in cities. On the other hand, in the poor countries, most of the income comes from the agriculture sector. In developing countries the major population resides in the suburban and the rural areas. The increasing urbanization in the developing countries is an indication of the importance given by people to the service sector. Proper development of cities should run through proper planning. A smart market zone should be developed, where accommodation, transportation, parking area and banking network are available. Biodiversity Park and open space are necessary for nature conservation and environmental balance. To absorb the rural population in services, it is essential to create more employment, and more resources, with planning and find the solutions of the problems like housing shortages, heavy traffic, inadequate medical services and health issues, safe drinking water, undesirable misuse of land, declining trees cover, quality of air, noise pollution, market area planning, sanitation, garbage recycling etc. Obviously, such solutions and remedial measures can be involved with the appropriate studies on planning with a geographical approach.



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RESEARCH ARTICLE

Synthesis, Characterization and *In-Vitro* Antidiabetic Studies of Vanadium Complexes derived from N₂O₂ donor Ligands

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ABSTRACT:

Trace elements are very essential for human health. Chemists have been attracted to prepare new potent inorganic pharmaceutical agents and these are used to treat chronic diseases. Vanadium complexes are used as good diagnostic tool for diabetes mellitus. The progress in the field of development in orally active antidiabetic vanadium complexes with different coordination structures using experimental diabetic animals and enzyme inhibitory action (α -amylase inhibition). In the present study we synthesized, characterized and evaluated % α -amylase inhibition by vanadium complexes having tetradentate Schiff base ligands-H₂L₁, H₂L₂ and H₂L₃. The mole ratio for preparation of complexes is 1:1. The synthesized vanadium complexes were characterized by sophisticated techniques and screened for antidiabetic activity by α -amylase inhibition assay. The data assigned to conclude that H₂L₁ shows lowest IC₅₀ value 0.786 mg/ml while L₂V shows highest IC₅₀ value 0.626 mg/ml.

KEYWORDS: Chronic diseases, antidiabetic and α -amylase Inhibition

INTRODUCTION:

Diabetes comprises a group of metabolic disorders characterized by chronic hyperglycemia with disorders in the metabolism of carbohydrate, fat and protein that result in defects in secretion and action of insulin [1]. The action dysfunction and failure of various organs, especially the eyes, kidneys, nerves, heart and the blood vessels are the usual complications of diabetes [2,3]. The literature study reveals that compounds of the trace element vanadium exert various insulinomimetic and anti-diabetic effects *in vitro* and *in vivo* [4-8].

Metallotherapy is a new therapeutic strategy to treat diabetes with metal complexes. It is first studied by Coulson and Dandona, in 1980 that ZnCl₂ stimulates lipogenesis in rat adipocytes similarly to the action of Insulin. During three decades many researchers reported insulin-mimetic activity, α -glucosidase and α -amylase inhibition with different transition metal complexes involving variety of ligands [9]. One of the current focuses is to create pharmaceuticals that will take advantage of the insulinomimetic and anti-diabetic properties of vanadium in the place of insulin injections and synthetic drugs [10,11]. Schiff base metal complexes have been widely studied because they have industrial, antifungal, antibacterial, anticancer, antiviral and herbicidal applications [12-17]. The first report of vanadium salts being used as a metallotherapeutic agent appeared in 1899 [18]. Several vanadium complexes of the tetradentate Schiff base ligand N,N'-bis(salicylidene)ethylenediamine (salen) have been proposed for potential application as insulin mimetic agents [19]. Salen type ligands (H₂L₁, H₂L₂) derived by reacting substituted benzaldehyde o-(thymoldehyde) with different diamines and a reduction product (H₂L₃) of one of the Schiff base (H₂L₁).

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MATERIALS AND METHOD:

Chemicals

All reagents and chemicals were purchased from commercial sources and were used without further purification. All the ligands and vanadium complexes were synthesized by the reported method. VOSO_4 and NaBH_4 was obtained from SRL Chemicals, ethylenediamine, o-phenylenediamine, 1,3-propylenediamine were purchased from sigma Aldrich chemicals, while methanol and ethanol were purchased from Merck Co. (India). Acarbose, sodium phosphate buffer, starch, dinitrosalicylic acid (DNS) reagent and porcine pancreatic α -amylase were procured from SRL Co. (India). Double distilled water was used for all the experiments.

Experimental

The electronic spectra of ligand and complexes are recorded as DMSO solutions in the range 200–800 nm on a UV 2400 Series spectrophotometer. FT-IR spectra were recorded as KBr pellets on a SHIMADZU FT-IR-8400 spectrometer in the range 4000–400 cm^{-1} . ^1H and ^{13}C NMR spectra were measured with a BRUKER AVANCE III (400 MHz) spectrometer and proton chemical shifts have been recorded in ppm relative to tetramethyl silane as an internal standard using CDCl_3 as solvent, while the LC-MS spectra of complexes have been recorded on a Waters Micromass Q-ToF Micro instrument. The elemental analysis of ligands and complexes were carried out with a ThermoFinnigan elemental analyzer. Magnetic susceptibilities are measured at room temperature on a Guoy balance using $\text{Hg}[\text{Co}(\text{NCS})_4]$ as reference.

Synthesis of Ligands

I] Synthesis of 6,6'-{(1E,1E')-(ethane-1,2-diylbis(azanylylidene))bis(methanylylidene)bis(2-isopropyl-5-methylphenol)} (H_2L_1)

The solution of 2-hydroxy-3-isopropyl-6-methylbenzaldehyde (0.002 M) in 15 ml ethanol was added to ethylenediamine (0.001 M) in 15 ml ethanol. The reaction mixture was refluxed on water bath for 8 hrs. The reaction mixture was allowed to cool; subjected to evaporate slowly and the yellow crystals formed was filtered, washed with cold ethanol and finally with petroleum ether. The product was recrystallized from ethanol [20]. Anal. Calc. for $\text{C}_{24}\text{H}_{32}\text{N}_2\text{O}_2$: Found: C, 75.50; H, 8.73; N, 7.26, O, 8.51. Calculated: C, 75.75; H, 8.48; N, 7.6, O, 8.41. NMR (CDCl_3 , δ ppm) 1.27(d, 12H, gem 4 CH_3), 2.34(s, 6H, 2Ar- CH_3), 3.32(heptet, 2H, 2CH), 3.91(s, 4H, CH_2 - CH_2), 6.58(d, 2H, 2Ar-H, ortho to isopropyl gr), 7.09 (d, 2H, 2Ar-H ortho to methyl gr), 8.66 (s, 2H, 2CH=N). MS (m/z): Calc.: 380.25, Obs.: 381.3 (Color- Yellow Solid, M.P.- 115 $^\circ\text{C}$, M.W.-380, Yield-83%)

II] Synthesis of 6,6'-{(1E,1E')-(propane-1,3-diylbis(azanylylidene))bis(methanylylidene)bis(2-isopropyl-5-methylphenol)} (H_2L_2)

Solution of 2-hydroxy-3-isopropyl-6-methylbenzaldehyde (0.002 M) in 15 ml ethanol and solution of 1,3-diamino propane (0.001 M) in 15 ml ethanol were mixed in round bottom flask. Reaction mixture was refluxed on water bath for 8 hrs. The solution was concentrated to obtained dark green liquid. Anal. Calc. for $\text{C}_{25}\text{H}_{34}\text{N}_2\text{O}_2$: Found: C, 75.48; H, 8.85; N, 7.05, O, 8.72. Calculated: C, 76.10; H, 8.69; N, 7.10; O, 8.11. NMR: δ 1.08-1.2 (12H, d), 2.40 (6H, s) 2.5 (2H, quin), 3.30 (2H, m), 3.73-3.77 (4H, t), 6.5-6.6 (2H, d), 7.12-7.24 (2H, d), 8.73 (2H, s, for OH), 14.68 (2H, s) ^{13}C MR: 18.66, 22.50, 26.22, 31.67, 56.75, 115.81, 120.00, 129.04, 134.64, 135.92, 159.97, 167.52. MS (m/z): Calc. 394.26, Obs. 395.3 (Color- Yellow Solid, M.P.=80 $^\circ\text{C}$, M.W.=394, Yield=76 %)

III] Synthesis of 6,6'-{(ethane-1,2-diylbis(azanediy))bis(methylene)bis(2-isopropyl-5-methylphenol)} (H_2L_3)

The solution of 2-hydroxy-3-isopropyl-6-methylbenzaldehyde (0.002 M) in 15 ml ethanol was transferred to ethylenediamine (0.001 M) in 15 ml ethanol and NaBH_4 (0.002 M) was added to it. The reaction mixture was refluxed on water bath for 2 hrs and the reaction mixture was allowed to cool; subjected to evaporate slowly and the yellow crystals formed were separated by filtration, washed with cold ethanol and finally with petroleum ether. The product was recrystallized from ethanol. Anal. Calc. for $\text{C}_{24}\text{H}_{36}\text{N}_2\text{O}_2$: Found: C, 75.48; H, 8.85; N, 7.05; O, 8.72. Calculated: C, 76.10; H, 8.69; N, 7.10; O, 8.11. NMR: δ 1.13-1.14 (12H, d), δ 2.51 (4H, s), δ 2.51 (4H, s), δ 3.16-3.23 (2H, m), δ 3.88 (2H, s, for OH), 6.47-6.51 (2H, d), 6.86-6.87 (2H, d), 8.13-8.14 (2H, s), ^{13}C MR: 19.21, 22.47, 25.80, 47.13, 47.50, 119.99, 120.00, 123.69, 132.29, 132.32, 155.59. MS (m/z): Calc. 384.26, Obs. 385.3 (Color- White Solid, M.P. -161 $^\circ\text{C}$, M.W.-382, Yield-81%)

Synthesis of Complexes

Synthesis of $[\text{L}_1\text{V}]$

A 40 ml ethanolic solution of H_2L_1 (0.001M) and 40 ml of ethanolic solution of vanadium sulphate (0.001M) were mixed and refluxed for 3-4 h. The solvent was allowed to evaporate slowly and the precipitated compound was filtered, washed with cold ethanol, water and finally with petroleum ether. Color: Dark Black solid; Yield: 79%; Anal. Calc. for $\text{VC}_{24}\text{H}_{30}\text{N}_2\text{O}_2$: Found: C, 67.12; H, 7.04; N, 6.52; O, 7.45; V, 11.86. Calculated: C, 67.40; H, 7.80; N, 6.42; O, 7.85; V, 11.54. μ_{eff} : 1.46 B.M.; Conductance (Λ_M , $\Omega^{-1} \text{cm}^2 \text{mol}^{-1}$) in DMSO: 17.4. ESI-MS m/z, ion 445.1 $[\text{M}]^+$

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Synthesis of [L₂V] and [L₃V]

Complexes 2 and 3 were prepared by similar procedure as for complex 1. Complex 2, (Pale Orange): yield, 62%. Anal. Calc. for VC₂₅H₃₂N₂O₂. Found: C, 67.71; H, 7.27; N, 6.32; O, 7.22; V, 11.49 %. Calculated: C, 67.55; H, 7.93; N, 6.42; O, 7.70; V, 11.80. μ_{eff} : 1.72 B.M.; Conductance (Λ_M , $\Omega^{-1} \text{ cm}^2 \text{ mol}^{-1}$) in DMSO: 37.0. ESI-MS m/z, ion 482.1 [M]⁺. Complex 3, (Grey violet): yield: 78%. Anal. Calc. for VC₂₄H₃₂N₂O₂. Found: C, 66.81; H, 7.48; N, 6.49; O, 7.42; V, 11.81%. Calculated: C, 66.70; H, 7.89; N, 6.45; O, 7.70; V, 11.40. μ_{eff} : 1.83 B.M.; Conductance (Λ_M , $\Omega^{-1} \text{ cm}^2 \text{ mol}^{-1}$) in DMSO: 9.0; ESI-MS m/z, ion 449.2 [M]⁺. The solvent was allowed to evaporate slowly and the precipitated compound was filtered, washed with cold ethanol and finally with petroleum ether.

Biological Activity

α -amylase Inhibition assay

Appropriate dilution of 500 μl vanadium complexes and 500 μl of 0.02M sodium phosphate buffer (pH 6.9 with 0.006 M NaCl) containing porcine pancreatic α -amylase (0.5 mg/ml) were incubated at 25°C for 10 minutes. Then 500 μl of 1% starch solution in 0.02 M sodium phosphate buffer (pH 6.9 with 0.006 M NaCl) was added to each tube. The reaction mixtures were incubated at 25°C for 10 minutes and stopped with 1.0 ml of dinitrosalicylic acid color reagent. Thereafter, the

mixture was incubated in a boiling water bath for 5 minutes and cooled to room temperature. The reaction mixture was then diluted by adding 10 ml of distilled water and absorbance was measured at 540 nm [21-22].

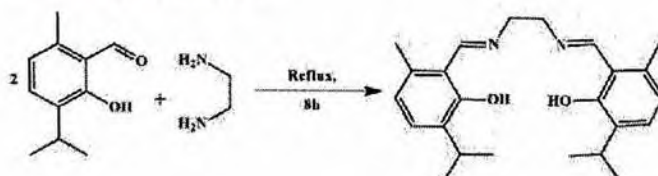
All the samples were run in triplicate, acarbose was taken as standard reference compound. Several dilutions of primary solution (0.5mg/ml DMSO) were made and assayed accordingly to obtain concentration of the test sample required to inhibit 50% activity (IC₅₀) of the enzyme.

RESULTS AND DISCUSSION:

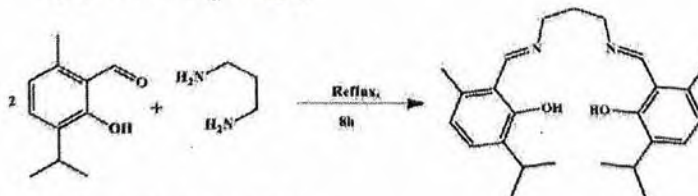
The N₂O₂ donor symmetrical Schiff bases [H₂L₁, H₂L₂] were prepared by condensation of 2-hydroxy-3-isopropyl-6-methylbenzaldehyde with ethylenediamine and propane-1,3-diamine in 2:1 M ratio in ethanolic solution and [H₂L₃] by reduction of [H₂L₁]. [L₁V], [L₂V] and [L₃V] complexes were synthesized by refluxing ligand with equimolar amount of metal sulphate in methanol in 1:1 ratio. The spectral analysis agrees with proposed structure of the complexes.

The synthesized ligands H₂L₁, H₂L₂ and H₂L₃ and their vanadium complexes were screened for in vitro antidiabetic study by α -amylase inhibition assay

I) Synthesis of Ligand H₂L₁



II) Synthesis of Ligand H₂L₂

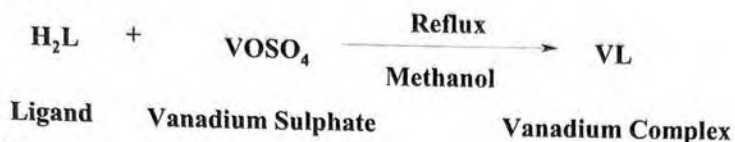


III) Synthesis of Ligand H₂L₃





IV) Synthesis of Vanadium Complex



Where $\text{H}_2\text{L} = \text{H}_2\text{L}_1 / \text{H}_2\text{L}_2 / \text{H}_2\text{L}_3$

A lot of literatures were reviewed and it was found that several complexes have been prepared to evaluate their antidiabetic activity for the development of a clinically useful metallopharmaceutics. However the research of Vanadium complexes on the long-term toxicity including their side effects and clear-cut evidence of target molecules for the *in vivo* as well as *in vitro* pharmacological action and good pharmacokinetic property are highly essential [9-11]. Many vanadium complexes have been prepared to examine their α -amylase inhibition activity. In present investigation we

have examined their α -amylase inhibition of three ligands and their V (IV) complexes. Table 3 demonstrates the IC_{50} value of Acarbose, ligands and vanadium complexes. Table 4 (a) and (b) shows the absorbance of standard acarbose, ligands and vanadium complexes. Table 5 (a) and (b) represents the α -amylase inhibition of standard acarbose, ligands and vanadium complexes. Fig. 1 and Fig. 2 represent absorbance and % inhibition at various concentrations of ligands and vanadium complexes.

Table 1: IR Spectral data (cm^{-1}) of ligands and their metal complexes

Compound	$\nu(\text{C}=\text{N})$	$\nu(\text{C}=\text{O})$	$\nu(\text{C}=\text{C})$	$\nu(\text{C}-\text{N})$
H_2L_1	1624	1340	1450	1125
L_1V	1608	1378	1462	1047
H_2L_2	1608	1355	1458	910
L_2V	1624	1377	1460	1056
H_2L_3	1620	1360	1460	1080
L_3V	1605	1372	1404	1095

Table 2: Electronic spectra data (nm) of ligands and vanadium complexes

Compound	Inter-ligand and Charge Transfer (CT) in nm			
	CT	d-d		
H_2L_1	278	344	--	--
L_1V	270	327	380	554
H_2L_2	260	283	--	--
L_2V	273	288	378	551
H_2L_3	280	332	--	--
L_3V	269	326	374	549

Table 3: IC_{50} values of standard, ligands and vanadium complexes

Sr. No.	Compound	IC_{50} value in mg/ml
1	Acarbose	0.3720
2	H_2L_1	0.7860
3	L_1V	0.7000
4	H_2L_2	0.6830
5	L_2V	0.6260
6	H_2L_3	0.7512
7	L_3V	0.7091

Table 4 (a): Absorbance of ligands at various concentrations

Sr. No.	Conc. (mg/ml)	H_2L_1	Error +-SD	H_2L_2	Error +-SD	H_2L_3	Error +-SD
1	0.1	0.522	0.002	0.456	0.002	0.496	0.004
2	0.2	0.437	0.002	0.414	0.003	0.431	0.005
3	0.4	0.400	0.003	0.368	0.001	0.382	0.002
4	0.6	0.369	0.004	0.333	0.002	0.355	0.001
5	0.8	0.337	0.001	0.288	0.004	0.330	0.003
6	1.0	0.296	0.005	0.244	0.003	0.280	0.004

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Table 4 (b): Absorbance of standard and vanadium complexes

Sr. No.	Conc. (mg/ml)	Acarbose	Error +-SD	L ₁ V	Error +-SD	L ₂ V	Error +-SD	L ₃ V	Error +-SD
1	0.1	0.061	0.002	0.495	0.003	0.457	0.003	0.470	0.003
2	0.2	0.052	0.001	0.465	0.001	0.388	0.002	0.418	0.004
3	0.4	0.043	0.003	0.423	0.004	0.325	0.005	0.395	0.002
4	0.6	0.036	0.004	0.320	0.002	0.270	0.001	0.329	0.003
5	0.8	0.022	0.001	0.292	0.003	0.262	0.002	0.305	0.001
6	1.0	0.013	0.002	0.240	0.005	0.232	0.004	0.260	0.004

Table 5 (a): % of α -amylase inhibition of ligands

Sr. No.	Conc. (mg/ml)	H ₂ L ₁	Error +-SD	H ₂ L ₂	Error +-SD	H ₂ L ₃	Error +-SD
1	0.1	18.68	0.002	28.97	0.002	22.74	0.004
2	0.2	31.93	0.002	35.51	0.003	32.86	0.005
3	0.4	37.69	0.003	42.67	0.001	40.49	0.002
4	0.6	42.52	0.004	48.13	0.002	44.70	0.001
5	0.8	47.50	0.001	55.14	0.004	48.59	0.003
6	1.0	53.89	0.005	61.99	0.003	56.38	0.004

Table 5 (b): % of α -amylase inhibition of vanadium complexes

Sr. No.	Conc. (mg/ml)	Acarbose	Error +-SD	L ₁ V	Error +-SD	L ₂ V	Error +-SD	L ₃ V	Error +-SD
1	0.1	90.95	0.002	22.89	0.003	28.81	0.003	26.79	0.003
2	0.2	91.90	0.001	27.57	0.001	39.56	0.002	34.89	0.002
3	0.4	93.30	0.003	34.11	0.004	49.37	0.005	38.47	0.005
4	0.6	94.32	0.004	50.15	0.002	57.94	0.001	48.75	0.001
5	0.8	96.57	0.001	54.50	0.003	59.19	0.002	52.49	0.002
6	1.0	97.98	0.002	62.61	0.005	63.86	0.004	59.56	0.004

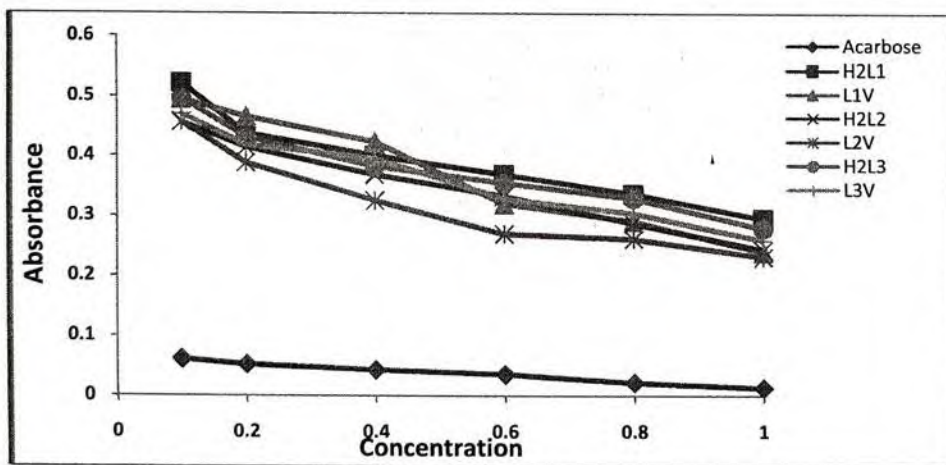


Figure 1: Representing graph between concentration (mg/ml) and absorbance

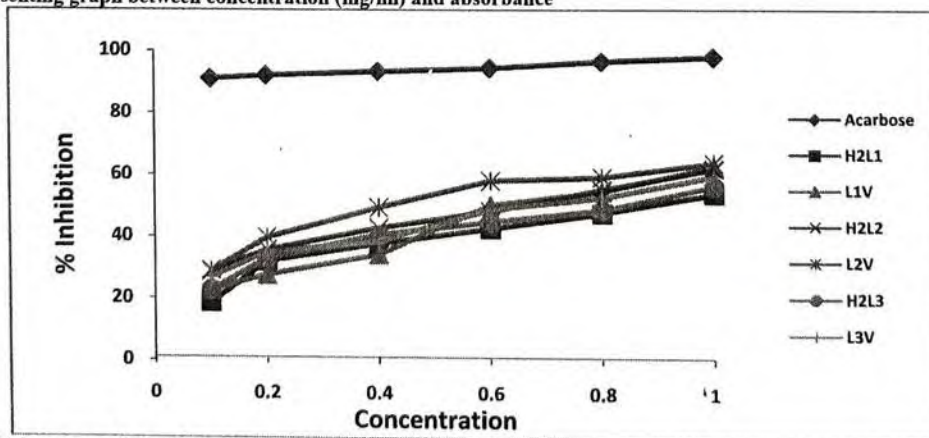


Fig. 2: % Inhibition curve of α -amylase v/s concentration of samples



Spectral Characterization

Electronic Spectra

The electronic spectra of synthesized ligands and its vanadium complexes were recorded in DMSO solutions at different concentrations in the range 200-800 nm. The spectral data of Schiff bases shows two bands in the range of 265-280 nm and 280-344 nm due to $\pi \rightarrow \pi^*$ and $\eta \rightarrow \pi^*$ transitions [23]. The electronic spectra of complex (1) shows absorption bands having a λ_{\max} 270 nm assigned to $\pi \rightarrow \pi^*$ of aromatic ring and 327 nm assigned to $\eta \rightarrow \pi^*$ transition of $-C=N$ [24]. The electronic spectra of complex (2) shows absorption bands having λ_{\max} 273 nm assigned to the $\pi \rightarrow \pi^*$ of aromatic ring and 288 nm assigned to $\eta \rightarrow \pi^*$ transition of $-C=N$, the 378 nm band assigned to ligand to metal ion charge transfer and d-d transition at 551 nm of the complex indicating square planar geometry [25-27]. The electronic spectra of complex (3) shows absorption bands having λ_{\max} 269 nm assigned to the $\pi \rightarrow \pi^*$ of aromatic ring and 326 nm assigned to $\eta \rightarrow \pi^*$ transition of $-C=N$, the 374 nm band assigned to ligand to metal charge transfer and 549 nm band assigned to the ${}^2B_{1g} \rightarrow {}^2A_{1g}$ transition showing square planar geometry [28,29].

FT-IR Spectra

The IR spectra of the ligand and complexes compared to conform the coordination of the ligand. The band at 1610 cm^{-1} attributed to the $-C=N$ in the Schiff base ligand was observed to shift to lower frequency region, $1610\text{-}1546 \text{ cm}^{-1}$ in all complexes illustrating participation of the azomethine nitrogen atom in coordination. The peak at 3220 cm^{-1} appear for the phenolic-OH group. The peak appearing in the ligand at 1260 cm^{-1} due to C-O was shifted to $1260\text{-}1378 \text{ cm}^{-1}$ upon complexation. The weak and low frequency bands appearing in the range $400\text{-}600 \text{ cm}^{-1}$ corresponds to presence of M-O and M-N in coordination with metal [27].

Magnetic Susceptibility

The all three vanadium complexes shows magnetic moment in the range of 1.46 to 1.83 B.M. corresponding to square planar geometry showing one unpaired electron [30,31].

Molar Conductivity

The molar conductivities Λ_M of metal complexes dissolved in DMSO at 10^{-3} Mol concentration were found to be in the range of $9\text{-}37 \Omega^{-1} \text{ cm}^2 \text{ mol}^{-1}$. The low values indicate that all these complexes are non-electrolyte in nature due to absence of any counter ions in their structures [30].

CONCLUSION:

In above investigation we are reporting the synthesis and characterization of ligands and their Vanadium complexes. It has been observed that Vanadium complexes possess higher activity than their respected ligands. The ligands and their vanadium complexes were screened for their in vitro antidiabetic activity. Sharp intense peak around 1600 cm^{-1} in IR spectra shows the formation of complexes. All ligands and complexes shows α -amylase inhibition activity, data assign to conclude that H_2L_1 shows lowest IC_{50} value 0.786 mg/ml while L_2V show highest IC_{50} value 0.626 mg/ml activity. All the ligands and vanadium complexes have IC_{50} less than 1 mg/ml , the values are close to standard drug Acarbose.

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REFERENCES:

1. Alberti KG, Zimmet PZ. Definition, diagnosis and classification of diabetes mellitus and its complications. Part 1: diagnosis and classification of diabetes mellitus provisional report of a WHO consultation. *Diabet Med* 1998;15:539-553.
2. Beletate V, El Dib RP, Atallah A.N. Zinc supplementation for the prevention of type 2 diabetes mellitus. *Cochrane Database Syst Rev* 2007(1):CD005525.
3. Kuzuya T, Nakagawa S, Satoh J, et al. Report of the Committee on the classification and diagnostic criteria of diabetes mellitus. *Diabetes Res ClinPract* 2002;55:65-85.
4. Srivastava AK, Anti-diabetic and toxic effects of vanadium compounds. *Mol Cell Biochem* 2000; 206:177-182.
5. Cam MC, Brownsey RW, McNeill JH, Mechanisms of vanadium action: insulin-mimetic or insulin-enhancing agent *Can J PhysiolPharmacol*2000;78:829-847.
6. Brichard S. Outlook of diabetes treatment possibilities with vanadium and other metal salts. In: Shafir E, Raz Z, Skyler J, eds. *Diabetes:from Research to Diagnosis and Treatment*. London: Martin Dunitz Group, 2003:497-509.
7. Tsiani E, Fantus IG. Vanadium compounds. Biological actions and potential as pharmacological agents. *TrendsEndocrinolMetabol* 1997;8:51-58.
8. Shechter Y. Insulin-mimetic effects of vanadate. Possible implications for future treatment of diabetes. *Diabetes*1990;39:1-5.
9. Pandeya KB, Tripathi IP, Mishra MK, Dwivedi N, Pardhi Y, Kamal A, Gupta P, Dwivedi N and Mishra C, A Critical Review on Traditional Herbal Drugs: An Emerging Alternative Drug for Diabetes, *InternationalJournal of Organic Chemistry*, 2013;3(1):1-22.
10. Sakurai H, Katoh A and Yoshikawa Y, *Bull. Chem. Soc. Jpn.*, 2006;79:1645.
11. Tracey AS, *Crans DCVanadium Compounds: Chemistry, Biochemistry and Therapeutic Applications*, American Chemical Society, Washington, DC, 1998;711.
12. Singh K, Barwa MS, Tyagi P, Synthesis and characterization of cobalt(II), nickel(II), copper(II) and zinc(II) complexes with Schiff base derived from 4-amino-3-mercapto-6-methyl-5-oxo-1,2,4-triazine, *Eur. J. Med. Chem.* 2007; 42 :394.
13. CozziPG, Metal-Salen Schiff base complexes in catalysis: Practical aspects, *Chem. Soc. Rev.* 2004;33:410.
14. Chandra S, SangeetikaJ, EPR and electronic spectral studies on copper(II) complexes of some N-O donor ligands, *J. Indian Chem. Soc.* 2004;81:203.

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15. Ferrari MB, Capacchi S, Pelosi G, Reffo G, Tarasconi P, Albertini R, Pinelli S, Lunghi P, Synthesis, structural characterization and biological activity of helicinthiosemicarbazone monohydrate and a copper(II) complex of salicylaldehydethiosemicarbazone, *Inorg. Chim. Acta* 1999;286:134.
16. Canpolat E, Kaya M, Studies on mononuclear chelates derived from substituted Schiff-base ligands (part 2): synthesis and characterization of a new 5-bromosalicyliden-paminoacetophenoneoxime and its complexes with Co(II), Ni(II), Cu(II) and Zn(II), *J. Coord. Chem.* 2004;57:1217.
17. Yildiz M, Dulger B, Koyuncu SY, Yapici BM, Synthesis and antimicrobial activity of bis(imido) Schiff bases derived from thiosemicarbazide with some 2-hydroxyaldehydes and metal complexes, *J. Indian Chem. Soc.* 2004;81:7.
18. Lyonnet B, Martz M, Martin E, L'emploi therapeutique des derives du vanadium, *La Presse Med.* 1899;7:191.
19. Aly MM, Recent developments in the metallosupramolecular and molecular structures of the cobalt, iron and vanadium complexes of the dianionic tetradentate Schiff base ligands of salicylideneimine and acetylacetonimine, *J. Coord. Chem.* 1998;43:89.
20. Rajput JD, Bagul SD, Hosamani AA, Patil MM, Bendre RS. Synthesis, characterizations, biological activities and docking studies of novel dihydroxy derivatives of natural phenolic monoterpenoids containing azomethine linkage. *Research on Chemical Intermediates*. 2017;43(10):5377-93.
21. Stephen AA, Ganiyu O, In vitro inhibition activity of polyphenol-rich extracts from *Syzygium aromaticum* (L.) Merr. and Perry (Clove) buds against carbohydrate hydrolyzing enzymes linked to type 2 diabetes and Fe²⁺-induced lipid peroxidation in rat pancreas, *Asian Pac J Trop Biomed.* 2012;2(10):774-781.
22. Rajput JD, Bagul SD, Tadavi SK, Karandikar PS, Bendre RS. Design, synthesis and biological evaluation of novel class diindolylmethanes (DIMs) derived from naturally occurring phenolic monoterpenoids. *Med. Chem. (Los Angeles)*. 2016;6:123-8.
23. Hammud HH, Ghannoum A, Masoud MS, Spectral regression and correlation coefficients of some benzaldimines and salicylaldimines in different solvents. *Spectrochim. Acta Part A.* 63;255-265.
24. Raman N, Thangaraja C, Johnsonraja S, Synthesis, spectral characterization, redox and antimicrobial activity of Schiff base transition metal (II) complexes derived from 4-aminoantipyrine and 3-salicylideneacetylacetone. *Open Chem.* 2005;3:537-555.
25. Alex P, Aravindakshan KK, Synthesis, characterization, thermal decomposition and antifungal studies of Cr(III), Mn(II), Fe(III), Co(II), Ni(II) and Cu(II) complexes of N, N'-bis [1, 3-benzodioxol-5ylmethylene] ethane-1, 2-diamine. *Synth. React. Inorg. Met. Org. Nano Met. Chem.* 2009;39:718-733.
26. Raman N, Muthuraj V, Ravichandran S, Kulandaisamy A, Synthesis, characterisation and electrochemical behaviour of Cu(II), Co(II), Ni(II) and Zn(II) complexes derived from acetylacetonamide and anisidine and their antimicrobial activity. *J. Chem. Sci.* 2003;115:161-167.
27. Raman N, Raja YP, Kulandaisamy A, Synthesis and characterisation of Cu(II), Ni(II), Mn(II), Zn(II) and VO(II) Schiff base complexes derived from o-phenylenediamine and acetoacetanilide. *J. Chem. Sci.* 2001;113:183-189.
28. Chattopadhyay S, Ray MS, Chaudhuri S, Mukhopadhyay G, Bocelli G, Cantoni A, Ghosh A, Nickel(II) and copper(II) complexes of tetradentate unsymmetrical Schiff base ligands: first evidence of positional isomerism in such system. *Inorg. Chim. Acta.* 2006;359:1367-1375.
29. Ray MS, Bhattacharya R, Chaudhuri S, Righi L, Bocelli G, Mukhopadhyay G, Ghosh A, Synthesis, characterization and X-ray crystal structure of copper(II) complexes with unsymmetrical tetradentate Schiff base ligands: first evidence of Cu(II) catalysed rearrangement of unsymmetrical to symmetrical complex, *Polyhedron.* 2003;22:617-624.
30. Youssef NS, NEI-Zahany EA, Barsoum BN, El-Seidy AM, Synthesis and characterization of copper(II), cobalt(II), nickel(II), and iron(III) complexes with two diamine Schiff bases and catalytic reactivity of a chiral diamine cobalt(II) complex. *Transit. Met. Chem.* 2009;34:905-914.
31. Nair MS, Josephus RS, Synthesis and characterization of Co(II), Ni(II), Cu(II) and Zn(II) complexes of tridentate Schiff base derived from vanillin and DL- α -aminobutyric acid. *Spectrochim. Acta Part A.* 2008;70:749-753.

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Position of Children in Toni Morrison's 'The Bluest Eye'

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Preliminaries:

The Romantic poet William Wordsworth writes that 'Child is the father of man'. Children are always loved and cared by the parents. Children are also called as the *flowers of Heaven*. But when one reads African American literature and especially the novels of Toni Morrison, one finds the worst position of children than the Black slave women in the families of Black slaves. Much has been written on the worst condition of Black slave women, how they were doubly or thrice jeopardized in the hands of White American masters and their own husbands. But one easily forgets the worst position of Black children. The paper aims to present the agony and pathos of children in Toni Morrison's *The Bluest Eye*.

The Bluest Eye: Story of Agony of Black Children

The *Bluest Eye* is the debut novel of Toni Morrison. It is full of stories of Black children, who are abandoned, murdered, molested, raped, beaten, and cursed not only by the family members but also by outsiders. In fact, it is the story of Miss. Pecola Breedlove. The position of all black children painted in the novel is very heart-rending and heart-touching.

The Breedlove Family:

Miss. Pecola Breedlove is the protagonist of the novel. All the black children including Pecola do not get any parental care and love. Owing to their birth as black slaves, they do not get any respect, love in white world of America. In addition, even they do not care and love to others. When Pecola is born, her mother hates her. Her mother says, " *But I knowed she was ugly. Head full of pretty hair, but Lord she was ugly*" [Morrison 1999: 98]. When Pecola along with MacTeer sisters go to meet her mother at Mr. Fisher's house, where she is a domestic servant. Pecola drops a hot pan of blue berry pie and dirties the floor. Instead of comforting her burnt daughter, she spits words out like—" *Crazy fool...my floor, mess...look what ...work...get on out...now that...crazy...my floor, my floor...my floor*" [Ibid: 84-85]. There is not a single incident that witnesses Pecola is showered with motherly love. Even when her mother gets the news that her daughter is raped and made pregnant by Pecola's own father, she does not try to protect her. It is the great shock to readers that Pecola is raped by her own father. And outside the house, she gets same inhuman treatment. In school, fellow students tease her. Even teachers, while taking roll-call, purposefully avoid pronouncing her name. Resultantly, Pecola takes refuge in a fantasy of having blue eyes, blonde hair and white face, through Soaphead Church and meets her tragic end. S.P. Swain and Sarbajit Das rightly point out—" *Trapped in a world of taunts and threats, Pecola craves for love, but there is none to convince or reassure Pecola of her worth. Even her brother is not a companion at home and outside*" [Quoted in Mittapalli and Gorlier 2001: 91].



Sammy is the elder brother of Pecola. He is also the perfect outcast. He is completely tired of the frequent quarrels of the parents and abject poverty in the house. When there is a battle between parents, Sammy curses for a while and throws himself into the fray. "He was known, by the time he was fourteen, to have run away from home no less than twenty-seven times" [Morrison 1999:32]. Like his parents, he is nobody and not interested in relations. He does not have any concern or love for his only sister.

The childhood of Pecola's parents is also equally tragic and alienated. Mrs. Pauline Breedlove is the ninth of eleven children. Like Pecola, Pauline is also indifferently treated by her own parents. Nobody loves and cares her. She always complains that as according to tradition, nobody has given her nicknames, and nobody talks about her likings and disliking. Like all black children, she too feels alienated and lonely in her own house. She has a deformity in one leg because a nail enters in her leg. The girl of two years cries with pain but nobody takes care, no proper attention is paid: "The wound left her with a crooked, archless foot that flopped when she walks" [Ibid:86]. Pecola's father Mr. Cholly Breedlove also has to live alienated life. Just at the age of day four, he is abandoned by his own mother, "his mother wrapped him in two blankets and one news paper and placed him on a junk heap by the rail road" [Ibid:103]. At the age of fourteen, the great Aunt Jimmy, who picked him by the rail road, makes him lonely with her death. Sandeep Pathak ably summarizes his tragic life:

Cholly Breedlove, literally and essentially an abandoned child, is raised by Aunt Jimmy. His doom of inarticulateness is easily traced. Everything we learn about his background, every hurting and abusive gestures, every humiliation pushes him towards a strange and extreme sort of tragic hero—who carried our sympathy for this child to an incredible depth" [Pathak 2007:48].

The MacTeer Sisters:

The MacTeer sisters namely Frieda and Claudia also greatly suffer as being black girls. Frieda is an elder sister of twelve year old. Claudia is of just eight year old, who tells the part of the story. Frieda always ready to fight for Pecola, but she has also to face the situation like molestation by the roomer Henry Washington. The MacTeer family, like all black families, is poor. The girls have to go collect coals everyday. Their house is old, cold and green. At night a kerosene lamp lights one large room. The others are braced in darkness, peopled by roaches and mice. The sisters have no complaint against poverty but they feel very insulted and humiliated when the roomer Henry Washington comes to visit the family. Claudia complaints: "Frieda and I were not introduced... merely pointed out. Like, here is the bathroom; the cloths closet is here; and these are my kids, Frieda and Claudia..." [Morrison 1999:10]. Only thing one can observe here is that though they are highly neglected and humiliated at every stage of their life, they always ready to fight for Pecola. They only have black spirit that one generally cannot find in other black people.

Conclusion:

While reading the book, one sees the worst position of black children than black women inside the house and outside the house as well. Till today, the black children are also neglected by critics. One more striking point comes to notice that each and every child, irrespective of boy or girl, is inhumanly treated. Parents have also gone through the same insulting and humiliating

situations in their childhood. In spite of it, they do not love and care their children. In short, blackchildren have to live very sorrowful life that cannot be expressed in words

Works Cited:

1. Morrison, Toni. *The Bluest Eye* (Great Britain, Vintage, 1999).
2. Pathak, Sandeep, *Feminist Consciousness in Toni Morrison's Fiction*(New Delhi : Prestige, 2007).
3. Swain S. P. and Sarbajit Das, *The Alienated Self : Searching for Space in Morrison's 'The Bluest Eye' and 'Sula'* in Modern American Literature eds. Rajeshwar Mittapalli and Claudio Gorlier (New Delhi : Atlantic Publishers,2001).



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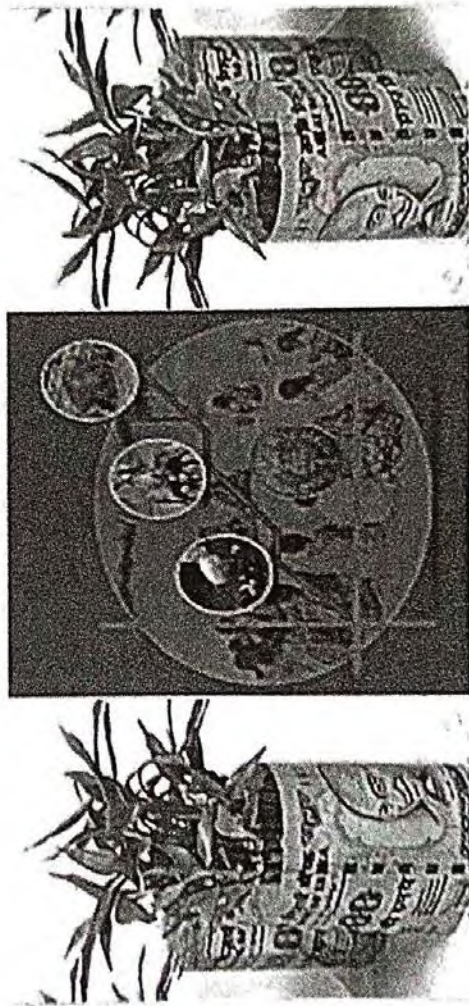
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STUDIES ON SUB LETHAL EFFECTS OF CORAGEN AND 2,4-D ETHYL ESTER ON METABOLISM OF EARTHWORM SPECIES, EUDRILUS EUGENIAE KINBERG, 1867

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ABSTRACT:

The study deals with sub lethal effect of pesticides viz., Coragen (insecticide) and 2, 4-D Ethyl ester (herbicide) on biochemical parameters of earthworm species, *Eudrilus eugeniae*. The results revealed that the sub lethal concentration of both pesticides significantly reduce the biochemical content of experimental worms over the control. Decreased values of protein, triglyceride and glycogen were dose dependent and found to be 31.92 % & 16.1 %; 38.3 % & 16.7 % and 39.6 % & 22.64 % in worm exposed to 3/4th sub lethal concentration of Coragen and 2,4-D Ethyl ester respectively.

Key words: Pesticides, Coragen, 2, 4- Ethyl ester, Protein, triglyceride and glycogen etc.

INTRODUCTION:

Pesticides residue in the soil environment had effect on soil inhabiting organisms; such lethal effects resulted serious physiological disorders or death, while sub lethal effects were manifested by disturbances of metabolism. Unsafe spraying and improper handling of chemical pesticides may cause high risk of the health hazards (Margan et al., 2004). Aquatic ecosystems are the ultimate sinks for agricultural residues as well industrial pollutants and it has global environmental problem in coming days (Muthukaruppan et al., 2005). Soil environments are contaminated by the indiscriminate use of pesticides and herbicides, which affects the soil flora and fauna (Gobi and Gunasekaran, 2010). Earthworms are common soil organism in moist environment play an important role in improving structure and fertility of soil ecosystems and also used as model experimental organisms for toxicity assessment (Bartlett et al., 2010). It has been indicated that earthworms may represents up to 60 to 80 % of the total animal biomass in soil (Jougniet et al., 2010). Unlike many other soil organisms that are protected by thick cutical on

the exterior of their bodies, earthworms are protected by this cutical and therefore these are particularly susceptible to soil chemicals (Nahmani et al., 2007) therefore earthworms acts as suitable bioindicators of soil contamination can be used to provide safety thresholds for insecticides application and also used as key index of ecotoxicological diagnosis (Zhu et al., 2008; Lourence et al., 2011)

It is noted that the skin of earthworm is extremely permeable to water and it represents a main route for contaminant uptake (Jajer et al., 2003). Secondly, these organisms ingest large amount of soil, therefore they are continuously expose to contaminants absorbed to solid particles through their alimentary tract (Margen et al; 2004). The acute toxicity test for earthworm require 14 days (OECD, 1984) and it measures lethality; it may be insufficient for predicting long term effect (Whitfield et al., 2011) Chronic test, based on the inhibition of earthworm reproduction (OECD, 2004) provides a more ecological relevant sub lethal end point than lethality but it may requires a larger exposures period (at least 50 days) for accurate assessment (Handy et al., 2003)



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Coragen (Chlorantraniliprole, 18.5 % EC) insecticides provides an effective long duration insect control with unique mode of action in crop like sugarcane, rice, soyabenn, pulses and vegetables. 2, 4-D ethyl ester (38. % EC) is a member of the phenoxy family herbicide was introduced in 1946 and rapidly becomes the most used herbicide in the world. Scanty formation is available regarding the effect of Coragen and 2, 4-D ethyle aster pesticides on triglyceride, protein and lipid content of earthworm *Eudrius eugintae*. Therefore, attempt has been undertaken to investigate the sub lethal effect of these pesticides on above biochemical parameters.

MATERIALS AND METHODS:

Biological Material: Earthworm species, *Eudrilus eugeniae* were obtained from State Government agricultural nursery, Sakri (Dhule) M. S. They were maintained in the laboratory as per OECD guideline (OECD, 1984). Only healthy adult worms having well developed clitella were used for the experiment.

Chemical Material: The pesticides i.e. commercially available Coragen (18.5 % EC) an insecticide and wide spectrum herbicide, 2, 4-D ethyl ester (38. % EC) were purchased from local pesticide shop. The quality black cotton soil and a month old cow dung were collected from agriculture field and cow shed respectively.

Experimental Set-Up: The experiment was performed in plastic tough (vermibed) having five kg capacities. A dried quality soil was ground and sieved. In a tough 800 g of fine soil thoroughly mixed with 200 g Cow dung (CD) and appropriate amount of water was added to moisten the mixture.

Treatment: For sub lethal dose, the LC_{50} values of the both the pesticides in earthworm were already estimate in our previous study, it was 17.9 ml/ kg for Coragen and 0.350 ml/ kg for 2, 4 - D ethyl ester. The lower ($1/4^{th}$) and higher ($3/4^{th}$) sub lethal dose concentration are 4.48 and 13.42 ml/ kg respectively for Coragen and 0.088 and 0.260 ml/ kg respectively for

2,4-D ethyl ester was added separately 100 ml of distilled water and that was mixed thoroughly in experimental groups only. On next 20 mature well clitella worms were released in each tough; they were covered with perforated lid. To maintain moisture water was sprinkled at the interval of 3 to 4 days. All vermibeds were kept for 60 days at room temperature $26 \pm 2^{\circ}c$ and moisture $70 \pm 5\%$. The experimental set up was prepared in quadruplets for each treatment. A single bed was kept as a control without pesticides. All the beds were kept for 2 month.

Biochemical Measurement:

Estimation of Proteins: At the end of the experiment, earthworms were fasted for 24hrs so that their digestive tract was completely empty. Prior to biochemical analysis, the worms were cut into pieces and mixed with ice cold 0.86% invertebrate ringer solution, the mixture was homogenized and centrifuged. The resulting supernatant was used for the determination of protein.

The protein content from earthworm was estimated according to the method of Lowry et al (1951). The respective amount of supernatant for each test was added to 5ml of alkaline solution and was allowed to stand for 10 min, 0.5 ml of diluted Folin's reagent was added and the tubes were shaken to mix the solution. After 30 min the absorbance was recorded at 680nm against appropriate blank. It is calculated by given formula.

Estimation of Triglyceride: Triglycerides was estimated from the earthworm homogenate by GPO/PAP method (Trinder, 1969). Lipoprotein lipase hydrolyses triglycerides to glycerol and free fatty acids. The glycerol formed with ATP in the presence of glycerol kinase from glycerol 3 phosphate which is oxidized by the enzyme glycerol phosphate oxidase to form hydrogen peroxide. The hydrogen peroxide further reacts with phenolic compound and 4 amino antipyrine by the catalytic action of peroxidase to form a red coloured quinoneimine dye complex. Intensity of the colour formed is directly proportional to the

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amount of triglycerides present in the sample and it was detected by spectrophotometer.

Estimation of Glycogen: Similarly glycogen was estimated by method suggested by Goel et al (2004). Results were tabulated and statistically analyzed.

The per cent change in biomass, number of cocoon and juvenile were determined by applying following formula i.e.

$$\% \text{ change} = \frac{\text{Control} - \text{Experimental}}{\text{Control}} \times 100$$

RESULTS AND DISCUSSION:

The biochemical contents of control and experimental worms exposed to sub lethal

concentration of both pesticides is presented in table-1. This table shows that there is significant and dose dependent decline in biochemical contents like protein of the worm exposed to 1/4th and 3/4th sub lethal concentration of Coragen and 2,4-D Ethyl ester (herbicide) are 25.5 % & 10.4 % and 31.95 % & 16.1 % respectively. In case of triglyceride content, the values are 26.7 % & 16.7 % respectively. Whereas glycogen content were found to be 5.0 % and 38.3 % & 16.7 % respectively. Whereas glycogen content were found to be 30.2 % & 18.9 % and 39.6 % & 22.64 % respectively under both pesticide stresses.

Table-1: Biochemical content of *Eudrilus eugeniae* treated with pesticides.

Treatment	Dose concentration	Biochemical parameters (mg/ dL)		
		Protein	Triglyceride	Glycogen
Control	--	43.50 ± 2.0	30.00 ± 1.50	10.6 ± 0.8
Coragen	1/4 th	32.4 ± 1.4 (25.5) **	22.0 ± 1.2 (26.7) **	07.4 ± 0.6 (30.2) **
	3/4 th	29.6 ± 1.6 (31.95) ***	18.5 ± 0.8 (38.3) ***	06.4 ± 0.6 (39.6) ***
2,4-D Ethyl ester	1/4 th	39.0 ± 1.2 (10.34) *	28.5 ± 0.6 (5.0) NS	8.6 ± 0.8 (18.9) *
	3/4 th	36.50 ± 1.5 (16.1) *	25.0 ± 1.0 (16.7) *	07.2 ± 0.4 (22.64) **

Significant values: *P<0.05, **P<0.01, ***P<0.001.

Values in the parenthesis are % change over control. CD (Mean ± SEM, n=3)

Proteins content: Proteins are very important organic substance. In present study, the results show maximum reduction (31.95 %) in protein content was found in worm exposed to 3/4th dose concentration of Coragen insecticide than herbicide exposed worms. The decrease in protein content could also be attributed to

spontaneous utilization of amino acids inside the organism by various catabolic reactions in order to combat the stress condition. Similar results were reported in aquatic organism like fish by Jha and Verma (2002) in fish species, *Clarias batrachus* exposed to pesticide mixture. Abdali et al (2011) studied chronic toxicity in fish exposed to atrazine herbicide for 30 days. The results showed significant decrease in plasma total protein, albumin, glucose, cholesterol and triglycerides. Tantarapale (2011) reported induced impact of Cypermethrin on total protein in muscles and liver of freshwater fish, *Channa striatus*.

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Mudiam (2013) studied sub lethal effects of Carbofuran on metabolism of earthworm. Somaiah et al (2015) reported significant decline in total glycogen, protein, lipids, carbohydrates and free amino acids etc were observed in freshwater fish, *Labeo rohita* exposed to sublethal concentration of organophosphate pesticides, Phenthoate.

Triglyceride content: Triglyceride content has decreased in the present report. It is observed that maximum (38.3 %) decreased was found in worm exposed to 3/4th sub lethal concentration of Coragen than herbicide (16.7 %). During the time of low availability of carbohydrates, lipids serve as a source of energy for supporting the physiological functions of the body. Hence, the decline in triglyceride content was due to the utilization of lipids for meeting the energy demand under the pesticide stress. Similar results reported by earlier workers like Muthukaruppan et al (2005) revealed sub lethal toxicity of herbicide butachlor on the earthworm *Perionyx sansibaricus* and its histological changes. Whitfield et al (2011) reported metabolomics of earthworm exposed to polychlorinated biphenyl. Somaiah et al (2015) support the present work that the triglyceride level was changed when worm exposed to toxicants like Cypermethrin and Oxyfluorfen.

Glycogen content: The Carbohydrates (Glycogen) are the main source of energy in the cells and play a vital role in cellular metabolism by acting as fuel and providing energy to the body cells. In present study maximum glycogen depletion was observed in worm exposed to the higher sub lethal concentration of Coragen insecticide (i. e. 39.6 %) than herbicide insecticide (i. e. 22.64 %). The change in carbohydrate metabolism that would meet the changing energy demand may be subjected to stress. These alterations supports that carbohydrate metabolism in animals is effected by the toxicants (Jee et al, 2005; Muthukumaravel and Murthy, 2009).

Our work is corroborating with Korkmaz et al (2009). They studied Cypermethrin induced biochemical changes in Nile Tilapia. Nagaraja et al (2013), reported oxidative stress in freshwater fish, *Labeo rohita* exposed to sub lethal concentration of Chlorantraniliprole (Coragen). They revealed that protein as well as glycogen and total lipid content of various organs were decreased significantly.

Saxena et al (2014) studied possible mechanism of some insecticides such as carbaryl, carbofuran, Cypermethrin and fenvalerate in *Metaphire posthuma* and *Eisenia fetida*. Pelosi et al (2015) stated that, Epoxiconazole a persistent widely used pesticide affect on lipid and glycogen content after 28 days of exposure. Nesrine and Soltani (2016) revealed reduction in the amount of glycogen content in pupae of *Drosophila melanogaster* exposed to sub lethal concentration of an insecticide, Spiromesifen.

CONCLUSION:

The present study indicates that both pesticides i.e. Coragen and 2,4-D Ethyl ester cause alterations in all the biochemical parameters of earthworm, *Eudrilus eugeniae*. The significant reduction in levels of protein, triglyceride and glycogen contents were found to be dose dependent over the control worm. It might be caused by intoxication of pesticidal stress in the intermediary metabolism of the earthworm.

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REFERENCES:

1. Abdali Soorena., Yousefi Jourdehi., Ayoub Kazemi, Rezvanollah and Yazdani, Mohammad Ali. Effect of Atrazine (Herbibide) on blood Biochemical Indices of Grass Carp (*Ctenopharhyngoden idella*).



24. Phthalimide Derivatives: An Advance Research Review

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Abstract

Phthalimides are lipophilic compounds that can cross biological membranes and shows various biological activities. Recent advances are described in present review as a scaffold to design new prototypes drugs.

Keywords- Phthalimides, Anti microbial, Anti convulscent, Anti Viral, Anti tumor, Anxiolytic, Glucosidic inhibitor

Introduction

Phthalimides have $-\text{CO}-\text{N}(\text{R})-\text{CO}-$ with an imide ring. These are biologically active compounds of pharmaceutical uses. These are androgen receptor antagonists (Sharma et al. 2012) anticonvulsant (phthalate katharia; 2012) antimicrobial (khidre et al, 2011); hypoglycaemic (mbakri et al, 2012); anti inflammatory (lima et al, 2012) anti tumour (Noguchi et al 2012); anxiolytic (yosuva et al 2012) and also have anti HIV-1 activities (Sharma et al. 2010).

Structure

Phthalimides are one of the imido derivatives of phthalic acid by nature they are hydrophobic, neutral and can cross biological membranes. In vivo phthalimides are closer to structure with acid anhydrides (Azzawi and Razzak, 2011) most of compounds in this category are cyclic and derived from dicarboxylic acid. Imides $-\text{NH}$ are one of the highly polar entity. so exhibit good stability with polar solvent and NH center can form H-bonding.

Permeation through cell membrane can be enhanced by process of chelation which enhances the lipophilicity or hydrophobicity of metal chelate. This chelates can hinder the growth of microorganism through respiration and protein synthesis restrictions. The high electron density available on the amino group nitrogen helps its co-ordination to a metal ion. (Ramesh et al, 2012).

Phthalimide moiety acts as protected form of ammonia. Phthalimides and N-substituted



phthalimides are important class of compounds as they have significant biological activities with some specific features as hydrophobic aryl ring; H-bonding domain electron donar group; and distal hydrophobic site (Bhall, omar 2011) cardioselective β - adreriergic receptor binding affinity (Jindal et al, 2005).

Chiriae et al (2007) reported a mechanism for attack of $-NH_2$ group to anhydride moiety .

Antimicrobial Activity

Various biological activity of N-alkyl and N-alkoxy phthalimides have been reported for fungicidal action by (pawar et al 2012). The compounds have been used as pesticides and pharmaceuticals purpose. 1, 2, 4- triazolinone derivatives are found to have antitubercular activity as reported by Atukuri et al., (2011).

Alkoxy derivatives of phthalimides have capacity to inhibit the growth of plasmodium falciparum. All the compounds in this series are found to have poptent antituberculosis activities. All compounds were evaluated against Mycobacterium tuberculosis. The synthesized compounds were tested for their biological activity against various bacteria and fungi. They suggested that the lead compounds have the potency in the treatment of tuberculosis and multi-drug resistant tuberculosis.

Anticonvulsant Activity

1, 3, 4-oxadiazole derivatives of cyclic phthalamide have been reported as anticonvulsant and neurotoxicity. Furthermore para methoxy derivatives in this series at distal position are found to have most potent anticonvulsant activity. These Compounds have been tested for MES test. Therefore can be used in various type seizures further more modifications in compounds Can enhance the anticonvulsant activity due to the extra vander wal forces contributes. In this series nitro substituted compounds at ortho position of distal aryl ring have been reported as the most anticonvulsant agent and minimum neurotoxicity. For phthalamides N- phenyl benzene sulphonamide derivatives has also been reported to possess anticonvulsant activity which have been well established by MES test. More ever substitution in phthalamides series of aniline derivative showed least activity where as 4- nitroderivatives have been found to have potent anticonvulsant activity.

Anxiolytic Activity

Some novel nitro phthalamides as N -benzoyl 3 nitro pthalamide shows anxiolytic activities but weaker than that of the diazepam. Electron withdrawing group at Compound⁷ of

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benzoazines is an essential for anxiolytic sedative activity of benzodiazepines. This activity is reduced when substitution takes place on another position (C7, C8, C9) at benzodiazepines. This can be attributed due to steric hindrance experienced by electron withdrawing group (NO_2) at active site.

α - Glucosidase inhibitory activity

Some of the phthalimides compounds also exhibit potent glucosidase inhibitory activity. N-Phenyl 3,4,5,6 tetrachloro phthalamide (N4- phenyl butyl) are the compounds reported by (Ibrahim et al 2009). Increasing the lipophilicity of molecule and halogen substitution in the aromatic ring attached to phthalamide nitrogen atom can increase the potency of such phthalamide derivatives. Some α - glucosidase inhibitors with various substituted phenoxy ring connected with phthalamide moiety reported by (pascal et al 2010).

α -glucosidase is the enzyme which catalyses the digestive process of carbohydrates. Therefore α -glucose inhibitors can slow down the process of D-glucose liberation from oligosaccharides and disaccharides of dietary carbohydrates leading to the delayed absorption of glucose further more this results into this postprandial hyper is suppressed manner phenyl alkyl tetra chloro phthalamide derivative compounds exhibit such kind of potent α -glucosidic inhibition activities.

It has been established that intermolecular distance between phenyl moiety and phthalamide ring the positive influence of $-I$ effective group attached with phthalamide moiety affects the activity of whole some molecule. Large number of compounds with different non substituted phthalamide moiety has been prepared to investigate the structural activity relationship and to improve inhibitor activity. Substitution affects the aryl alkoxy moiety. Naphthalene length between the phthalamide group and phenoxy moiety has been found to be enhanced with the increase in methylene length (N=10) substitution with chlorine atom at para position results into the increase in inhibitory activities of molecule furthermore the introduction of additional methyl group at ortho position also showed the same results.

Anti Inflammatory Activity

Amino acetylenic isoindoline derivative has been reported for significant anti inflammatory activity by (Jainen et al 2011). Phthalamide analogues with a phenyl and alkaline moiety prepared by (stivan et al 2011).



Conclusion

Non Aromatic Heterocyclic Phthalimides has been established a very significant class of organic compounds providing a wide scope of medicinal applications. Phthalimides are also being used as precursors and intermediate compounds for various pharmacophore molecules. Recently Phthalimides have been reported for significant biological activities. Moreover attention has been noticed due to their significant antimicrobial, antifungal, analgesic, antitumor, cytolytic and antiviral (HIV) actions. This review presented herein paper highlighted the important and exclusive class of heterocyclic. These heterocyclic can be used for a wide range of diseases treatment playing an important role in medicinal chemistry. The recent therapeutic profile of phthalimides may pave a new way for the new drug development and moreover review will provide attention for research.

References

- Al-Qaisi JA, Alhussainy TM, Qinna NA, Matalka KZ, Al-Kaissi EN, Muhi-Eldeen ZA. Synthesis and pharmacological evaluation of aminoacetylenic isoindoline-1,3-dione derivatives as anti-inflammatory agents. *Arabian J. Chemistry*, 2011,4,1-7.
- Arti Kumar S, Pathak D. Synthesis and Anticonvulsant screening of 4-Phthalimido - N-(4'-substituted Phenyl benzene sulphonamide, 4-Succinimido-N-(4'-substituted Ph-enyl) benzenesulphonamide. *Int. J. of PharmTech Res.*, 2011, 3, 2104-2110.
- Atukuri D, Kattimani P, Kamble R. Mg (ClO₄)₂ catalyzed eco-benign synthesis of 1, 2, 4-triazolinone derivatives as anti-tubercular agents. *Organic communications*, 4, 94-104, (2011).
- Azzawi AMA and Razzak MSA. Synthesis, Characterization and antibacterial activity of Several New Schiff Bases Linked to Phthalimide Moiety. *Kar. J. Pharma. Sci.*, 2, 2011, 124-133.
- Bansal R, Karthikeyan C, Moorthy NSHN, Trivedi P. QSAR analysis of some phthalimide analogues based inhibitors of HIV-1 integrase. *ARKIVOC*, 2007, 15, 66-81.
- Chan SH, Lam KH, Chui CH, Gambari R, Yuen MC, Wong RS, Cheng GY, Lau FY, Au YK, Cheng CH, Lai PB, Kan CW, Kok SH, Tung JC, Chan AS. The preparation



- and in vitro antiproliferative activity of phthalimide based ketones on MDAMB-231 and SKHep-1 human carcinoma cell lines, *Eur. J. Med. Chem.*, 2008, 44, 2736-2740.
- Chiriac CI, Nechifor M and Tanasa F, Marioara N et al., Formamide, a novel challenging reagent for the direct synthesis of non -N- substituted cyclic imides, *Rev. Roum. Chim.*, 2007, 52, 883-886.
 - EFSA (European Food Safety Authority), 2013, *EFSA Journal*, 2013, 11(12):3510, 1-33.
 - Hassanzadeh F, Rabbani M, khodarahmi GA et al., Synthesis of phthalimide derivatives and evaluation of their anxiolytic activity. *Res. in Pharma. Sci.*, 2007, 2, 35-41.
 - Ibrahim A A I, Fathalla W. Synthesis of N-substituted-3,4,5,6 - tetra chloro-phthalimide using trichloroacetimidate C-C bond formation method. *ARKIVOC*, 2009, 8, 193-199.
 - Jindal D P, Singh B, Coumar M S. Synthesis of 4-(benzamide)- and 4-(phthalimide)-substituted phenoxy propanolamines and their β_1 -, β_2 -adrenergic receptor binding studies, *Indian J. Chemistry*, 2005, 44B, 1441-1445.
 - Kathuria V, Pathak D P, Synthesis and anticonvulsant activity of some N-substituted phthalimide analogues, *The Pharma Innovation*, 2012, 1, 55-59.
 - Sukhbir L. Khokra, Kanika Arora, Heena Mehta, Ajay Aggarwal and Manish Yadav. Common Methods to Synthesize Benzo-thiazole derivatives and their Medicinal Significance: A Review, *Int. J. Pharm. Sci. Res.*, 2011, 2, 1356-1377
 - Mbarki S, Elhallaoui M. 3D-QSAR for α -Glucosidase inhibitory activity of N-(phenoxyalkyl) phthalimide derivatives. *IJRRAS*, 2012; 11, 395-401.
 - Nagarajan S, Majumder S, Sharma U, Rajendran S, Kumar N, Chatterjee S, Singh B. Synthesis and anti-angiogenic activity of benzothiazole, benzimidazole containing phthalimide derivatives, *Bioorg. Med. Chem. Lett.*, 2013, 23, 287-290.
 - Okunrobo LO, Usifoh CO, Scriba GKE. Synthesis and Pharmacological Evaluation of 2-hydroxy methyl benzamides as Anti-inflammatory and Analgesic agents. *Acta Poloniae Pharmaceutica*, 2006, 63, 25-31.

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Education and Opportunities

Prof. B.B.Gaikwad

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Abstract :

There is widespread disagreement about what equality of opportunity in education requires. For some it is that each child is legally permitted to go to school. For others it is that each child receives the same educational resources. Further interpretations abound. This fact presents a problem: when politicians or academics claim they are in favour of equality of opportunity in education, it is unclear what they mean and debate is hindered by mutual misunderstanding. In this article, I introduce a framework to ameliorate this problem. More specifically, I develop an important but neglected framework for the concept of equality of opportunity and apply it to examine particular conceptions of equality of opportunity in education. In doing this, I hope to produce a piece of applied conceptual analysis that can both help clarify existing positions within the equality of opportunity in education debate and allow those seeking to produce new positions to express them more clearly.

Education (Definition) :

Education is the process of facilitating learning, or the acquisition of knowledge, skills, values, beliefs, and habits. Educational methods include storytelling, discussion, teaching, training, and directed research. Education frequently takes place under the guidance of educators and also learners may also educate themselves. Education can take place in formal or informal settings and any experience that has a formative effect on the way one thinks, feels, or acts may be considered educational. The methodology of teaching is called pedagogy.

Formal education is commonly divided formally into such stages as preschool or kindergarten, primary school, secondary school and then college, university, or apprenticeship. A right to education has been recognized by some governments and the United Nations. In most regions, education is compulsory up to a certain age.

Value and equality of opportunity in education :

The second general category of value must be defined in opposition to the first: values that are not concerned with the good. Again this category is very broad. It includes values such as justice, legitimacy and consent. Typically, these values are seen as constraints on how we may pursue the good. As before, not all of these values might plausibly inform a concern for equality of opportunity in education.

Equality of opportunity through and for education :

Education may be a vehicle for the realisation of some more general conception of equality of opportunity. On this view, the task is to first identify what general conception of equality of opportunity is supported by some value, before then determining how education should be employed to achieve that conception. For instance, if the conception of equality of opportunity requires that each individual should have the same means for a good life with differences in how they fare depending only on natural

talent and choices to expend effort, the educational system could then be employed to provide remedial treatment for those individuals who had been disadvantaged outside of education.

Equality of opportunity in education will be achieved in so far as the educational system serves to realise the more general conception of equality of opportunity. One might call this type of view 'equality of opportunity through education'. Second, a conception of equality of opportunity may apply directly to education itself. This view does not see education solely as a vehicle; rather it is the educational system and those in it that are the sole concern of equality of opportunity. Indeed, it is a distinguishing feature of this view that it makes no reference to any more general conception of equality of opportunity. For example, a conception of equality of opportunity in education might require that goods are distributed evenly within schools and exams are structured so as to reward the most able, irrespective of how this affects any more general conceptions of equality of opportunity. One might call this type of view 'equality of opportunity for education'.

The distinction between equality of opportunity 'through' and 'for' education can also be explained in terms of the more general distinction between instrumental and intrinsic value. That distinction is typically applied to whether a particular good is valuable for the other goods it can lead to or for its own sake. By contrast, the cut between 'through' and 'for' applies the instrumental/intrinsic distinction to the distribution of goods within particular educational contexts. It is concerned with whether the distribution of goods within schools, and perhaps other educational settings such as university and adult learning, is important in itself, or whether it is important because of the education's contribution to the distribution of goods beyond schooling.



Scope and equality of opportunity in education :

Equality of opportunity in education must be sensitive to the different values that one hopes to realise, and I have distinguished two ways in which we might think about equality of opportunity in education, 'for' and 'through'. In this section, I want to introduce one final distinction. It concerns the level of application, or as I will call it the 'scope', of equality of opportunity in education. It concerns whose duty it is to realise a particular conception.

Equality of opportunity in education that operate simultaneously with different scopes. Some may have an institutional scope; others may have an interpersonal scope. Conceptions of equality of opportunity with an institutional scope are concerned with the state and the public institutions of society, including educational institutions. These conceptions determine how public institutions ought to be structured and create duties for individuals holding particular positions within these institutions. Conceptions of equality of opportunity with an interpersonal scope are concerned with us, our everyday lives and the states of affairs we may bring about. They guide our actions and create duties for us in a great range of contexts including our interactions with our children, friends and even distant strangers.

The distinction between the different scopes of conceptions of equality of opportunity and the duties they create is familiar from our everyday practice. Here is an example. Suppose that a certain conception of equality of opportunity in education requires a strict equality in the allocation of state resources to individual students. This conception is supported by the value of justice according to this conception.

Conclusion :

In closing the article, let me briefly address a pair of objections. As I have described it, equality of opportunity may be concerned with any one of a number of different, sometimes conflicting, values. Perhaps this squeezes too much into equality of opportunity in education. Rather than caring about equality of opportunity in education because it is fair, efficient or agreed to, equality of opportunity in education might be something that we care about for its own sake with no further value supporting it. In fact, I have not denied this. It is possible (although I do not think plausible) that our concern with equality is foundational. The overall conceptual structure would still apply. What I have argued is that usually equality of opportunity operates

as a sort of short-hand. Often when people claim they are in favour of equality of opportunity, they are, consciously or not, invoking some further value. Equality taken alone seems under-motivated. When one is asked why a particular group of individuals should be treated as equals, further justification is usually appealed to, such as 'because only this respects their equal status' or 'because we need to determine who is the most excellent.'

References :

1. Brighthouse H and Swift A (2008) Putting educational equality in its place. *Educational Policy and Finance* 3 (4): 444-466.
2. Broome J (1990-1991) Fairness. *Proceedings of the Aristotelian Society* 91: 87-101.
3. Clayton M (2006) *Justice and Legitimacy in Upbringing*. Oxford: Oxford University Press.
4. Daniels N (1981) Am I my parents' keeper? *Midwest Studies in Philosophy* 7: 517-540.
5. Daniels N (1988) Am I My Parents' Keeper? Oxford: Oxford University Press.
6. Daniels N (2008) 'Justice between adjacent generations: Further thoughts. *Journal of Political Philosophy* 16: 475-494.
7. Dworkin R (1993) *Life's Dominion: An Argument about Abortion, Euthanasia, and Individual Freedom*. New York: Knopf.
8. Feinberg J (1974) Noncomparative justice. *The Philosophical Review* 83: 297-338.
9. Jencks C (1988) Whom must we treat equally for educational opportunity to be equal? *Ethics* 98: 518-533. 76
10. Kagan S (1997) *Normative Ethics*. Boulder, CO: Westview Press.
11. MacCallum G (1967) Negative and positive freedom. *The Philosophical Review* 76: 312-334.
12. Rawls J (1982) Social unity and primary goods. In: Williams B and Sen A (eds) *Utilitarianism and Beyond*. Cambridge: Cambridge University Press, pp. 59-85.
13. Rawls J (1993) *Political Liberalism*. New York: Columbia University Press, pp. 14-15.
14. Rawls J (1999) *A Theory of Justice*. Rev. ed. Cambridge, MA: Belknap Press, p. 274. Walzer M (1983) *Sphere of Justice*. Oxford: Robertson.
15. Westen P (1982) The empty idea of equality. *Harvard Law Review* 95: 537-596.
16. Westen P (1985) The concept of equality of opportunity. *Ethics* 95: 837-850.

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सर्जनशील लेखन आणि अनुवादीत साहित्य



प्रा. बी. बी. गायकवाड

श्रीमती एन.एन.सी. कला वाणिज्य व विज्ञान महाविद्यालय,
कुसुंबा, ता. जि. धुळे

प्रास्ताविक :

सर्जनशील लेखन हा मराठी वाङ्मयात नेहमीच चर्चेचा विषय बनला आहे. सर्जनशील लेखन आज मराठी साहित्यात मोठ्या प्रमाणात वाढीस लागले आहे. आज २१ व्या शतकात सर्जनशील लेखन वेगवेगळ्या अनुषंगाने होत आहे. सर्व जग इंटरनेट, फेसबुक, ट्विटरने एकमेकांना जोडले आहे. जग एक खेडे बनत चालले आहे. भारताने १९९१ ला जागतिकीकरण, खाजगीकरण, उदासीकरण धोरण स्विकारले. भारताची अर्थव्यवस्था जगासाठी खुली करण्यात आली. आपण आर्थिकदृष्ट्या जगाशी जोडलो गेलो. जागतिकीकरणाने माणसाचा तंत्रज्ञानाच्या अनुषंगाने विकास झाला. तो तंत्रज्ञानी बनला. आर्थिकदृष्ट्या सक्षम बनला. नवनवीन प्रसारमाध्यमांशी तो जोडला गेला. पण मानवी मनाने एकमेकांशी असलेली नाळ तुटत गेली. जागतिकीकरणात वस्तुचे मूल्य वाढले आहे. तर माणसाचं मूल्य कमी होऊ लागले आहे. या सर्व घडामोडींचा साहित्यावर परिणाम झाला. नव सर्जनशील लेखन त्यातून निर्माण झाले. लेखक, कलावंत संवेदनशील असतो. त्याबरोबरच तो सर्जनशील असतो. सर्जनशील लेखनाचे स्वरूप कसे निर्माण होते. त्याबरोबर अनुवादीत साहित्य मराठीत मोठ्या प्रमाणात झाले आहे. अनुवादीत साहित्य हे एक सर्जनशील लेखन आहे का? याबाबतीत मतभेद दिसून येतात. सदर शोधनिबंधात सर्जनशील लेखन आणि अनुवादीत साहित्य यावर विवेचन केले आहे.

सर्जनशील लेखन स्वरूप :

मराठी वाङ्मयात सर्जनशील लेखन हा उत्कट भावनेचा आविष्कार असतो. सर्जनशील लेखन कसे निर्माण होते. त्यासाठी वेगळ्या क्लासची गरज भासते का? चित्रकार व्हायचे असेल तर एखाद्या महाविद्यालयात जावे लागते. गायक व्हायचे असेल तर शास्त्रीय संगीताचे प्रशिक्षण घ्यावे लागते. पण लेखक व्हायचे असेल तर याचे सोपे उत्तर आहे. म्हणून आपल्याकडे लेखकांची गर्दी वाढली आहे. लहानपणी आपण शाळेत निबंध लिहिले, मोठेपणी आपण पत्रे लिहिली. आपण या नात्या संदर्भात 'शब्द' हे साहित्याचे माध्यम आहे पण लेखक व्हायला प्रशिक्षण घ्यावे लागते. पाश्चात्य जगतात असे नाही तेथे अनेक विद्यापीठात सर्जनशील लेखनाचे वर्ग असतात. या विषयाच्या पदवी, पदविका असतात.

सर्जनशील लेखनाला विशिष्ट शिस्त असावी लागते. रोज लेखन केलेच पाहिजे असे नाही. या लेखनाला स्फूर्ती नसते. सर्जनशील लेखन मुळात सहज शब्दबद्ध होते. सामाजिक जीवनात सर्जनशीलता महत्त्वाची आहे. सर्जनशील लेखक हा नवनिर्मिती करतो. नवनिर्मिती प्रज्ञेला आजच्या भाषेत नवनिर्मिती म्हटले जाते. प्रतिभेमुळे नवनिर्मिती निर्माण होते. नव्हे प्रतिभेशिवाय नवनिर्मिती शक्य नाही. सर्जनशील लेखक प्रतिभेच्या अनुभूतीने नवनिर्मिती करतो. नवनिर्मिती ही अनुभूतीची प्रचिती असते. पण अनुभवांची पूर्णरचना म्हणजे नवनिर्मिती नव्हे. पुनर्रचना करण्याचे कार्य हे कमी महत्त्वाचे नाही. सर्जनशील लेखकाला निरीक्षण व वाचन यांच्या मदतीने हे अनुभव भांडार समृद्ध करता येते.

नवनिर्मिती लेखकाला कशी साधता येते. त्याने घेतलेले अनुभव त्याच्या मनात कोणत्या ना कोणत्या कारणाने घर करून बसलेले असतात. पुष्कळदा ते इतके सुप्त असतात की, प्रत्यक्ष लेखकालाही त्याची जाणीव नसते. मात्र हे जे अनुभव लेखक घेत असतो. ते

लेखकाच्या भूमिकेतून आपल्याला त्याचा लेखनासाठी उपयोग होईल असे नाही.

सर्जनशील लेखक अनुभव घेतो ते कल्पनेच्या पातळीवरच दुसऱ्याचे अनुभव सुखाचे किंवा दुःखाचे, लेखक त्याच्या कल्पनेच्या पातळीवर अनुभव घेत असतो. कल्पनेच्या पातळीवर घेतलेला अनुभव म्हणजे स्वरंजन नव्हे. अनुभव घेणे, परिणामकारक जीवंतपणे व्यक्त करणे, या दोन्ही गोष्टींना नवनिर्मितीमध्ये महत्त्वाचे स्थान आहे. अनुभव घेण्याच्या वेळी ही लेखकाची मनोवृत्ती सामान्य माणसाच्या मनोवृत्तीपेक्षा अधिक उत्कट असते. लेखकाची अनुभवाची पकड इतकी जबरदस्त असते की लेखक पछाडला जातो.

'वेडा झालो म्हणा हवे तर ।

उठलो जतनेतुनी।

कवी हा तन्मय निजगायनी।'

अशी सर्जनशील लेखकाची अवस्था होते. नगण्य वाटणारा अनुभव लेखकाच्या दृष्टीने महत्त्वाचा असतो. जीवनाच्या व्यापक पातळीवर अनुभवाचे व्यक्ति निरपेक्ष, परिस्थिती निरपेक्ष स्थान शोधण्याचा लेखकाचा नकळत प्रयत्न असतो. सलग, अखंड अशा जीवनाचा एक अविच्छिन्न त्याग म्हणून तो या अनुभवाकडे पाहतो. तेव्हाच त्याला अनुभवाचे अंतरंग आकलन होऊ शकेल. म्हणून काव्याची व्याख्या पुढीलप्रमाणे करता येईल. "Spontaneous overflow of the powerful feeling" एवढेच म्हणून थांबता येत नाही. 'Emotion recollected in tranquillity' या अर्थाची त्याला जोड द्यावी लागेल.

सर्जनशील लेखनामध्ये अभिव्यक्ती तीव्रतेने जाणवते. सर्जनशील लेखनामध्ये अनुभवाचे सर्व रंग परिणामकारकतेने पण भडकपणा येऊ न देता प्रकट करण्यासाठी प्रतिभेची सगळी ताकद तो पणाला लावतो. अनुभव योग्य तऱ्हेने व्यक्त झाला की, नवनिर्मिती साधल्याचा आनंद



लेतो. सर्जनशील लेखक प्रतिभावंत असतो. प्रतिभेमुळे तो निर्जीव शब्दांना सजीवतेचे अंकुर फुटतात. अनुभवाला साकार करण्यासाठी तो कल्पनांचा फुलोरा फुलवितो. कल्पनांच्या साहाय्याने प्रत्यक्षात साकार करता येतो. कवी लेखकाची अभिव्यक्ती द्विपदात्मक असते असे म्हणे म्हणतात, प्रतिभेच्या व्यापारात अनुरूप कल्पना विलासात् इतके महत्त्व आहे की कल्पनाशक्ती हेच प्रतिभेचे दुसरे नाव मानले जाते. शेवटी प्रतिभेशिवाय लेखनाची सर्जनशील कलाकृती आकारास येऊ शकत नाही.

अनुवादित साहित्य :

मराठी वाङ्मयात अनुवादीत साहित्याचा मोठा प्रवाह सुरू आहे. मराठी साहित्यातील अनेक कलाकृती इतर भाषांमध्ये अनुवादीत रूपात झालेल्या आहेत. उदा. 'बलुंत' हे दया पवारांचे अत्यंत गाजलेले आत्मकथन. हे आत्मकथन इंग्रजी, हिंदी, फ्रेंच अशा वेगवेगळ्या भाषेत अनुवादीत झालेले आहे. अनुवादीत साहित्य नवनिर्मिती मानता येईल का? सर्जनशीलतेचा एक भाग आहे. 'बलुंत' हे 'अछूत' असे हिंदी भाषादीत रूपात प्रकट झालेले आहे. अनुवादित साहित्यामुळे भाषिक संप्रषण होते. मराठी भाषेतील समृद्ध साहित्य इतर भारतीय भाषांमध्ये परदेशी भाषांमध्ये गेले आहे. मात्र हे साहित्य नेमके कोणते, कोणते साहित्य किती भाषांमध्ये अनुवाद झाला आहे. याचा अंदाज मराठी भाषकांना नाही. अन्य भाषांमधून मराठी मध्ये आलेल्या साहित्याची सूची महाराष्ट्र राज्य साहित्य आणि संस्कृती मंडळातर्फे तयार करण्यात आली होती. मात्र मराठीत इतर भाषेत गेलेल्या साहित्याची सूची तयार करण्यासाठी फारसे प्रयत्न झाले नाही. त्यामुळे मराठी साहित्याची व्याप्ती नेमकी किती? याचा अंदाज येत नाही. साहित्य अकादमी किंवा नॅशनल ट्रस्ट यांच्या माध्यमातून मराठीतून इतर भाषांमध्ये बंगालीमधून मराठीमध्ये खूप साहित्य आहे. मात्र बंगालीमध्ये तेवढे मराठी साहित्य गेले आहे का?

अनुवादित साहित्यामुळे दुसऱ्या भाषेतून आपल्या मातृभाषेत विचारांचे आदान-प्रदान होते इतर भाषेतील सामाजिक जीवन, सांस्कृतिक इतिहास, ऐतिहासिक, राजकीय, जीवनाचा वेध घेण्यात अनुवादी साहित्यामुळे जगातील लिखित भाषातील साहित्य, आपआपल्या भाषेत अनुवादीत करता येते. त्यामुळे जगाच्या पातळीवर त्या-त्या समाजजीवनात कोणकोणते बदल, चर्चा, वास्तविकता, समाज कोणत्या दिशेने जात आहे. याची इत्यंभूत माहिती उपलब्ध होत आहे. म्हणून वेगवेगळे भाषिक संदर्भ वाचकाला आकलन करून घेण्यास मदत होते. अनुवादीत साहित्य दोन भिन्न कलाकृतीतील भाषा, समाज, परंपरा याला जोडण्याचे कार्य करते. दोन समाजाच्या विचारांचे आदान-प्रदान करण्याच्या दृष्टीने अनुवादीत साहित्य उपयोगी पडते. अनुवादीत साहित्यामुळे मानवाची भाषाविषयीची अडचण दूर होते. एखाद्या भिन्न भाषेतील कलाकृती आपणास कळत नसेल तर आपल्या मातृभाषेत ती कलाकृती अनुवादीत झाल्यास ती कळण्यास मदत होते. अनुवादीत साहित्यामुळे वाचकांची भाषेची अडचण दूर होण्यास मदत होते. म्हणून अनुवादीत साहित्याची सीमारेषा जास्त विस्तारत चालली

आहे. दोन भिन्न संस्कृतीमधील ओळख निर्माण करून देण्याचे कार्य अनुवादीत साहित्य करते. अनुवादीत लेखक हा सर्जनशील लेखक असतो का? याचे उत्तर आपल्याला हो असेच द्यावे लागेल. कारण अन्य भाषेतील कलाकृती समजून घेताना अनुवादकाला त्या भाषिक समाजाची संस्कृती, परंपरा या सर्व बाबी समजून घ्याव्या लागतील. त्या समाज संस्कृतीबद्दल त्याला पुरेसे आकलन करून घ्यावे लागेल तरच त्याला अन्य भाषेतील कलाकृती आपल्या मातृभाषेत अनुवादीत करता येईल. अन्य भाषेतील कलाकृती अनुवादीत करताना अनुवादकाला त्या कलाकृतीशी स्वतःला समरस करून घ्यावा लागेल. बांधिलकी स्विकारावी लागेल. आपल्या मातृभाषेत अनुवाद करताना स्वतःचे भाषेचे संस्कार, अनुवादक करित असतात. आपल्या साहित्यिक दृष्टीकोनातून त्या कलाकृतीची मांडणी करित असतो. ती कलाकृती अनुवादीत असली तरी स्वतःची अनुवादीत लेखक म्हणून ओळख त्याला प्रस्थापित करावयाची असते. म्हणून अनुवादीत लेखक हा सर्जनशील लेखक म्हणावा लागेल.

मराठीमध्ये अन्य भाषेतून अनेक कलाकृती आल्या आहेत. उदा. आत्मचरित्राच्या बाबतीत wings of fire चे मराठी अनुवाद 'अग्निपंख' (ए.पी.जे. अब्दुल कलाम आत्मचरित्र) याचा मराठी अनुवाद माधुरी शानबाग यांनी केला आहे, इंग्रजीतील 'एक होता कार्हर' हे मराठीत रूपांतरीत झाले आहे. 'नटसम्राट' सारखे नाटक शेक्सपियरच्या 'थोडो' रूपांतरीत नाटक आहे. 'बलुंत' चे हिंदी 'अछूत' असे रूपांतरीत नाव आहे. इ. विविध उदाहरणातून वेगवेगळ्या भाषेतील कलाकृती आपल्या मातृभाषेत अनुवादीत करून वाचकांना उपलब्ध करून देण्याचे कार्य अनुवादीत साहित्य करते यात तिळमात्र शंका नाही.

सर्जनशील लेखन आणि अनुवादीत साहित्य यामुळे आज २१ व्या शतकात खूप मोठ्या प्रमाणात निर्माण होत आहे. त्याची व्याप्ती, आवाका दिवसेंदिवस वाढत आहेत. भाषिक मर्यादा आहेत पण त्यावर मात करित अनुवादीत साहित्य जोमाने वाढत आहे. आधुनिक तंत्रज्ञानाच्या युगात सर्जनशील लेखनाची व्याप्ती वाढताना दिसत आहे. कारण लेखकही त्याच दृष्टीकोनातून समाजजीवनकडे पाहून नवनिर्मिती करताना दिसत आहे. सर्जनशील लेखन आणि अनुवादीत साहित्य हे दिवसेंदिवस वृद्धिंगत होईल असे वाटते. यासंदर्भात काही ठळक वैशिष्ट्ये खालील प्रमाणे -

- १) सर्जनशील लेखन हा लेखकाच्या प्रतिभेतून साकार होणारा आविष्कार आहे.
- २) सर्जनशील लेखन हे समाजाला दिशा दाखविण्याचे कार्य करते.
- ३) सर्जनशील लेखनात अनुभूतीची प्रचिती असते.
- ४) सर्जनशील लेखनामुळे साहित्य समृद्ध होण्यास मदत होते.
- ५) सर्जनशील लेखन ही नवनिर्मिती असते. त्यामुळे साहित्याला एक मूल्य प्राप्त होते.
- ६) अनुवादीत साहित्य हे एक सर्जनशीलतेचा आविष्कार असतो.

- ७) अनुवादीत साहित्यामुळे भिन्न भाषेतील कलाकृतींची एकमेकांशी सांगड घालता येते.
- ८) अनुवादीत साहित्यामुळे भाषेचे आदान प्रदान होते. दोन भाषेचा तुलनात्मक अभ्यास करता येतो.
- ९) दोन भिन्न भाषकांच्या कला, संस्कृती, परंपरा यांची ओळख होण्यास अनुवादीत साहित्यामुळे मदत होते.

संदर्भ ग्रंथ :

१. साहित्य स्वरूप आणि विचार, डॉ. प्रभाकर जोशी/ डॉ. किशोर पाटील, प्रशांत पब्लिकेशन, जळगांव, प्र.आ. -२०१४.
२. आधुनिक मराठी वाङ्मयाचा इतिहास- भाग-२ - संपा. अ.ना. देशपांडे, व्हीनस प्रकाशन, पुणे, प्रथम आवृत्ती.
३. प्रदक्षिणा, खंड-२, संपा.- अनिरुद्ध कुलकर्णी, कॉन्टिनेन्टल प्रकाशन, पुणे.




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6. A Study on Importance of Biodiversity Conservation

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Abstract

Biodiversity is essential to existence of living organisms in our earth, because it provides economic, environmental and social benefits. Now a day's despite of biodiversity components are increases .To overcome on these problems it is important to conserved biodiversity. Biodiversity has aesthetic value ,ecological and economic role as well as scientific role .the loss of biodiversity is a global crest .We need to conserved and preserved biodiversity .biodiversity regions should be conserved and protect.

Key Words – biodiversity, economic, ecological.

Introduction

Biodiversity was placed firmly on the international agenda when the convention on biological diversity (CBD) was opened for signature at the 1992 in (UNCED1992).many definition biodiversity is have been proposed but most commonly used is the CBD definition

“The variability among living organisms from all sources including, inter alias terrestrial marine and the other aquatic ecosystems and the ecological ecosystem and the ecological complex of which they are part of this includes diversity within species between species of ecosystems.”(RIP11992)

In general biodiversity is classified in following classes

1. Species Biodiversity
2. Ecosystem diversity

3. Genetic diversity

1) Species Diversity

It includes variety of species i.e. the number of species per unit area at the site is called species diversity. species are the primary it is important to maintain the variety of species.

2) Ecosystem Diversity

In ecosystem different kinds of landforms, ecosystem diversity is difficult to assess quantitatively since the boundaries of the sub ecosystem are elusive.

3) Genetic Diversity

Genetic diversity is in terms diversity in among the population. there are about 1.7 million known species for example-the number of genes in 35000 in homosepeins. genetic variations are due to gene mutation and in an organisms with sexual reproduction these can spread by crossing over and recombination.

Importance of Biodiversity

Biodiversity plays an important role in various aspects following are the some fields where it plays an important role.

1) Science and Biodiversity

Biodiversity is important in science because each species can give scientific clue as the national needs of human being are also related to biodiversity. Biodiversity provides most of humanities food, medicine housing and most of spiritual inspiration. so this is one reasons to understand importance of biodiversity conservation.

2) Economic Conditions and Biodiversity

In economic conditions one important part of biodiversity is crop diversity, which is also called agro biodiversity. Medical sites are also depends upon biodiversity. Many plants species have been used for medicinal purpose in Industry for clothing, wood for shelter and other various uses of biodiversity. Biodiversity may be used as a source of energy and it supplies oil, wax rubber, wool, silk, fur which can be derived from various plants and animals. Biodiversity is also helpful to improve varieties and qualities of biofertilizers.

3) Biodiversity for Cultural Benefits

Biodiversity is a part of many cultural activities in Indian towns and villages plants like ocenum sanctum (tulsi), ficus religiosa (pepal) and crysophis cineraria (khejari) and other trees are considered sacred and worshipped by the peoples

I/c. Principal



4) Aesthetic Value of Biodiversity

Biodiversity is useful for ecotourism, gardening, wild life and it is source of wealth for many peoples in various areas so that it has maximum aesthetic value.

Factor Responsible for Loss of Biodiversity

1) Pollution

Pollution change the natural habitat, it also affects on living things that's why it is responsible for loss of biodiversity. Water pollution causes injurious action on biotic components and costal ecosystem, it also disturbs food chain and it is responsible for one of the major problem of ecosystem that is global warming. Water pollution increases because industrial development occurs at coastal areas of reviser and mining etc. Noise pollution and air pollution is also affect on wild life extension and responsible for biodiversity loss.

2) Deforestation

This is most important factor responsible to cause loss of biodiversity. Population extension is a reseason behind the deforestation. Deforestation main occurs from, settlement, shifting, cultivation and propjet development demands for, fuel, wood, demand of food, demand of wood as a raw material for various industries. Because of these reason's deforestation directly causes loss of biodiversity

3) Habitat Destruction

The natural habitats are destructed by many ways like grazing ground, agriculture, mining industries, highway constructions, drainage and building construction etc. Due to habitat destruction various species need to move elsewhere or may succeed to predation and eventually die. In our country many species are destructed due to habitat destruction.

4) Collection for Zoo and Research

Biodiversity species are collected for zoo and research causes loss of biodiversity e.g. monkeys; chimpanzees' are scarified for research as they have genetic and physiological relatives to human beings. Other factors are also responsible for biodiversity loss like pest control and predator's control, introduction of exotic species and over exploitations etc. So it is important to conserve the species of biodiversity.

Conclusion

The loss of biodiversity increases suddenly because of above mention factors so human being need to conserve the biodiversity species in various ways because without biodiversity



ecosystem, culture and science will not exist. It is important to conserve each and every specie because they play an important role in the maintains of atmospheric issues.

References

1. Chandrakar A. K. Biodiversity conservation. Technical report (1-29) 2012
2. Biodiversity Impact by Helen Byron, 2000
3. Rathod F.M., Sandanshiv L.P. Platinum 6(64)2016
4. Reddy M.A. Environmental Science and Technology. B.S Publication, Hydrabad, 2008
5. Karl T.R. and Trenbirth K.E.: climate change and biodiveriversity new, delhi.
6. De A. K., De. A.K. Environmental Studies, New Age International Publication Limited, 2005.

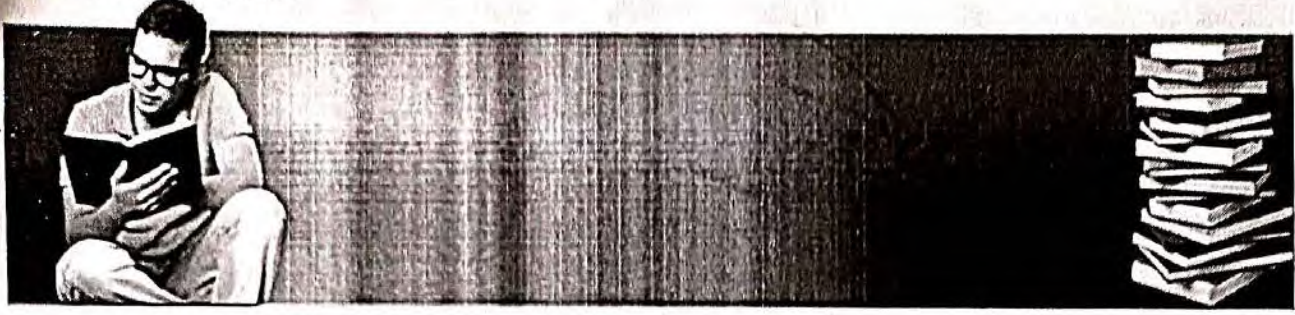
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Shrinkhla Ek Shodhparak Vaicharik Patrika

A Geographical Study of Economic Condition of Schedule Cast (Sc) Population in Anjani River Basin of Erandol Taluka, Jalgaon District (M.S.)”



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Abstract

The paper presents the development status of sc in Anjani river basin of Erandol taluka, Jalgaon district, their problems and prospects from the inclusive growth and human development perspectives. It presents the prevailing situation in respect of schedule cast (sc) their level of backwardness with respect to parameters such as income, land ownership, health indicators, educational attainments, access to basic infrastructure and basic amenities in the Anjani river basin of Erandol taluka, Jalgaon district. The analysis indicates that although there has been progress on many development indicators across these sc communities in the taluka, they still lagged behind the 'other' social groups. The study of economic condition of any sets of population reflects the true image of standard of life, social and economic progress of the population under study. The word related dispersion of populace is regularly specified as a target foundation to gap nations in the middle of created and immature. Undoubtedly it is a helpful foundation in the meantime from the perspective of systematic meticulousness, it is not totally dependable. Many physical and cultural aspects influence the economic condition of the population. Schedule Cast (SC) population in India is educationally, socially, politically and especially economically is very backward as compared to the other religious minority population of the India. In Anjani River Basin of Jalgaon district also the same economic condition of the Schedule Cast (SC), means economically Schedule Cast (SC) economic condition is not good in Anjani River Basin of Jalgaon district. 36.33% Schedule Cast (SC) population in rural areas were under below poverty line; around 60.32% population had 10000 to 50,000 annual incomes.

Keywords: Standard of Life, Below Poverty Line, Census, Well-Being, Dispersion, Development, Deprivation.

Introduction

Erandol was known as "Ek Chakra Nagari" in the time of the Pandavas. Erandol is situated near the Anjani River, Girna River tributary, India Tapi valley of the Deccan Plateau, between the Satpura hills and Ajanta hills. It has an average elevation of 227 metres (744 feet). The Anjani River passes through the town, and the Anjani Dam lies nearby. Erandol shares borders with the talukas of Dharangaon, Pachora, Bhadgaon. National Highway 6, which connects Mumbai and Nagpur, links Erandol with Dhule to the west and Jalgaon to the east. The nearest railway station is Dharangaon on the Surat Line, about 12 km away, and Mhasawad on the Mumbai Line, about 14 km away.

Out of total population, 11,705 were engaged in work or business activity. Of this 8,371 were males while 3,334 were females. In census survey, worker is defined as person who does business, job, service, and cultivator and labour activity. Of total 11705 working population, 89.07% were engaged in Main Work while 10.93% of total workers were engaged in Marginal Work. Erandol Taluka of Jalgaon district has total population of 166,521 as per the Census 2011. Out of which 86,304 are males while 80,217 are females. In 2011 there were total 35,227 families residing in Erandol Taluka. The Average Sex Ratio of Erandol Taluka is 929. As per Census 2011 out of total population, 18.7% people lives in Urban areas while 81.3% lives in the Rural areas. The average literacy rate in urban areas is 76.7% while that in the rural areas is

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73.5%. Also the Sex Ratio of Urban areas in Erandol Taluka is 942 while that of Rural areas is 927.

Occupational structure of a country depends upon a number of socio, cultural, economical, technological and geographical factors of that region, development of productive forces, specialization, and availability of natural resources and level of per capita income are somewhat more important. The occupational distribution of population is often stated as an objective criterion to divide countries between developed and underdeveloped. It is widely thought that the country, which provides employment in the primary sector to a greater amount of labour force are underdeveloped. This concept has definitely an objective basis. Most of the poor countries are essentially agricultural and even if some industries have been established in these countries, their impact is yet to be felt on the socio-economic life of the people India, China, Pakistan, Nepal etc. fall in this category (Mishra and Puri, 1998)¹. Up till now, one can realize that the word related occupational structure of a society is the result of various personally related elements, for example, agricultural improvement, industrialization and human advancement. At the point when the essential assets are used on a business scale, it creates expansion of occupational structure, as indicated by that, if the agricultural stayed at subsistence level, there is very

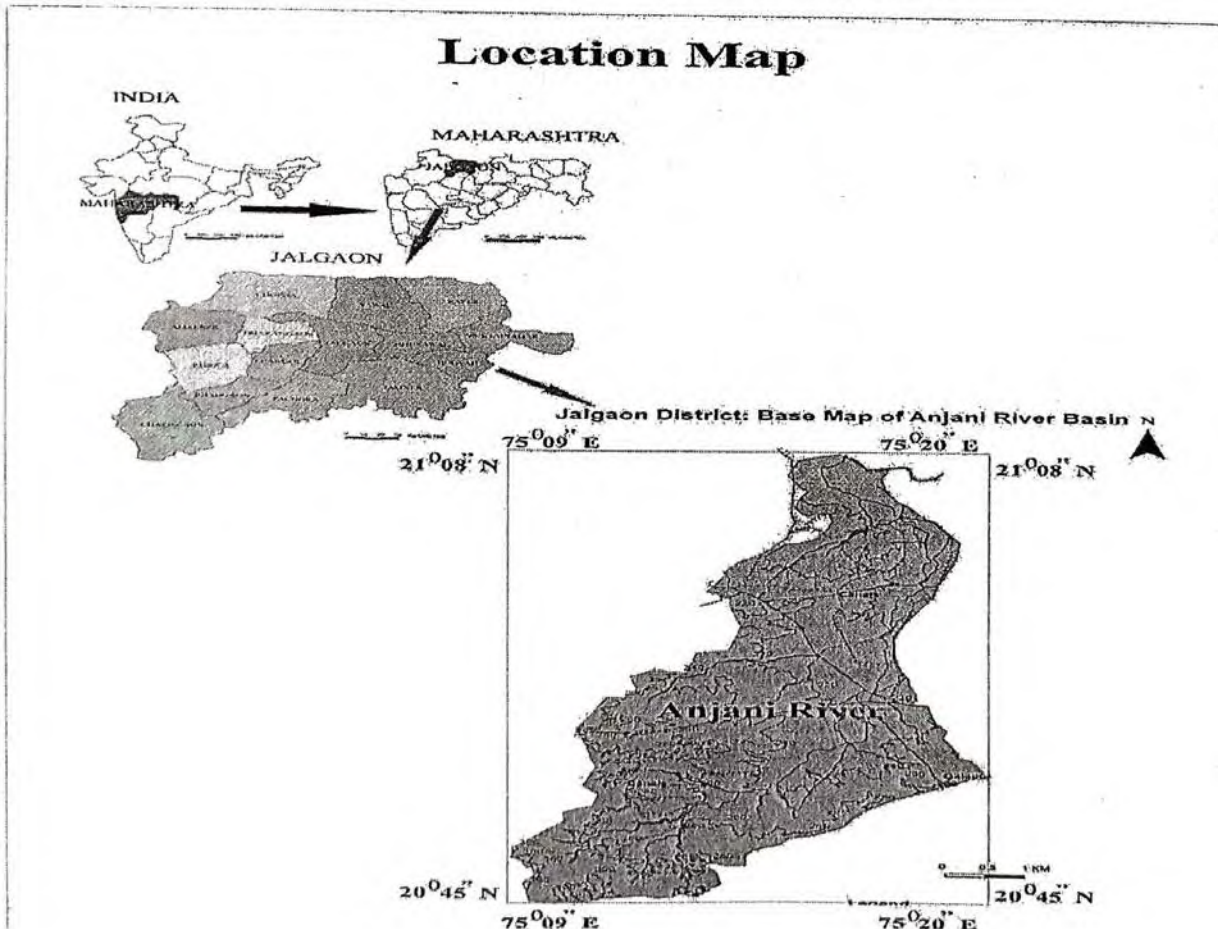
little enhancement of occupations. The expansion process gets further inputs from industrialization since industrialization produces an assortment of occupations. Advancement in science and innovation presents a component of specialization in the occupational organization by making very specific sort of occupations. Every one of these advancements together breed another urban society, which is more administration arranged. It adjusts the occupational structure considerably. (Chandna, 1986)⁴.

Study Area

Anjani River is tributary of Girna River which is itself a major tributary of Tapi river in the part of Maharashtra state, India. Anjani River originates near Titvi village at an altitude of 325m. in Bhalgaon Tehsil of Jalgaon District. Its coordinate is 75°09'E - 75°20'E Longitude. and 20°45'N - 21°08'N Latitude. Erandol taluka length of the Anjani River 27 Kilometer. The catchments areas of the Erandol taluka Anjani Basin Covers 200.27 sq.Km.. The average annual rain fall in the catchment area up to 700mm. Anjani River is oriented in south direction

Erandol taluka Anjani river Basin Villages

Umbræ, Malkheda, Aadgaon & Aadgaontanda, Kasoda, Pharkande, Nandkhurda Bk., Khadke Sim, Khadke Khurde, Sonbrdi, Hanumanthkhede Bk, Hanumanthkhede Majare. Dharagir Erandol, Vikharan



**Objective**

The objective of this research paper is to study the economic condition of schedule cast (sc) population in Anjani river basin of Erandol taluka, Jalgaon district (m.s.)

Research Methodology

A per Census 2011, out of total 33 inhabited Villages in Anjani river basin of Erandol taluka, Jalgaon District. 33 villages having predominant schedule cast (sc) population were selected for the primary data collection. The primary data was collected by door to door interview technique with the help of standard questionnaire. The primary data was collected by using random sampling method. 67% schedule cast (sc) households were randomly surveyed in the rural areas of selected village in Anjani river basin of Erandol taluka, Jalgaon district. After collection of primary data, it was processed, tabulated and compiled then same has been represented by cartographic techniques.

Hypothesis

1. Economic condition of schedule cast (sc) population is not well in Anjani river basin of Erandol taluka, of Jalgaon district.

2. There are uneven economic conditions among schedule cast (sc) population is not well in Anjani river basin of Erandol taluka, of Jalgaon district.

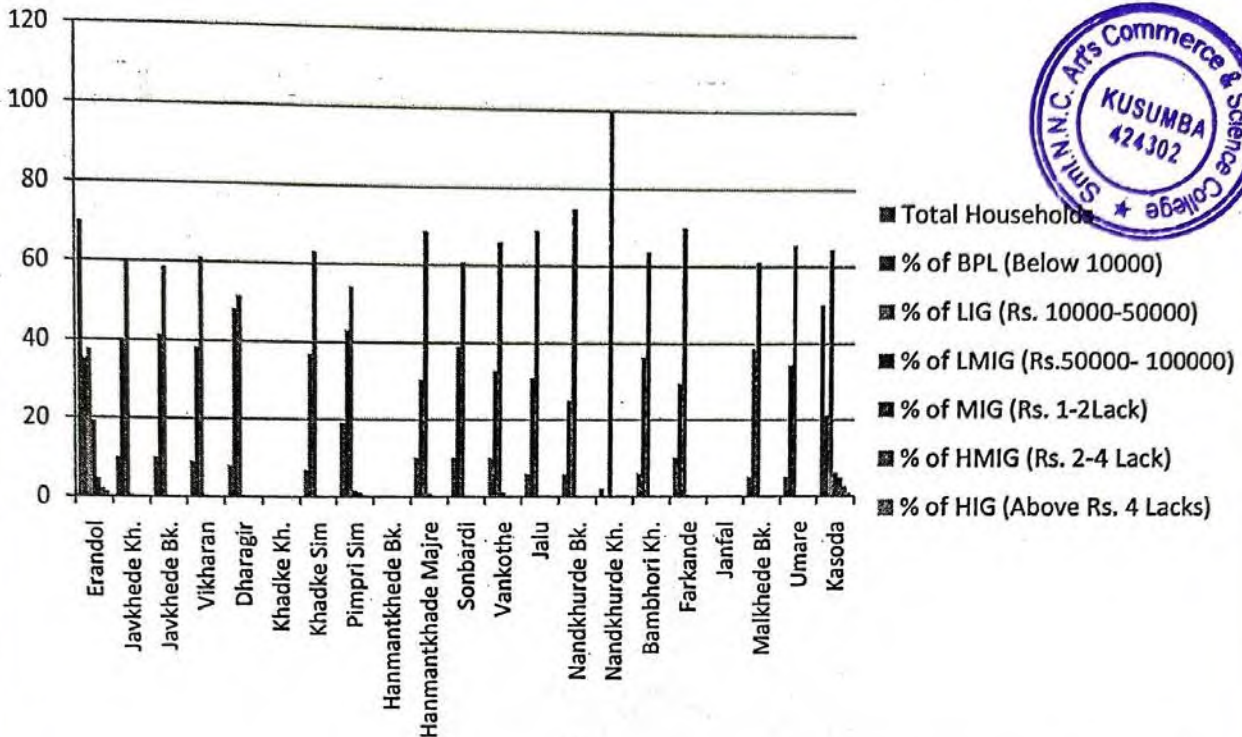
Results and Discussion

The main factor of income refers to wages, salaries, profits, rentals, remittances and any flow of earnings received. Income is also the form of unemployment or workers compensation, social security, pensions, interests or dividends, royalties, trusts, alimony, or other governmental, public, or family financial assistance. To analyze income groups of Erandol taluka schedule cast (sc) Population, extensive field survey was conducted in the mostly rural areas in Anjani River catchment area of Erandol taluka, Jalgaon District. The total 492 households schedule cast (sc) population in Anjani river basin of Erandol taluka, of Jalgaon district, was surveyed in the rural and backward areas of District. In Jalgaon District, there are six income groups are created according their annual income like, Below Poverty Line Group (Below Rs. 10,000), Lower Income Group (Rs. 10,000 to 50,000), Lower Middle Income Group (Rs. 50,000 to 1,00,000), Middle Income Group (Rs. 1,00,000 to 2,00,000), Higher Middle Income Group (Rs. 2,00,000 to 4,00,000) and Higher Income Group (Above Rs. 4,00,000).

Distribution of Annual Income Group of schedule cast (sc) population in Anjan river basin of Erandol taluka, households in Jalgaon District- 2019

Sr. no	Tahsil	Total Households	% of BPL (Below 10000)	% of LIG (Rs. 10000-50000)	% of LMIG (Rs.50000-100000)	% of MIG (Rs. 1-2Lack)	% of HMIG (Rs. 2-4 Lack)	% of HIG (Above Rs. 4 Lacks)
1	Erandol	668	35.20	37.55	19.17	4.62	2.19	1.27
2	Javkhede Kh.	49	39.78	59.76	00.46	0	0	0
3	Javkhede Bk.	28	41.37	58.63	0	0	0	0
4	Vikharan	46	38.38	61.19	00.43	0	0	0
5	Dharagir	24	48.20	51.39	00.41	0	0	0
6	Khadke Sim	31	36.87	63.13	0	0	0	0
7	Pimpri Sim	61	43.13	54.00	1.55	1.00	00.32	0
8	Hanmantkhade Majre	04	30.50	68.75	00.75	0	0	0
9	Sonbardi	24	38.97	60.76	00.27	0	0	0
10	Vankothe	27	32.85	66.14	1.01	0	0	0
11	Jalu	09	30.98	69.11	0	0	0	0
12	Nandkhurde Bk.	27	25.05	74.95	0	0	0	0
13	Nandkhurde Kh.	05	0	100.00	0	0	0	0
14	Bambhori Kh.	31	36.45	63.55	0	0	0	0
15	Farkande	30	29.58	70.12	0.3	0	0	0
16	Malkhede Bk.	08	38.73	61.27	0	0	0	0
17	Umare	06	34.44	65.56	0	0	0	0
18	Kasoda	309	21.07	64.50	6.00	4.76	2.67	1.00
		1421	36.33	60.32	2.1	0.73	0.36	0.16

Distribution of Annual Income Group of schedule cast (sc) population in Anjan river basin of Erandol taluka, households in Jalgaon District- 2019



At a glance Table, 1 reveals that as per primary data collected (2019) schedule cast (sc) population in Anjani river basin of Erandol taluka, of Jalgaon district, it had average 36.33% households was living in Below Poverty Line (Below Rs. 10,000). The higher percentage of rural schedule cast (sc) below poverty line households (Below Rs. 10,000) in comparison to average of the Taluka was in the Villages of Dharagir, Pimpri sim and Javkhede BK which was 48.20%, 43.13% and 41.37% respectively. The lowest was in the villages of Kasoda (21.07%), Nandkhurde (25.05%) and Farkande (29.58%). At Erandol Taluka level, average 60.32% households was living in Lower Income Group (Rs. 10,000 to 50,000). The higher percentage of rural SC Lower Income Group (Rs. 10,000 to 50,000) in comparison to average of the Taluka was in Nandkhurde kh village (100%), Nandkhurde bk village (74.95%) and in Farkande village (70.12%). And lowest percentage of rural SC Lower Income Group (Rs. 10,000 to 50,000) in comparison to average of the Taluka was in the Villages of Erandol (37.55%), Dharagir (51.39%) and in Pimpri sim (54.00%). At Erandol Taluka level, it had average 2.1% was living at Lower Middle Income Group (Rs. 50,000 to 1,00,000). The higher percentage of rural SC Lower Middle Income Group (Rs. 50,000 to 1,00,000) in comparison to average of the Taluka was in the villages of Erandol (19.17%), Kasoda (6.0%) and in Pimpri sim (1.55%). The lowest percentage of rural SC Lower Middle Income Group (Rs. 50,000 to 1,00,000) in comparison to average of the taluka was in Sonbardi (0.27%), Farkande (0.3%) and in Dharagir

(0.41%). In Erandol taluka, it had average 0.73% households was living in Middle Income Group (Rs. 1,00,000 to 2,00,000).

The higher percentage of rural SC Middle Income Group households in comparison to average of the taluka was in the villages of Erandol and Kasoda which was 2.67 and 2.19 respectively. The lowest Middle Income Group was in the village of Pimpri sim (1.00%), and 15 villages are 0%.

At Erandol taluka, it had average 0.36% households was living in Higher Middle Income Group (Rs. 2,00,000 to 4,00,000). The higher percentage of rural SC Higher Middle Income Group households in comparison to average of the taluka was in the villages of Kasoda (2.67%) and Erandol (2.19%) respectively. The lowest Higher Middle Income Group was in the village Pimpri sim (0.32%). There was no Higher Middle Income Group household found in the villages Umbrae, Malkheda, Farkande, Nandkhurda Bk., Khadke Sim, Khadke Khurde, , Sonbrdi, Hanumantkhede Bk, Hanumantkhede Majare. Dharagir Vikharan.

In Erandol taluka level, it had average 0.16% was living at Higher Income Group (Above Rs. 4,00,000). The higher percentage of rural SC Higher Income Group (Above Rs. 4,00,000) in comparison to average of the talukat was in the villages of Erandol (1.27%) and Kasoda (1.00%) and There was no Higher Income Group (Above Rs. 4,00,000) household found in the villages of Umbrae, Malkheda, Farkande, Nandkhurda Bk., Khadke Sim, Khadke Khurde, , Sonbrdi, Hanumantkhede Bk, Hanumantkhede Majare. Dharagir, Vikharan.

Conclusion

The schedule cast (SC) is one of the significant social groups in Anjani river basin of Erandol taluka, of Jalgaon district. The schedule cast (sc) population in Anjani river basin of Erandol taluka, of Jalgaon district is virtually economically, lagging behind in developmental process as compared to the other religious groups. The level of economic development of schedule cast is not homogeneous throughout the Anjani river basin of Erandol taluka. The majority of schedule cast population is living in sub-standard quality of life having high incidence of poverty, low level of education, low employment opportunity, kaccha households, BPL etc. India has accomplished an impressive transformation in its agricultural sector. India's perspective plan aims to accelerate economic growth and eliminate poverty. Alleviation of poverty will require raising the incomes of the poor particularly the bottom quartiles in both Rural and Urban area. This will require economic growth as well as better distribution of income. It requires greater emphasis and investments in an employment oriented strategy of growth that can raise the incomes of the poor more rapidly.

Reference

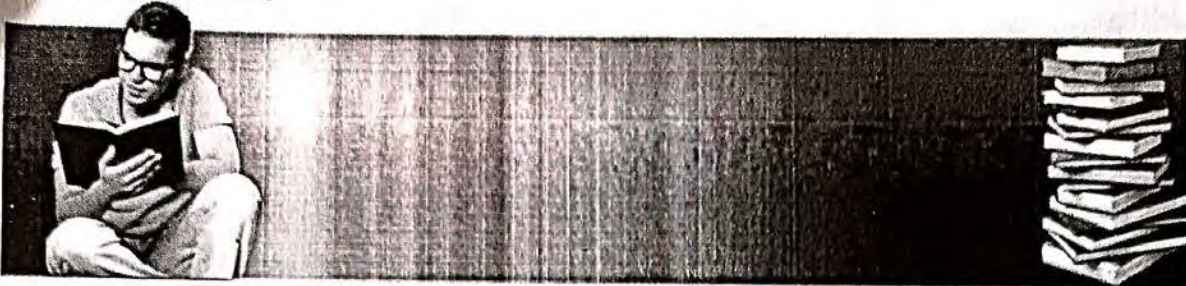
- Census of India 2001: Jalgaon District Census Handbook, Census Office, Mumbai.*
- Chandna R. C. (1986) "Geography of Population – Concepts, Determinants and Jalgaon District Gazetteer, Government of Maharashtra, 1908.
- Mishra and Puri (1998) "Indian Economy", Himalayan Publication House, Bombay.
- Motkuri Venkatanarayana, (2013) *Scheduled Castes (SCs) and Tribes (STs) in Andhra Pradesh: A Situation Assessment Analysis*
- Mr. Ameenuddin Shamsuddin Qaazi (2016) *Geography at IQRA'S H.J. Thim College of Arts and Science, Mehrun, Jalgaon. Maharashtra, (INDIA), PIN: 425003*
- Patterns", Kalyani Publications, New Delhi, Pp. 245-46*
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A Geographical Analysis of Tourism in Jalgaon District, Maharashtra

Abstract

Jalgaon is a district of Maharashtra, India, earlier known as East Khandesh until 21 October 1960. It has an area of 11,765 km² and a population of 4,229,917 as of the 2011 census. Its headquarters is the city of Jalgaon. Jalgaon is near the world famous Ajanta Caves and is one of the key attraction places for tourists all around the World. Tourism in Jalgaon district offers a number of beautiful sights to the tourist. There are many places for the visitors to choose from, ranging from forts, places of natural beauty and even a number of temples for the pilgrims. These include the Sri Padmalaya temple, Saint Muktabai temple and the Changdeo Temple, Patna devi Temple, Manu devi Temple, Unpdev, Mangal graha Temple among others.

Keywords: Tourism, Market, Tourist
Introduction

Jalgaon has a plethora of culture, wildlife and natural scenery tourism potential. However, the district has seldom promoted or marketed itself as a tourist destination. Most of the tourists visiting Jalgaon are from neighbouring districts of Maharashtra, Gujarat and Madhya Pradesh, making it a local tourism destination. The tourists are restricted to the summer vacations, or religious days. Jalgaon greatest advantage is in being closest railway stop over destination for the world heritage site of Ajanta caves which in itself witnesses more than 5 million tourist arrivals from across the world

Jalgaon is most famous for world-class quality banana and cotton production. The district is rich in producing cotton and hence has various textile industrial clusters, especially in the Jalgaon, Bhusaval and other tehsils. Jalgaon Market is mainly known for Gold, Pulses, Wholesale Tea, Agriculture, Grains Trading. 'Banana' is Jalgaon's main crop with 'cotton' having second priority.

Other towns in the district are connected through state highways. Jalgaon district is amongst the most central districts of the country. This is reflected in the fact that it enjoys excellent rail connectivity. Bhusawal railway junction is one of the largest railway yards of the Indian subcontinent and the famous world heritage site of Ajanta is about 60 km (via Jamner) from Bhusawal. The district receives most visitors from the adjoining states due to the good connectivity by Roads



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Objectives of the Study

1. To examine the importance of tourism development in Jalgaon District.
2. To study the economically developed of tourism in Jalgaon District.

Methodology

The present study is based on the secondary data of jalgaon tourism office. The data has been procured from the related articles, research papers, reports and 11th plan document of the government of India. Some data has been furnished from the website of the Ministry of Tourism and Culture for the Government of Maharashtra.

Study Area

The Jalgaon district is located at the north-west corner of the state of Maharashtra. It has the Dhule district in the west, Madhya Pradesh in the north, Buldhana in the east and Aurangabad in the south. The district headquarter is Jalgaon which is connected to major towns of Gujarat and Maharashtra through broad gauge rail. The nearest airport is at Aurangabad which is 150 kms away.

The district is divided into 15 tehsils, namely, Jalgaon, Erandol, Dharangaon, Yawal, Raver, Muktai Nagar, Amalner, Chopda, Pachora, Chalisgaon, etc. Jalgaon district is one of the Tourism, socially and economically developed districts in the Maharashtra state of India. Northern part of the district is occupied by Satpuda Mountain and Southern part is by Ajanta hills. The central part is occupied by Tapti river fertile agricultural prosperous area. The total forest area of the district is 1707 Sq km which is almost 17 % of the total geographical area of the district

Climate & Rainfall

The climate of this district is generally dry except in the monsoon. The average annual rainfall in the district is 740.7 mm. December is the coldest month with the mean daily minimum temperature at 11.9 degree C. and the mean daily maximum at 29.8 degree C. Temperatures begin to rise steadily from about the beginning of March and by May, the hottest month of the year, the mean daily maximum temperature reaches 42.5 degree C. The highest

maximum temperature recorded at Jalgaon was 47.8 degree C.

Existing Tourist Destinations

A brief description of the major tourist destinations is listed below to understand the potential of tourism in Jalgaon. The map showcases the major and minor tourist destinations in the district. For more descriptive assessment of each of the destinations, please refer to Annexure

Muktabal Temple

Muktai or Muktabal was a very popular saint of the Varkari tradition. The Muktabal located in close proximity to Muktainagar and located on the banks of Tapi River, is one of the many scenic religious places in the district. It holds a fair in the month of Jan-Feb which witnesses a crowd of more than 3 lakh tourists a day. Currently, the area is being developed as a tourist destination and is under construction.

Chang Deo

Changdeo in Maharashtra is regarded to be a holy place because of Purna and Tapi rivers. People flock here once a year to take a holy dip. It is also a place where saint Markandeya is believed to have practiced penance. The place is about 6 km away from Edlabad. A fair, which is attended by nearly 80,000 pilgrims, is held at this place during the month of Magha (January-February) every year. These pilgrims are mostly from the Vidarbha region of Maharashtra.

Pal

A mini hill station of northern Maharashtra, Pal highlights the flora and fauna of the district. A cool place for the summers, the Pal village is scenic and displays cultural heritage of the local Bhil tribe. The forest has a government guest house and two dams, Suki and Mor Dam where adventure sport opportunities can be explored.

Manu Devi

Manudevi Temple is located in beautiful natural surroundings near Adgaon village in Yawal Taluka. Manudevi is the kuldevi (family deity) of 70% people in the district. There is a nice Manu Devi water fall with breathtaking view. The way to the temple is a very good trek with the path going through a small river 7 times. The temple is surrounded by forested hills. A fair is also held annually. The temple is fully covered with Satpuda hills and turns lush green during Monsoon making it a more pleased family tourist spot. Another attraction of the Manudevi is that it has a 400-feet high fountain having flowing water for 6-7 months in a year, a beautiful mini lake. Also the recent development allows even a vehicle to reach the temple. A local family diety, Manu Devi is picturesquely set on the banks of River Tapi and the Satpudas. It also has a waterfall and is made out of remains of an ancient temple. Every year in the Shrawan season the temple witnesses over a lakh visitors.

Swinging Towers Farkande

The small village of Farkande is famous for the swinging towers. Swinging Towers located 16-km from Erandol on the bank of Anjani River are a great example of old construction techniques. Both the towers are 15m long and when one of them is waved



Remarking An Analysis

the other towers also starts waving automatically. It is believed that the construction is 250 years old.

Padmalaya

Among the two and a half Shree Ganapati Peeths in India, this is regarded as the half Peeth. Another religious tourist place famous for the twin idols of Lord Ganesha, Padmalaya gets its name from the famous Lotus Lake which forms part of the temple compound. Along with the temple, Bhimkund is another famous place at a distance of a km where in the historic setting of Mahabharatha, Bhim kills the demon Bakasura. Currently there is only a narrow pedestrian pathway to the scenic locale, but has immense potential for development.

Patna Devi

At the edge of the district, Patna Devi is a cluster of ancient temples and caves in the Chalisgaon Forest Ranges. The cluster has temples of chandika devi, Bhaskaracharya, Pithalkhora caves etc. All these places are connected by trekking routes and in need for conservation.

Nateshwar Temple

An Ardhanarishwar Shiva Temple, It is located in the village Lasur in the Chopada Tehsil. Noted by the ENVIS centre for conservation of

Ecological heritage and sacred sites, it dates back to the period of Sultanshah's beautifully carved in Hemadpanthi style. People across the Jalgaon & Dhule district visit the temple in the month of Shravan.

Unapdeo

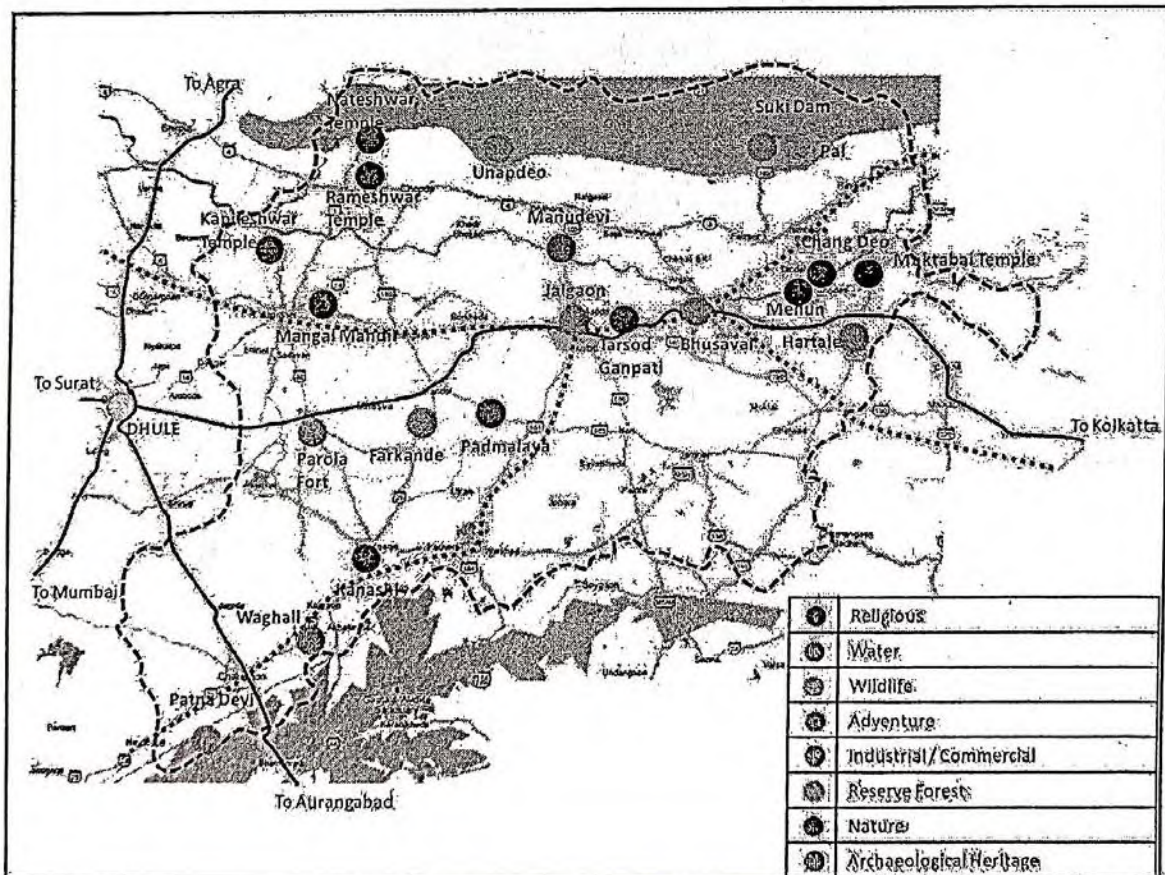
Unapdev is located at a distance of 25kms from Chopda city and 4kms from Adavad. Unapdev is listed as an ASI site. Hot-water springs are situated in the Satpudas at Unapdeo in Chopda tehsil. Like Unapdev, Sunapdev, Nijhardev are two other hot water breezes generated in Satpuda hills range. All these three places have special mention in ancient holy 'Ramayana' and had auspicious touch of Lord Rama during his fourteen years expulsion from Ayodhya.

Rameshwar Temple

Ancient Mahadev temple at confluence of rivers Tapi, Girana and Anjani, Rameshwar is another scenic place that is undergoing construction presently.

Mangal Graha Mandir

India has just two Mangal Graha Temples and Amalner's temple is one amongst those. Located on Chopda Road in Amalner Tehsil, this temple holds utmost religious importance and has various activities every week. India.

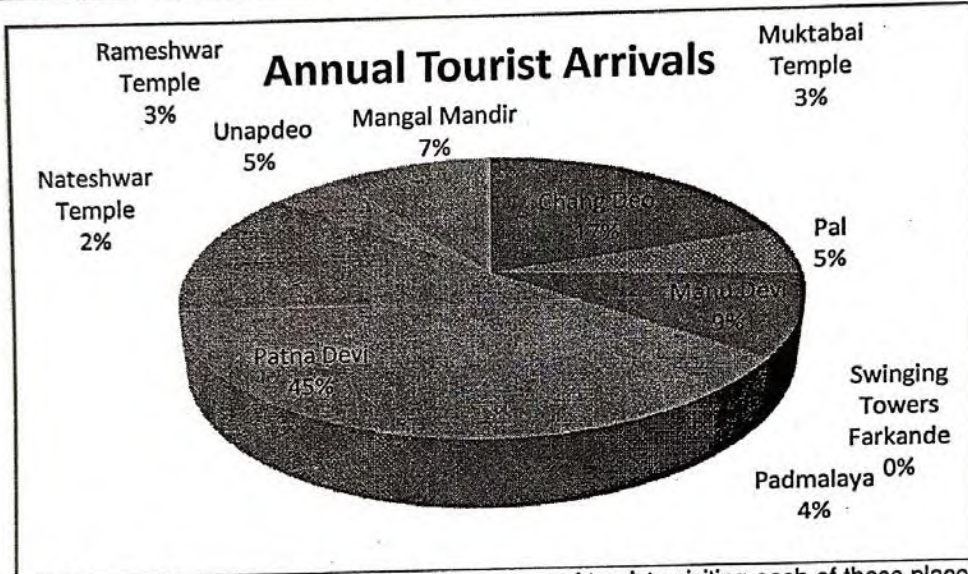


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Estimated Annual Tourist Arrivals in Tourist Destinations in Jalgaon District 10 in 2017-2018

S. No.	Destinations	Annual Tourist Arrivals	Local (Within the District)	Domestic (National)	Category
01	Muktabai Temple	12,86,000	61%	39%	Major
02	Chang Deo	735800	51%	49%	Major
03	Pal	232750	85%	15%	Major
04	Manu Devi	392200	60%	38%	Major
05	Swinging Towers Farkande	5900	98%	2%	Major
06	Padmalaya	157200	51%	49%	Major
07	Patna Devi	1894000	41%	59%	Major
08	Nateshwar Temple	84300	90%	10%	Minor
09	Unapdeo	190750	75%	25%	Minor
10	Rameshwar Temple	122600	78%	22%	Minor
11	Mangal Mandir	285500	61%	39%	Minor



Classification of Tourist Destinations

Jalgaon has a range of places of interest which can serve as tourist destinations to local, domestic as well as international tourists. A large number of these sites are important as local tourist destinations and have been attracting local visitation during weekends and during specific days of religious importance. It is estimated that about 56% of the total visitors to various tourist destinations are local (i.e. from within the Jalgaon district), whereas 44% of the tourists are domestic tourists (i.e. from other parts of the country).

Conclusion

The maximum numbers of visits are made to religious temples in the district which include Patna Devi (1,894,000) and Padmalaya (1,572,000), followed by Muktabai Temple (1,286,000) (Refer Table 7). It is important to note that all the sites cannot be developed since this would lead to a dilution of the development efforts. Therefore all tourist spots have been categorized as major and minor tourist destinations depending on the annual number of tourists and its importance to local or domestic tourist. The list below mentions the number

of tourists visiting each of these places of interest and their classification as major and minor tourist destinations. The map shows the location of the major and minor tourist destinations in the district.

References

Collins, A. (1999). *Tourism development and natural capital. Annals of Tourism Research*, 26(1), 98-109

Dowling, R. (1993). *An Environmentally-based Planning Model for Regional Tourism Development. Journal of Sustainable Tourism*, 1(1), 17-37.

Lane, B. (1994). *Sustainable rural tourism strategies: A tool for development and conservation. Journal of Sustainable Tourism*, 2(2), 102-111.

Ramwell, B. & Lane, B. (2010). *Sustainable tourism: an evolving global approach. Journal of Sustainable Tourism*, 1(1), 1-5.

Simmons, D. (1994). *Community participation in tourism planning. Tourism management*, 15(2), 98-108. doi: 10.1016/0261-5177(94)90003-5

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मराठीतील ग्रामीण साहित्य प्रवाह : एक चिंतन

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मराठी ग्रामीण साहित्यामध्ये अनेक बदल व प्रवाह आलेले दिसतात. स्वातंत्र्यपूर्व, स्वातंत्र्यनंतर, साठोत्तर, ग्रामीण साहित्य चळवळ, संयुक्त महाराष्ट्र चळवळ, पुढे जागतिकीकरण, ऐंशी नव्वद नंतरच्या ग्रामीण साहित्याचा प्रवाह, कृषीनिष्ठ आधुनिक तंत्रज्ञान, दुष्काळ, पाण्याचे प्रश्न, बेरोजगारी, वाढते औद्योगिकीकरण, खाजगीकरण यामुळे सामान्य ग्रामीण जीवनात उद्भवणारी उदासिनता, उपासमार, भ्रूणहत्या असे भीषण निर्माण होत आहेत. हे विषय मराठी ग्रामीण साहित्यात आविष्कृत होणे हे आजच्या नव ग्रामीण लेखकांसाठी मोठे आव्हान आहे. बदलत्या साहित्य प्रवाहानुसार अनुभवविश्वाची मांडणी देखील बदलत असते. पुढील ग्रामीण साहित्य आणि आताचे ग्रामीण साहित्य यात बदल होते स्वाभाविक आहे.

मध्यंतरीच्या काळात मराठी ग्रामीण साहित्याचा प्रवाह थोडासा मंदावल्यासारखा होता, रोडव होता. त्या त्याच अनुभवाच्या वर्षावाने गढूळ झालेला होता. त्याला चैतन्य, नाविन्य आणि सामर्थ्य जाणवत नव्हते. पण गेल्या पंचवीस तीस वर्षांपासून दलित ग्रामीण साहित्याच्या रूपाने प्रवाहाला गती देणारा महत्वाचे झरे लाभलेले असल्यामुळे पुन्हा मराठी ग्रामीण साहित्याला नव्या अनुभवविश्वाचा बहर झाला दिसतो. यात इंद्रजित भालेराव, सदानंद देशमुख, दिलीप कोळी, भास्कर चंदनशिव, बाबाराव योगीराज वाघमारे यांची नावे घेता येतील.

यापूर्वी 1960 ते 1970 या काळात ग्रामीण वातावरणात बदल झालेला दिसतो. मध्यम समाजातील लेखकांबरोबरच प्रत्यक्ष कष्टकरी ग्रामीण समाजातून आलेले संवेदनशील लेखक लिहू लागले दिसतात. यात रा. रं. बोराडे, आनंद यादव, शंकरराव खरात, बाबुराव बागुल, सखा कलाल, चंद्रकुमार, द.ता. भोसले, सारुता सागर इ. लेखक त्यांच्या कथा-कादंबऱ्यातून ग्रामीण वास्तव चित्रित करू लागले. त्यावेळी ग्रामीण माणसाच्या मूलभूत जाणिवा व्यक्त करणे त्यांना महत्वाचे वाटत होते. यादृष्टीने 'धग', 'गाव', 'टारफूल', 'गोतांवाळा', 'पाचोळा', इ. कादंबऱ्यांच्या दृष्टीने विचार करता येईल. याशिवाय खेड्यात झालेला यंत्र आणि विज्ञान यांचा प्रसार यामुळे खेड्यातून आलेल्या सुधारणा, बदल यातून निर्माण झालेल्या नवीन समस्या, ग्रामीण मनावर झालेला परिणाम याचेही प्रत्ययकारी दर्शन घडविणारे ग्रामीण साहित्य निर्माण जाऊ लागले.

1977 च्या सुमारास ग्रामीण साहित्याची चळवळ सुरु झाली होती. या बदलाचे दर्शन या दलित नव्याने लिहू लागलेल्या लेखकांच्या लेखनातून घडू लागलेले दिसते. याला दिशा देण्याचे कार्य.



साहित्याच्या चळवळीकडून घडू लागले. या संदर्भात वासुदेव मुलाटे म्हणतात, "खेड्यातील खासगी सावकारी
संस्थांचे प्रश्न, दुष्काळामुळे होणारी होरपळ शासकीय योजनांमधून घडणारे अपहार आणि ग्रामीण
संस्थांना त्यापासून वंचित ठेवणारी वृत्ती शैक्षणिक संस्थांमधून चालणारा गैरव्यवहार, सहकारातून निर्माण
होणारे प्रश्न इ. चे चित्रण अत्यंत संयमाने आणि नेटकेपणाने लेखक करू लागलेले दिसतात." 1 ग्रामीण वृत्ती-
संस्था याचा परिणाम सर्व सामान्यांच्या जीवनावर कसा होतो याची जाणीव अभिव्यक्त करण्याचा प्रयत्न
साहित्यिक कसे करतात हे सूचित होताना दिसते.

1980 नंतरच्या काळात ग्रामीण साहित्य प्रवाहात लक्षणीय बदल झालेला दिसतो. अर्थात यावेळी
ग्रामीण जनजीवनाशी अजूनही पक्की बांधलेली आहे. तो स्वतःही खेड्यात जगतो, स्वतःची शेती
करतो. यामुळे अवती-भोवतीचे बदलले वास्तव त्याच्या चिंतनाचा व लेखनाचा विषय होणे स्वाभाविक ठरते.

ग्रामीण साहित्यात वर्तमान वास्तव चित्रित करण्याची जी मुख्य प्रवृत्ती आढळते त्यामध्ये ग्रामीण
जीवनाचा प्रवाह अनेकविध दोषांपासून मुक्त झाला आहे. त्याचप्रमाणे व्यापक व समृद्धही बनला आहे.
ग्रामीण साहित्यात पूर्वी थोडेफार जे साधनरूप जाणवायचे ते आता दिसेनासे झाले आहे. केवळ मनोरंजन
साहित्याची जी भूमिका आढळायची तीही संपुष्टात आलेली दिसते. अनुकरणाच्या मगरमिठीतून या साहित्याची
मर्यादा झाली आहे ही यातली खरी महत्वाची गोष्ट मान्य करावी लागेल. आजच्या ग्रामीण साहित्यावर
ग्रामीण जनजीवनाच्या बाबतीत नागर लेखकांच्या लेखनाचा प्रभाव पडलेला दिसून येत नाही, ही
ग्रामीण साहित्याची किंवा नव्या या साहित्याने आपली अस्मिता ओळखल्याची खूण म्हणावी लागेल.

ग्रामीण साहित्य प्रवाहाच्या दृष्टिने होणारे बदल आणि त्यात ग्रामीण भागातून पुढे आलेले लेखक यांच्या
दृष्टीने संदर्भात डॉ. द. ता. भोसले यांचे मत लक्षात घेण्यासारखे आहे. ते म्हणतात, "अलीकडे अनुभवाची
सहज स्वरूप मराठी साहित्यात प्रविष्ट होऊ लागली आहे, जे भावानुभव पूर्वी साहित्यात कधीच येऊ शकले
ना. अशा व्यक्ती पूर्वी साहित्याचा विषय झालेल्या नव्हत्या, अशा जीवनाचे जे दर्शन यापूर्वी वाचकांना समूळ
दिलेले नव्हते ते आता वास्तव जीवन दर्शनाच्या प्रवृत्तीला प्रधान मानलेल्या लेखकांकडून घडते आहे.

मराठी ग्रामीण साहित्याला व्यापक आणि समृद्ध करण्याच्या संदर्भात ग्रामीण साहित्याकांची ही
आनंददायी व समाधानकारक म्हणावी लागेल." 2 नव्या लेखकांची जीवनाकडे पाहण्याची नवी दृष्टी व
संवेदनाची समृद्धी याविषयी भोसले यांनी वाचकांचे लक्ष वेधलेले दिसते.

ग्रामीण साहित्याच्या बदलतल्या प्रवाहात राजकीय वातावरण, प्रवृत्ती, हेवेदावे, मुजोरपणा याचा
प्रभाव पडतो. 1990 नंतर ग्रामीण जीवनाचे चित्र बदलले आहे. गावातील ग्रामपंचायती पासून ते आमदार-
संसदेच्या निवडणुका, गावातील सहकारी पतसंस्था पासून तर जिल्हा, राज्यस्तरावरील सहकारी बँका,
समित्या, सहकारी साखर कारखाने यांच्या निमित्ताने वारंवार निवडणुका लादल्या जात आहेत.
सत्तासंघर्षाचे राजकारण चालते. भांडण-तंटे व कोर्ट-कचेऱ्या वाढतात. नेते सत्ता बळकावतात. यात
सहकाराला अपेक्षाभंगाशिवाय काहीच मिळत नाही. सत्तेच्या सर्व जागा धनदांडगेच बळकावून घेतात.
सत्तेच्या मागाने नवीन सामंतशाही, घराणेशाही जन्माला येते. सर्व स्तरावर जातीपातीचा गणगोताचा
प्रभाव आपापल्या धर्माचे, पक्षाचे ध्वज खांद्यावर घेऊन हाकाटी करणारे महाभाग. थोर पुरुषांच्या

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नावाने विक्री करित निवडणुका लढवणारे हे जनतेचे प्रतिनिधी ग्रामीण सामान्य माणसांना आत्मबल देऊन काही देऊ शकतील यावर सामान्य माणसाला विश्वास राहिलेला दिसत नाही. मेंढरासारखी अवस्था सामान्य माणसाची झालेली असते. ग्रामीण प्रश्न सामान्यांच्या समस्यांचा शोध नवी पिढी घेते आहे. याविषयी मत व्यक्त करताना वासुदेव मुलाटे म्हणतात, "ग्रामीण साहित्य लेखकांनी नुसते प्रश्न मांडून चालणार नाही त्यावरील उपायांनाही अधोरेखित केले पाहिजे ही जाणीव प्रकट होते महत्वाचे आहे. आत्मभान आणि ग्रामीण तरुणांनी स्वतंत्र लेखणी हातात घेऊन नव्या प्रवाहाच्या दृष्टीने लेखन केले पाहिजे."३ या मुलाटे या विचारातून नवलेखकांविषयीचा आशावाद व्यक्त होताना दिसतो.

शिक्षणाचा वाढता प्रभाव, बेरोजगारी, औद्योगिकीकरण, जागतिकीकरण याचे पडसाद जनसामान्यांच्या जीवनावर होताना दिसतात. अलीकडे सामान्य पालकांना आपल्या मुलांसाठी शैक्षणिक करणे, प्रवेश देणे जिकरीचे झाले आहे ही वास्तवता ग्रामीण साहित्य प्रवाहात अधोरेखित झाली आहे. जनतेच्या किंबहुना एकूणच समाजाच्या उन्नतीसाठी साक्षरतेचे प्रमाण वाढून सर्वांचा शैक्षणिक विकास या दृष्टिकोनातून खेड्यात आणि वाड्यावाड्यातून शिक्षणाचे जाळे पसरू लागले. शासनानेही खाजगी कॉलेज्स्, महाविद्यालयांच्या मान्यतेला परवानगी दिली हे शासनाचे धोरण कधीकधी बेकारीला कारणीभूत ठरणारे वाटते. यामुळे मोठ्या प्रमाणात शिक्षण संस्था निर्माण झाल्या. येथेही मूळ हेतू बाजूला ठेवून पावित्र्य नष्ट करणाऱ्या प्रवृत्ती प्रबळ ठरलेल्या दिसतात. महाविद्यालयीन आणि व्यवसायाभिमुख शिक्षण विचार बाजूला ठेवून अगदी प्राथमिक शिक्षणाचा विचार केला तरी सामान्य ग्रामीण माणसाच्या समाधानकारक परिस्थिती दिसत नाही. या शिक्षण संस्थांचे व्यावसायिककरण आणि आर्थिक मिळकतीचे झाल्याचे आता कोणीही नाकारू शकत नाही. गरीब कष्टकरी समाजातल्या कुटुंबातल्या पालकांना पाल्यांना प्राथमिक स्वरूपाचे शिक्षण देणेही दुरापास्त झाले आहे. जिथे खाण्याचे आणि जगण्याचेच प्रश्न केवळ पोटासाठी भटकंती वाट्याला आली आहे. अशा कुटुंबातील मुला-मुलींचे शिक्षण केवळ अवघड बसले आहे, हे सत्यही आपण नाकारू शकत नाही. आज आपण पाहतो ऊसतोड कामगारांच्या जीवनात दिसत नाही. त्यांचे बिडार या राज्यातून त्या राज्यात जाते. दिवसेंदिवस मजुरांचा तांडा काम सार गावांकडे येतो. जेवढे दिवस बाहेर तेवढे दिवस त्यांची मुलं शिक्षणापासून वंचित राहतात. त्यांच्या मुलींचे काय? मुलींसाठी शासनाकडून अनेक सवलती जरी असल्या परंतु त्यांना शिक्षणाचे मिळणेही दूर आहे तर सवलत कशी घ्यायची हा प्रश्न आहे तर हे प्रश्न आज खऱ्या ग्रामीण लेखकाला प्रेरणा देणारे आहेत ते समाजापुढे, सरकारपुढे, जनतेपुढे येणे, साहित्यात उतरणे महत्वाचे आहे. इथे खऱ्या ग्रामीण साहित्य प्रवाहाला ऊर्जितावस्था प्राप्त होणे महत्वाचे आहे. आजच्या नवलेखकांना ही जाणीव प्रेरणा निर्माण होणे तितकेच गरजेचे आहे. असे म्हणावे लागेल.

शांता जोशी यांची 'गन्हानी' ही कादंबरी ग्रामीण जीवनाचे वास्तव चित्रण करणारी आहे. बालपण मराठवाड्यातल्या खेड्यात गेलेले त्यामुळे त्यांनी ग्रामीण जीवन पाहिलेले व अनुभवलेले होते. ग्रामीण जीवन तिथली संस्कृती, शोषणाची, संघर्षाची जाणीव, ग्रामीण संस्कृतीत होणारे आणि होत असलेले बदल, या बदलात होरपळून निघणारे दीन-दुबळ्यांचे जीवन हा त्यांच्या लेखनाचा चिंतनाचा विषय. शाळेत न जाणारी किंवा जाऊ न शकणारी, कचरा वेचणारी मुलं, नवऱ्याच्या व्यसनाधिनतेमुळे त्या

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(विशेषांक - भाग २)

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(या अंकासाठी महाराष्ट्र राज्य साहित्य आणि संस्कृती मंडळाचे अनुदान मिळाले आहे.)
'महाराष्ट्र राज्य साहित्य आणि संस्कृती मंडळाने या नियतकालिकास अनुदान दिले असले तरी या नियतकालिकातील लेखकांच्या
विचारांशी मंडळ व राज्य शासन सहमत असेलच असे नाही.'


प्र. प्राचार्य
श्रीमती एन्. एन्. सी. कला, वाणिज्य
व विज्ञान महाविद्यालय,
कुसुंबा-४२४३०२, ता. जि. धुळे

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समकालीन मराठी कविता आणि जागतिकीकरण

- जितेंद्र गिरासे

प्रास्ताविक

मराठी साहित्यात काव्यविश्वात जागतिकीकरणाचा फूटका कोणत्या वर्गाला बसला की ज्यामुळे सामान्य नागरिक, दलित, उपेक्षित कामगार वर्ग हतबल झाल्याचे दिसून येते. आणि यामुळे सामाजिक जीवनात, जगण्यात कोणते वितुष्ट व समस्या निर्माण झाल्यात की ज्यामुळे मानवी मन दुःभंगले, कुटुंबे उद्ध्वस्त झाली. म्हागाई आणि बेकारीची समस्या निर्माण झाली ज्यामुळे जगण्यातील संवेदनशीलता नष्ट झाली. या सर्व समस्यांची अनुभूती समकालीन परिस्थितीला अनुसरून आपल्या मनातील भावना, विचार, आविष्कार व कलांचा परिसर, सामाजिक प्रश्न समकालीन कवीना अस्वस्थ करू लागले.

जागतिकीकरणामुळे संगणक वाढले, बेकारी निर्माण झाली, शेतकरी रासायनिक खतांचा वापर करू लागले. पारंपरिक खते, बियाणे संपली जमिनीचा मजदूर कमी झाला. विहीरींची संख्या वाढली, दुष्काळ झाले, शेतकरी दुर्बल ठरला, शेतकऱ्यांच्या आत्महत्या वाढल्या. कुटुंबे उद्ध्वस्त झाली, अनाथांचे प्रमाण वाढले, मोबाईल, इंटरनेटचा वापर, मॉल्स वाढले, महाद्वंद वाढला, तरुण वर्ग आळसावला. या समस्यांमुळे जागतिकीकरण व खाजगीकरण प्रक्रियेमुळे निर्माण झाल्या. त्याचे प्रतिबिंब साहित्यावर उमटले. कवी, कथाकार, कादंबरीकार आपल्या अनुभवातून समाजनाच्या वेदना शब्दबद्ध करू लागले. या सर्व समस्यांची अनुभूती उकल, उत्तम कांबळे यांनी आपल्या जागतिकीकरणात माझी कविता' या काव्यसंग्रहात व्यक्त केली आहे. त्याचबरोबर मंगेश नारायण कांबळे, वीरधवल परब, कवी सुनील अवचार, हेमंत कांबळे, वैलास पगारे, अरुण काळे, महेंद्र भवरे, किशोर

कदम, गोविंद काजरेकर यांनी जागतिकीकरणात मानवी मनाची कशी घुसमट झाली याची अनुभूती आपल्या कवितेत शब्दबद्ध केली आहे. याचा परामर्श आणि शोध घेण्याचा प्रयत्न या शोधनिबंधात केला आहे.

समकालीन संकल्पना

मुळात 'समकालीन' या शब्दात काळाचा निर्देश केलेला असतो. साहित्य हे समाजातून निर्माण झालेले असते. त्या काळातील घटना-प्रसंग याचे पडसाद साहित्यावर उमटत असतात. लेखकाला त्याच्या भोवताली आलेला अनुभव तो आपल्या लेखनात आविष्कृत करीत असतो. त्या समकाळात वावरताना त्याच्या मनाला भावलेले, अनुभवलेले, पचवलेले तो आपल्या शब्दात मांडतो. घटनेची समस्या, गांभीर्य त्याच्या मनाला अस्वस्थ करते आणि मग त्या काळातील अस्वस्थता तो कुठेतरी कथा काव्यात नोंदवतो. वर्तमान काळातील मानवाच्या इच्छा, आकांक्षा, असहायता, पराभव, वेदना, विद्रोह याचा प्रामाणिक आविष्कार साहित्यातून व्यक्त होतो.

त्या-त्या काळातील परिवर्तने, काही चळवळी, काही प्रवाह या दरम्यान उद्भवणारी परिस्थिती तिची आंदोलने, ताणतणाव याची स्पंदने संवेदनशील लेखकाला अलगदपणे जाणवतात आणि त्या जाणिवेतून समाजाविषयी, घटनेविषयी असलेली आस्था, त्याविषयी असलेले मानवी मनाचे धागे सहज उलगडत जातात. उदा. १९९० नंतर देशात निर्माण झालेले जागतिकीकरणाची प्रक्रिया आणि यातून निर्माण झालेले प्रश्न कवी मनाला स्पर्श करणारे व अस्वस्थ करणारे आहेत, हाच समकालीनतेचा प्रभाव कवीमनाला चेतविणारा आहे.

जागतिकीकरणाच्या समस्येने प्रभावित झालेले कवी

आजची मराठी कविता जागतिकीकरणाच्या समकालीन बदलाचे सूक्ष्म बारकावे टिपत मानवी जीवनाच्या प्रत्येक कप्प्याला स्पर्श करत असते. उच्चमध्यमवर्ग व धनाढ्य भांडवलदार अशा सर्वांचा विश्लेषक शोध आजची मराठी कविता घेताना दिसते. कवी अरुण काळे यांनी आजच्या समकालीन बदलाचे चित्रण अत्यंत प्रत्ययकारी प्रतिमांच्या वापरातून आपल्या काव्यातून शब्दबद्ध केले आहे.

संवेदना बोथट बनलेल्या आर्थिक सत्तापिपासूंची वाढ होत असताना सर्वसामान्यांची केविलवाणी अवस्था कवी अरुण काळे सजगतेने चित्रित करताना दिसतात. त्यांच्या 'रॉक गार्डन', 'सागरचे शहर', 'नंतर आलेले लोक', आणि 'ग्लोबल गावकूस' या सारख्या अलीकडे प्रसिद्ध झालेल्या कवितासंग्रहातून समकालीन समाजवास्तव आणि भविष्याचा वेध घेण्याचा प्रयत्न कवीने केला आहे. अरुण काळे यांच्या कवितांमध्ये जागतिकीकरणासारखा गुंतागुंतीच्या प्रक्रियेचा व्यापक संदर्भ दिसून येतो. अलीकडे मुक्त अर्थव्यवस्थेमुळे बदललेले समाजवास्तव कवी अत्यंत प्रभावीपणाने 'नंतर आलेले लोक या संग्रहामध्ये समोर आणताना दिसतात.

'नंतर आलेले लोक आधी गुराखी होते
चाचे आणि लुटारू होते, व्यापारी होते,
टोळीवाले आक्रमक होते, ते मालक झाले
राजे आणि पुरोहित झाले.

प्रस्तुत कवितेत जागतिकीकरणाच्या प्रक्रियेत वर्चस्व, मालकी हक्क, जाती-जातीमधील संघर्ष, अन्याय कविने आपल्या अनुभूतीतून सूचित केला आहे.

बुद्धी, शस्त्रे, ज्ञान, विज्ञान आणि पैसा यांच्या बळावर दुसऱ्यांना गुलाम करणाऱ्या वर्गाला जागतिकीकरणाच्या प्रक्रियेत आश्रय मिळाला तो राजकारणाचा. त्यामुळे परकीय कंपन्यांची पाळेमुळे

येथे रुजवली गेली. 'माणूस' केंद्रस्थानी असण्यापेक्षा पैसा केंद्रबिंदु बनला. नाणेरुपी चकाकणाऱ्या सूर्याभोवती जग फिरू लागले, याची खंत कवीला अस्वस्थ करते कवी म्हणतात-

'नंतर आलेले लोक लोभी आणि भोगी होते
त्यांनी गुलाम आणि स्वर्ग निर्माण केला
पण माणूस शोधला नाही
नंतर आलेल्या लोकांना'

या आर्थिक युद्धाची सुरुवात सामान्यांच्या दृष्टी जीवघेणी ठरली आहे. स्वतःला महासत्ता बनविणाऱ्या जीवघेण्या स्पर्धेत सामान्य माणसांची गळचेपी होत आहे. त्याचं माणूसपण हरवले आहे, याची खंत व भेडसावते. यादृष्टीने कवी अरुण काळे यांच्या कविते वैशिष्ट्य सांगत असताना समीक्षक प्रकाश केतकर म्हणतात, "एकविसाव्या शतकात शिरजोर झालेल्या नव्या अर्थकारणाचा, जागतिकीकरणाचा आणि त्यात उदयाला आलेल्या नव्या संगणक संस्कृतीचा सर्वदल निषेध हे कवी अरुण काळे यांच्या कवितेचे महत्त्व वैशिष्ट्य आहे." केतकर यांच्या विधानावरून अरुण काळे यांनी जागतिकीकरणामुळे व यांत्रिकीकरणामुळे सामान्य माणसं कशी दबली गेली याची जाण अभिव्यक्त केली आहे.

उत्तम कांबळे यांनी 'जागतिकीकरणात माणसं कविता' या काव्यसंग्रहात माहिती तंत्रज्ञान युगात आणि वाढत्या जागतिकीकरणाच्या व खाजगीकरण प्रक्रियेत वाढती बेकारीची समस्या चित्रित आहे. संगणकामुळे तरुण मुले बेकार झाली. लोकांचे काम एकटा संगणक करू लागला. त्या उपासमार वाढली याचे चित्रही कवीने उभे केले जागतिकीकरणाच्या एका वळणावर संगणक माणूस यांची लढाई होईल अशी भीती कांबळे व्यक्त केली आहे.

शेतकऱ्यांच्या आत्महत्येविषयीचे भेदक चित्र



विशेषांक

श्रीवार्ता

उभे करतात. शेतकरी हा पिढ्यानपिढ्या कर्जबाजारी झालेला दिसतो. तो आत्महत्या का करतो? याचा शोध कोणी घेतला आहे का? ही समस्या त्यांना अस्वस्थ करते. कवी म्हणतात-

“बळी राजाला कधी कुणी
पावलाखाली गाडलं
कुणी व्याजाखाली गाडलं
कुणी बाजारात मारलं
तर कुणी त्याला
बाजारात पोचण्यापूर्वीच मारलं”

जागतिकीकरणाच्या नावानं सुरू झालेल्या स्पर्धेचं हत्यार वापरून तो मरणाच्या वाटेवर आहे. त्याच्यासाठी कर्जाचे दरवाजे बंद आहेत. खाजगी संस्थाकारांनी व्याजाचे दर वाढवून आपले दरवाजे खुले केले आहेत. महागडी बियाणे आली आहेत. या कवितेतून बळीराजाची दयनीय अवस्था चित्रित केली आहे. मूल्यहीन समाजाविषयी कवीने चिंता व्यक्त केली आहे. उत्तम कांबळे म्हणतात, “मूल्यहीन समाज माणसाची माणूस म्हणून असलेली मान्यताच काढून घेतोय, माणूसकी नाकारतोय. विज्ञानाने त्याला मदत करता कामा नये. खर्च उद्या यंत्राचं इतकं आक्रमण होईल की ज्यात संगणकाच्या खांद्यावर मान ठेवून माणसाला शेवटचा श्वास घ्यावा लागेल, अशी भीती आहे.” संगणक युगात मानवी मूल्ये संपून जातील की नव्य? याची भीती कांबळे यांनी व्यक्त केली आहे.

कवी मंगेश काळे यांनी देखील सभोवतालच्या समकालीन परिस्थितीचा वेध, जागतिकीकरणामुळे निर्माण झालेली अगतिकता, सामान्य माणसाची सोडी, वेदना यांचे चित्र अधोरेखित केले आहे. त्यांच्या ‘शक्तिपाताचे सूत्र’, ‘नाळ तुटल्या प्रथम पुरुषाचे मृत’, तृतीय पुरुषाचे आगमन या कवितासंग्रहातील कविता खऱ्या अर्थाने एकविसाव्या शतकाची कविता आहे याची जाणीव होते. कवितेतील भयाची जाणीव

अभिव्यक्त करताना देवानंद सोनटके म्हणतात, “समाजव्यवस्थेतील हिंसा, क्रौर्यामुळे भयाची जाणीव निर्माण होते. ही असुरक्षिततेची पुढची अवस्था असते. जागतिकीकरण आणि राजकारणाच्या जीवघेण्या स्पर्धेतून कवी मंगेश नारायण काळे यांच्या कवितेत भयाची जाणीव प्रगट झाल्याचे दिसते.” मंगेश काळे यांच्या कवितेतून सामान्यांचे जीवनचित्रण करताना भयाची जाणीव कशी सूचित होते याकडे सोनटके यांनी लक्ष वेधले आहे.

कवी सुनील अवचार यांनी देखील बदललेले वास्तव अतिशय जोरकसपणे पकडले आहे. त्यांनी सभोवतालचा गुंता शोधून काढला आहे. हाच गुंता माणसाची दिशाभूल करणारा आहे, याचे वर्णन कवी अवचार करतात-

ग्लोबल वर्तमानात
भावना झाली आहे जाहिरात आणि
मेंदुचे झाले आहे कॉम्प्युटर
संस्कृती झाली आहे खेल

अवचार यांच्या ‘ग्लोब वर्तमान’ या कवितेतील काही ओळी सुट्या सुट्या करून घेतल्या आहेत. इथला कामगार आपले श्रम स्वस्तात विकत होता. आता श्रम देणारे अवयव विकण्याची आणि तेही स्वस्तात विकण्याची वेळ त्याच्यावर आली आहे.

कवी हेमंत दिवटे यांनी शहरातील मॉल संस्कृती निरखली आहे. मॉलमध्ये ऐकवल्या जाणाऱ्या संगीतात आणि लक्ष दिव्यांच्या झगमगाटात हे सारे आक्रोश विरून जात आहेत. वस्तूंच्या महासागरात माणूसही एक वस्तू होऊन भटकायला लागला आहे. याचे वेधक चित्र कवी दिवटे रेखाटतात. त्यांनी ‘मेगामॉल शॉपिंग’ कवितेत मॉल संस्कृती उभी केली आहे.

तर या मेगा शॉपिंग मॉलमध्ये शॉप करताना
अति मायक्रो विचार घेत राहतात
जसं, की मी आहे पहिल्या रॅकमधला

व्हिस्पर नॅपकीन पॅक

यात जागतिकीकरणात आलेल्या, रुजलेल्या आणि ओठावर आलेले शब्द अनुभवाच्या निरीक्षणाने उतरले आहेत. माणसाची वस्तू झाली हे विदारक सत्य कवितेतून आविष्कृत केले आहे. कवी महेंद्र भवरे यांनी देखील जागतिकीकरणातील प्रक्रियेत माणसाची अवस्था कशी बिकट झाली आहे याकडे दृष्टी वळवली आहे. त्यांच्या संदर्भात उत्तम कांबळे म्हणतात, "जागतिकीकरणाच्या प्रक्रियेकडे अतिशय गांभीर्याने आणि चौफेर पाहणारे आणखी एक गंभीर नाव म्हणजे महेंद्र भवरे. यांनी या जगाला आणि युगाला 'पत्थरदिल' असं नाव दिले आहे." उत्तम कांबळे यांनी भवरे यांच्या संवेदनशील मनाचे दर्शन या विधानातून घडविले आहे. 'महासत्तेचे पीडादान' या काव्यसंग्रहात त्यांनी राजकीय सत्तेविषयी व कराराविषयी टीका केली आहे. ते म्हणतात-

'ग्रहावरचं जग कसे झगमगतेय
अन् झक मारतात मानवी मूल्यांचे जागर
मूल्यांचे खग्रास ग्रहण मागत सुटतेय दान
भिकारचोट कराराच्या चौकटीवर..'

अनेकांना निरक्षर करणारी संस्कृती एका रात्रीत आणली जाते आणि पद्धतशीरपणे ती रुजवण्याचा प्रयत्न केला जातो. भांडवलशाहीच्या संस्कृतीत सामान्यांची गळचेपी आणि शोषण होते याचे वास्तव चित्र भवरे उभे करताना दिसतात. एकूणच उपरोक्त कवींनी समकालीन कवितेत जागतिकीकरणाच्या प्रक्रियेत सर्व सामान्य माणसं कशी हतबल झाली, त्यांचे कष्ट आणि पोटापाण्याचा प्रश्न सुटण्यापेक्षा तो वेगाने वाढला, काही तरुण पिढी आळशी झाली. बेकारांची फौज वाढली यांचे वास्तव चित्र सभोवताली निरखताना कवीने मार्मिकपणे टिपला आहे. असेच प्रश्न आज वाचकांसमोर उभे करून समस्येची वाट मोकळी केली पाहिजे हीच समकालीन कवींकडे अपेक्षा आहे.

निष्कर्ष

- समकालीन कवितेने जागतिकीकरणाच्या प्रक्रियेत जखडलेल्या मानवी मनाचे स्पंदने टीपली आहेत.
- समकालीन कवींनी वर्तमान परिस्थितीत जागतिकीकरणात बळी ठरलेल्या व्यक्ती समूहाच्या वेदना अधोरेखित केल्या आहेत.
- अरुण काळे, मंगेश काळे, हेमंत दिवटे, उत्तम कांबळे या कवींनी सामान्य माणसाचे दुःख, समस्या यावर प्रकाश टाकला आहे.
- महानगरातील मॉल संस्कृतीने माणसाला वस्तू बनवून त्याला दिशाहीन केल्याचे वास्तव प्रखरतेने मांडले आहे.
- समकालीन कवितेने शेतकऱ्यांच्या गंभीर परिस्थितीचे चित्र अधोरेखित केले आहे.

संदर्भग्रंथ :-

१. प्रकाश केजकर, 'समकालीन मराठी कविता: एक निरीक्षण', स्वरूप प्रकाशन, औरंगाबाद, प्रथमावृत्ती-२०१३, पृ. ६४.
२. उत्तम कांबळे, 'जागतिकीकरणातील मराठी कविता', डॉ. मु. ब. शहा, संपा. 'आमची श्रीवाणी', वर्ष-१६. अंक-१, जाने. २००९ का.स. वाणी संस्था धुळे, पृ. ११२.
३. देवानंद सोनटक्के 'समीक्षेचा अंतःस्वर' पुस्तकातील समकालीन कविता: नव्या जाणिवा, पद्मगंध प्रकाशन, पुणे, प्रथमावृत्ती-२०१२, पृ. १८२.
४. उत्तम कांबळे, 'जागतिकीकरण आणि मराठी कविता', डॉ. मु. ब. शहा, संपा. आमची श्रीवाणी कविवर्य ना. धों. महानोर विशेषांक, वर्ष-१६ अंक-३, सप्टेंबर २००९, पृ. ३७.



G. O. Sir.

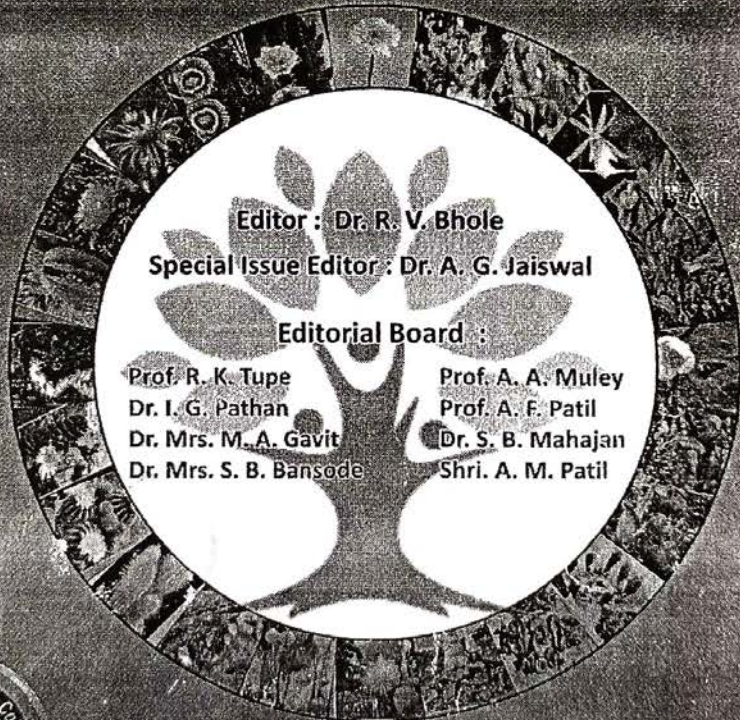


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Diversity of Family Rutaceae From Forest Area of Navapur Taluka, Nandurbar District,(Ms)

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Abstract

Rutaceae is important family of flowering plant. The present study deals with diversity of family Rutaceae from forest area of Navapur Taluka, Nandurbar District (MS). It is very pleasant place surrounded by hills of dense forest of Northern Western Ghat from one side. The flora of this region is highly diversified in vegetation, rich in floristic composition and contains considerable number of important species.

Key words: Diversity, Rutaceae, Forest, Navapur, Nandurbar.

Introduction

The Family Rutaceae is commonly called citrus family. It includes about 160 genera and more than 1600 species distributed all over the world. In India it is represented by 25 genera and 80 species (Sharma 2004) with great diversity of habitat morphology, ecology etc. The objective of the study is To study of diversity especially morphology of family Rutaceae from forest area of Navapur Taluka, Nandurbar District. (M.S.) Navapur is one of the tribal taluka of Nandurbar district of Maharashtra. More than 85% of its population is scheduled tribes. It is located between 21°09'-21°15' latitude 73°48'-70°80' longitude of Nandurbar District. The forest of this area is a part of Western Ghats and it is mainly dry deciduous type, due to moderate rainfall. The forest is intermixed with hamlets and villages. The present paper deals with morphological descriptions of 4 genera and 4 species of family Rutaceae. It has been tabularised in table. It includes alphabetically arranged botanical names, local names and morphological description.

Material and Methods

The present study carried out by critical field survey in the different parts, of forest area of Navapur taluka, Nandurbar District (M.S.) was carried out from May 2014-April

2018. During the time of field survey, several places have been visited and information was collected from elderly persons, tribal peoples, local medicine men called vaidu etc. The collected plant specimens were dried, pressed to prepare Herbarium. They are identified and deposited in the herbarium of Department of Botany, Jaihind Educational Trust's Z.B. Patil College, Dhule.

Sr. no.	Botanical name	Local name	Morphological Description
1	<i>Aegle marmelos</i> L.	Bel.	Medium to large sized deciduous, thorny, 5-12 m tall tree. Bark soft, light grey in colour. Leaves alternate, trifoliate, petiolate, leaflet ovate-lanceolate. Flowers bisexual, greenish white, in axillary panicles, sweet scented. Fruit berries, 6-10 cm diameter, globose, greyish-yellow when ripe, woody, pulp is thick, sweet and orange colour. Seeds numerous, ablong, 0.3-0.6 cm long, glabrous, embedded in massive pulp
2	<i>Atalantia racemosa</i> Wight & Arn.	Ran- Limbu, Makad-Limbu.	Small thorny tree, 4-5 m tall, Bark smooth, yellowish-brown. Leaves alternate, simple, unifoliolate, petiolate, elliptic ovate, acute to rounded base, entire margin, acute apex, gland dotted. Inflorescence racemose. Flowers white, fragrant, pedicillate. Fruits berry, globose, stalked, gland-dotted, green in colour. Seeds 3-4
3	<i>Limonia acidissima</i> L.	Kavath, Kaith.	Medium sized 5-8 m tall tree, with spiny bark. Leaves imparipinnates, leaflets 3-9. Flowers small, greenish-yellow, lateral or terminal pubescent panicles. Fruit berry, 5-8 cm in diameter, hard, globose, woody, greenish-brown in colour. Seeds small, many, embedded in sticky brown pulp, ablong, compressed and white in colour.
4	<i>Murraya koenigii</i> L.	Kadhi-patta, Kadhi-Nim.	Large shrub or small tree 4-5 m tall, Stem dark, green to brownish with numerous dots. Leaves pinnately compound, extipulate, 20-30 cm long leaflets 11-25 alternate, gland-dotted, lanceolate, petiole 0.4-0.5 cm long. Flower bisexual creamy or dirty white, scented, pentamerous, in terminal cymes. Fruits round to oblong, 0.8-1.0 cm in diameter, 1.2-1.4 cm long, rough with glands, spinach green. Seeds 1 in each fruit.

Result and Discussion



The present study deals with diversity especially morphology of 4 genus and 4 species of family Rutaceae from forest area of Navapur Taluka, Nandurbar District (MS).

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References

- Cooke, T. (1901-1908), *The Flora of the Presidency of Bombay*, Vol I-III. Reprint ed. (1958) Botanical Survey of India, Calcutta, India
- Garud B.D., (1999), *Studies of Flora of Toranmal, Dhule District in Maharashtra State*, Part I&II Ph.D thesis NMU, Jalgaon.
- G.L. Shah (1978), *Flora of Gujarat State*, Part I&II, Vallabh Vidya Nagar, Gujarat
- Mahabale, T.S. (1987), *Botany and Flora of Maharashtra*, In: K.K. Chaudhari (ed.) of Maharashtra State Gazetteers, Botany Part-IV, Gazetteers Department, Government of Maharashtra, Bombay, India
- Mathew Varghese (1998), *Forest Flora of Dhule District*, Part I&II Ph.D thesis Sardar Patel University, Vallabh Vidya Nagar Gujarat
- Patil D.A. (2003), *Flora of Dhule and Nandurbar District (Maharashtra)*. Bishen Singh Mahendra Pal Singh, Dehra Dun.
- S.R. Kshirsagar (2008), *Flora of Jalgaon District Maharashtra*. Bishen Singh Mahendra Pal Singh, Dehra Dun.

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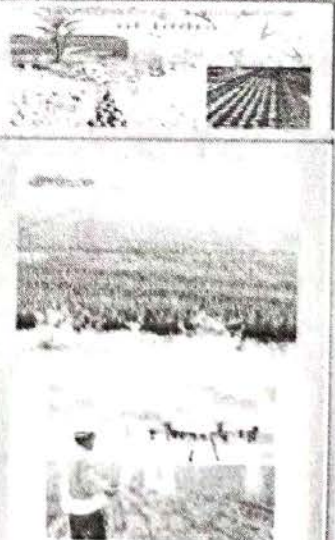
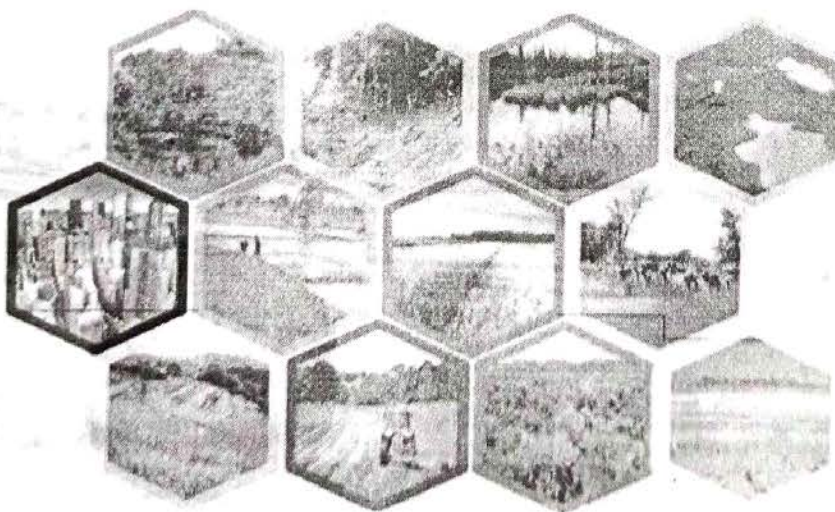
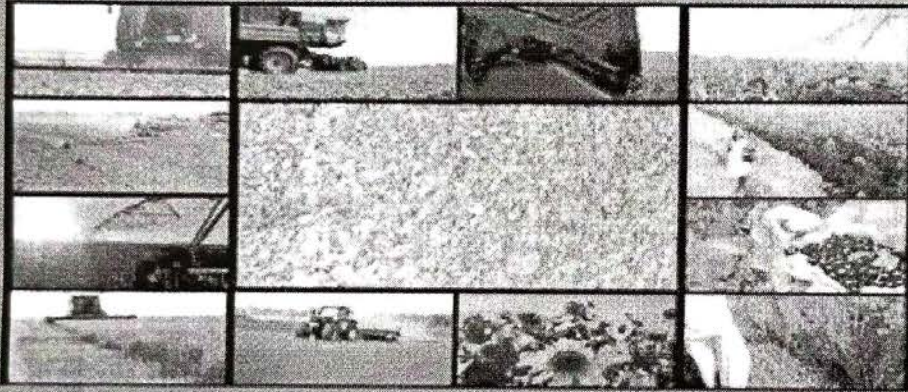
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Editor
Dr. N. B. Pawar



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Analysis of Area Specific Nature-Human Relationship in Jalna District

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Abstract

Jalna district is located in the central part of Maharashtra. In modern day's environment studies aim at to improve the living conditions of people. This involves economic growth high standard of living coupled with modern technology used in economic growth has profoundly adverse effect on environment. Sustainable development may be defined as the successful management of resources for development to satisfy, the changing human need. While enhancing the ability of environment and conserving natural resources. Our region of study in the dry lands of Maharashtra offers an interesting context for studying how ecosystems and rural communities, especially in the Jalna district are able to with land risks and adapt to wards future climate change. In particular, we focus on how the water resources and the rural agriculture communities were affected by the recent extreme drought (2012-13) in the region. Within the past four decades research has been increasingly drawn toward understanding whether there is a link between the changing human-nature relationship and its impact on people's health. It is argued that using an interdisciplinary perspective can facilitate a deeper understanding of the complexities involved for attaining optimal health at the human environment interface. It is nature dominating operated by self regulating mechanism any change in natural system by natural process is counter balanced by the changes in other components of environment.

Keyword: sown area, Interdisciplinary, scientific, Dynamic, Nature-human relationship.

Introduction

Jalna district covers an area of 7,727 sq.km which is 2.47 percent of the total state area, and has population of 19.59 lakh as per 2011 census. District population constituted 1.74% of total Maharashtra population. Jalna district accounts for only 0.12% of the total State forest area which is very small. The global warming, the depletion of ozone has be denied, but it must be eco-friendly and sustainable. Though what is sustainable development is not quite clear, it is based on guiding principles. For example-environmental management. Sustainable development may be defined as the successful management of resources for the ability of environment and conserving natural resources. During the last century, research has been increasingly drawn toward understanding the nature-human relationship and has revealed many ways humans are linked with the natural environment. Some examples of these include humans' preference for scenes dominated by natural elements.

Study Area

The Jalna district is approximately situated at the central part of the Maharashtra state of Republican of India and northern direction of Marathwada region specially district. It is bounded by north latitude 19⁰16' and 20⁰32' and East Longitude 75⁰42'00" and 76⁰30'45". It falls in part of survey of India Toposheet No. 45P, 47M, 55D and 56A. Jalna district

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erstwhile a part of Aurangabad district was formed on 1st May, 1981 by carving out Jalna, Bhokardan, and Jafrabad and Ambad Tahsil of Aurangabad district and Partur Tahsil of Parbhani district. The boundaries of Jalna are adjacent to Parbhani and Buldhana on east, Aurangabad on west, Jalgaon on north and Beed on South. North to South district length is 150 kms and east to west length is 110 kms. Recently Jalna district is divided into eight Tahsil for administrations these are Jalna, Ambad, Bhokardan, Jafrabad, Badnapur, Partur, Mantha and Ghansawangi.

Research objective

1. People rely on the environment to fulfill a variety of need including food, shelter and energy.
2. Environment and economic need both determine how people choose to use lands.

Hypothesis

Nature-human relationship has made positive changes in Jalna district

Data Base

The present work is based on primary and secondary data. Primary data has collected through proper sampling personal correspondence and intensive field work. Collected primary data has used to study from time to time for getting more information. The especially interview technique will be used for collecting data and knowing nature and human and devotees who come across the local area. Secondary data has obtained from socio-economic abstract, District Census Handbook, District Statistical Abstract, Villages records, some recent data will be collected from various websites.

Research Methodology

The present study is based on different sources of data the data analysis includes both the theoretical and empirical methods. For present research various statistical and quantitative techniques have used to find out the spatial analysis 'Nearest Neighbour Analysis' method has used.

Defining the Human-Nature Relationship

It is expected that through drawing on these different fields of information, a deeper level of understanding can be brought to the growing issue of humanity's relationship with nature and its impact on healthiness. This is because examining the human-nature relationship from a single disciplinary perspective could lead to fractional findings that abandon other important sources as well as the complexities that exist between interconnect ages, causal directions, processes, and relations.

Agricultural resources

Agricultural activity in Jalna district mostly depends upon the monsoon seasons which is irregular. About 82.41% of the total working force is engaged in agriculture and its allied activities. Jawar, Bajra, Wheat, Pulses, Groundnuts, Cotton, Sugarcane are the major crops. With the extension of irrigation facilities, multiple cropping also exists in the district. About 15% of the total existing industries in Jalna district are Agro-based industries.

Environment and Resources

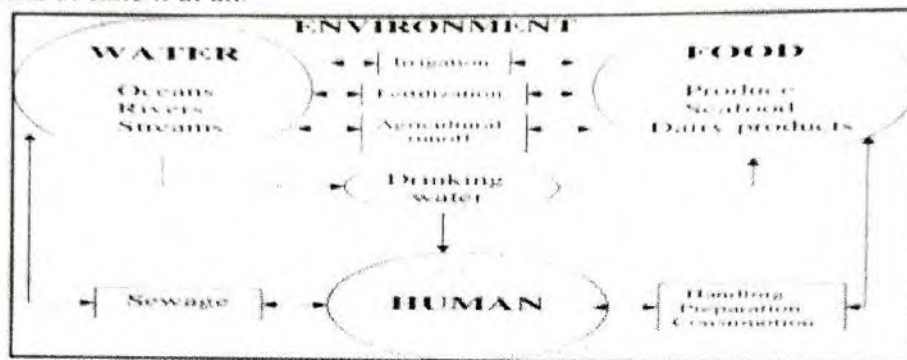
Human s depend on their natural environment to provide energy, water, food and other materials in prehistoric times people lived in areas where they used to hunt and gather food. Later they moved to pastures and fertile soils for farming. Today rapid transportation

and technology allow people to be less dependent on their immediate environment. However, people still need access to resources

Natural Resources

Water is just one example of a natural resource or a useful material found in the environment. People depend on many kinds of natural resources

- Renewable resources are resources that earthy or people can replace.
- Nonrenewable resources are a resource that cannot be replaced in a relatively short period of time if at all.



Source -www.google.in

Fossil fuels

Fossil fuels are nonrenewable resources formed over millions of years from the remains of plants and animals. Coal natural gas and petroleum are important fossil fuels. When nonrenewable resources are used up, they are gone.

Energy Resources

Sources of energy are important for human activity. Some resources, such as wind and sunlight are renewable. Today, we mostly rely on nonrenewable energy resources such as coal and petroleum. Because these resources are nonrenewable, Earth will eventually run out of them. (Biomass, Solar, Geothermal, Water, Wind).

Extracting Resources

People extract or remove many kinds of natural resources from their environment. For ex cutting down trees to get wood. Extracting resources can be harm ecosystems and the environment. Deforestation is the loss of forest cover in a region. Drilling oil wells and transporting oil can lead to oils spills.

Land Use:-

The ways people use land are affected by both the natural environment and culture. In many regions, land use has changed over time. For example- people living in temperate climates with fertile soil may use land mainly for farming. People in the arctic areas may use land mainly for hunting. Colonization is movement of new settlers and their culture to an area. Land utilization. The total geographical area in the year 1996-97 was 762700 hectors, out of which forest area was 0.89%, 5.34% fallow land, 3.25% non-agricultural land, 1.82% barren uncultivated land and 84.90% was net cultivated land. The gross cropped area of Jalna district in the year 1996-97 was 7.42 lakh hectors as against 22.08 lakh hectors at State level during the year 1997-98. The percentage of net area sown to that of the total geographical area of the district is 84.89% as against the State average of 57.68% in the year 1997-98.

Interdisciplinary of Human-Nature Relationship



All the way through exploring the key concepts found in evolutionary environmental science, social economics, evolutionary psychology, and conservationism, this has enabled a broader understanding of the different ways humans are connected to the natural environment. Each should not be viewed as separate entities, but rather that they share commonalities in terms of mutual or conjoint information and active research areas where similarity can occur. For example- there is a clear connection between social economics, evolutionary psychology, and biology in areas of health in daily life, and basophilic nature as well as between social economics and the environment in regard to balancing relations of power likewise, economic-nature conflict can occur between discipline evolutionary psychology and social economics in relation to people's association for nature and manufacturing increase.

Impacts of the Nature-Human Relationship

During the past four decades, researchers, health practitioners, and environmentalists have begun to investigate the prospective link between the human-nature relationship and its impact people's physical condition. This in part owes to the increase evidence accumulating in research writing centering on the relationships between the following areas chronic diseases and urbanization, nature connectedness and cheerfulness, health implications of modern society's lifestyle choices as well as the adverse impacts of environmental quality on the health of humans and non-humans the same. Such health-related effects that have been alluded to include chronic diseases, social isolation, emotional well-being as well as other psychiatric disorders and associated physical symptoms.

Reasons for these proposed links have been suggested to stem from various behavioral patterns associated with consumerism, urbanization, and anthropogenic polluting activities. Further, these suggested links have been inferred, by some, to be visible in other species as a consequence to living in unnatural habitats or enclosures. Nonetheless, research within this field remains speculative with few counter examples requiring further observed analysis. With a growing trend in the number of constant diseases and psychiatric disorders, expenses to the U. K.'s National Health Service could rise as the use of prescriptive drugs and medical interventions increases. However, this expected trend is considered to be both undesirable and expensive to the already snowed under health-care system. In concurrence are the associated impacts on health equity equating to further productivity and tax losses every year in addition to a growing gap in fitness inequalities.

Furthermore, population growth in urbanized areas is expected to impact future ease of access to and generally loss of natural spaces. Not only would this have a direct detrimental effect on the healthiness of both humans and non-humans but equally the functioning and reliability of ecosystem services that sustain our economic productivity. Thereby, overheads of sustaining our human-engineered components of social-ecological systems could rise, having an indirect impact on our economic growth and associated pathways connecting to health. As such, researchers have highlighted the importance of implementing all characteristics when accounting ecosystem services, particularly the addition of natural and health-related capital, as well as their prevailing mechanisms. This is an area, which at present remains difficult to manufacture owing to split studies from a host of discipline that are more theoretically rather than empirically base.

Conclusion



1. One of the imperatives for this editorial is to review existing hypothetical and research literature on the many ways that humans are linked with the natural environment within different disciplines. even though widely discuss transversely the main four research field evolutionary psychology, ecology, evolutionary biology, and social economics there has been relatively small discussion of meeting between them on defining the human-nature relationship.

2. This paper therefore attempts to redefine the human-nature relationship to bring further understanding of humanity's relationship with the natural environment from an interdisciplinary perspective. The paper also highlights important complex debates both within and across these disciplines.

3. The central discussion was to explore the interrelationships between the human-nature relationship and its impact on human health. In questioning the causal relationship, this paper addresses existing research on potential adverse and beneficial impacts in relation to humanity's degree of relationship to nature and lifestyle choices.

4. The paper also acknowledged current gaps and limitations of this link relative to the different types of health (physical, mental, and social), as characterized by the World Health Organization in 1948. Most of these relate to research at the intersect of nature-based parameters and human health being in its relative infancy.

6. A developing conceptual model of human and ecosystem health that is inclusive of the human-centered perspective is proposed.

7. It is based on an interdisciplinary outlook at the intersection of the human-nature relationship and human health, addressing the limitations identified in existing models.

8. To achieve this, it combines theoretical concepts and methodological approaches from those research fields examined in this review, bringing a greater depth to data collected. In attempting this, a balance between both rigorous scientific analysis as well as collaborative participatory research will be required, adopting a pragmatic outlook. In this way, an interdisciplinary approach can facilitate a deeper understanding of the complexities involved for attaining optimal health at the human-environmental interface.

9. This paper therefore attempts to redefine the human-nature relationship to bring further understanding of humanity's relationship with the natural environment from an interdisciplinary perspective.

10 We know that the natural environment provides us with a wide range of 'ecosystem services': all the things that people need and want that come from the natural world of which human beings are a part. We receive provisioning services (food, fibre, energy, drinking water, building materials, natural medicine

Recommendation

Dairy based products, Bio-coal Briquettes from cotton steam, Cold drinks and beverages, Processing of Mosambi (Sweet orange) fruits, General Purpose Machine-Shop, Absorbent Cotton, Computer Stationery, Cold Storage Unit, Solar cell, Starch from Jowar.

References

1. Dr. Chiranjeev A. Ms. Jacob R. Ms. Natrajan S. R., (2013). Research methodology in geography, Jnanda publication Arunachal Pradesh, India
2. Census of India, Maharashtra State - (1991-2011) District census handbooks of Jalna District.



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Agriculture and Rural Development: Spatial Issues, Challenges and Approaches



3. Socio-economic abstract in Jalna district (2010-18)
4. Majid Husain, (1999): "Systematic Agricultural Geography" Rawat Publication, Jaipur.
5. Government of Maharashtra (1999). Maharashtra Water and Irrigation Commission Reports Vol 1-5

Webliography

1. <http://www.jalna.nic.in>
2. <http://www.mahades.com>
3. <http://sodhganga.net>
4. www.ngdir.ir
5. <http://agricoop.nic.in>
6. <http://www.krishniworld.com>

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Human and Non Human as Counterparts to One Another in
Girish Karnad's *Naag Mandala*

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Nonhuman animals are purely material beings. They have no concepts. They experience hunger and pain. They don't contemplate the injustice of suffering

A human being is material and immaterial — a composite being. We have material bodies, and our perceptions and imaginations and appetites are material powers, instantiated in our brains. But our intellect — our ability to think abstractly — is a wholly immaterial power, and our will that acts in accordance with our intellect is an immaterial power. Our intellect and our will depend on matter for their ordinary function, in the sense that they depend upon perception and imagination and memory, but they are not themselves made of matter. It is in our ability to think abstractly that we differ from apes.
(<https://evolutionnews.org/2015/11/the-fundamental-2/> Accessed on 25 March 2020)

Abstract:

It is undoubtedly true that human beings have immaterial power which animals do not have. Human beings are gifted with speaking tongue and reasoning power, by which, they always prove themselves superiors to all the animals on the surface of the earth. But in tales and stories, one finds animals as human counterparts. George Orwell's *Animal Farm* (1945) is the best example of it. In his fourth play *Naag Mandala* (1990), Girish Karnad presents some animals and inanimate objects such as Cobra- snake man, Yakshini- snake woman, *The Story*, *The Flames*. To the contrary, there are human characters, which are emotionless, senseless, and rigid like non human beings and objects.

Key Words: Human, Non Human, Counterpart, Feelings, Emotions

1. Preliminaries:

Girish Karnad is the greatest playwright of India, writing in English. He is a bi-lingual writer. He himself translated most of his plays into English from Kannada language. Like Shakespeare, he has not only taken the popular plots for his plays from the History, Mythology, and Folk Literature etc., but he also painted the characters greatly. There are eleven plays to his credit. The plays — *Yayati*, *Tuglaq* and *Hayavadana* gave him much popularity. In his play *Naag Mandala*, there are only four to five human and non human characters but striking feature is that all human and non human characters are counterparts to one another. Human characters are senseless, emotionless; on the other hand, non Human characters having all the senses and emotions like human beings.

2. Naag Mandala: Mixture of Two Folk Tales

The playwright Girish Karnad as usual borrows the story for the play from famous two Kannada folk tales. One, the story of Kappanna and Rani as main plot. Two, the story of Kurudavva and Kappanna as sub plot. Both the stories blended nicely. Kappanna marries Rani



and brings her to his house when she becomes a woman. Kappanna has no love for her. He everyday locks her in house and goes to another woman, he only returns to Rani for having bath and lunch at time of midday. Rani feels lonely and cries for Appanna's love. The blind woman Kurudavva, the friend of Appanna's mother meets Rani and understands the situation in which Rani is living. Kurudava too tells her tragic story to Rani and gives her two roots as solution on her sorrow. One day Rani gives a small root to Appanna, but she does not get the result. She then makes paste of another root and mixes in curry but curry becomes very red and in fear she decides of not giving to her husband and pours the curry in ant-hill. The cobra living in the ant-hill eats that curry and falls in love with Rani. The cobra then disguises as Appanna visits her every night and gives that love for which she is craving. She cannot understand the behavior of Appanna who comes only for bath and lunch at mid day times and Appanna (Cobra in guise of Appanna) who comes at the time of night. But when she gets pregnant and tells the news to her husband (human) then she realizes the situation in which she is trapped. She successfully faces the snake ordeal as ordered by villagers and gets declared as Goddess, the incarnation. In the sub plot, Kurudava's son Kappanna, like Rani, gets loved by a snake woman Yakshini.

3. Non Humans as Humans:

3.1 The Naga: True Lover

While reading the play, the readers see that the Naga when disguises as Appanna, he proves himself as a strong willed true lover. He falls in love with Rani as he eats that magical curry poured in his ant-hill by her. As a brave lover, he, by taking the risk of his life, fights with dogs and mongoose to reach to his human beloved. He becomes so blind in her love that he does not take notice of his wounds and dangers in his ways to her. He even proves himself as clever and cunning lover and man. He very cleverly rescues himself by being exposed before mirror. As per situations, he uses his reasoning power for example when Rani seems to be in confusion about his coming-going at only nights, he becomes 'a Man' and makes silent by saying, "When I come and go at night, don't go out of this room, don't look out of the window - whatever the reason. And don't ask me why?" [Karnad 1990: 24-25]. As a cunning lover, he requests Rani for not disclosing the secret of her pregnancy to anybody. He then provides solution as to face the snake ordeal. He then keeps his word—he does not bite her and makes her declared as Goddess, the incarnation. Post snake-ordeal episode, the situation becomes very difficult for him; Rani gets accepted as a wife along with her child. Her married life becomes happy as she was longing since her marriage with Appanna. Now no place remains for him in life of Rani. He becomes very sad. He wants to kill her, but as a good lover and kind hearted man, he drops that idea by saying to himself:

Why shouldn't I kill her? If I bury my teeth into her breast now, she will be mine—mine forever...No, I can't My love has stitched up my lips, Pulled out my fangs. Torn out my sac of poison. Withdraw your veils of light, Flames. Let my shame float away in the darkness [Ibid: 42].

Finally, he decides to end his life in her long tresses. As a true lover, he sacrifices his life for her. The critic Rajinder Paul rightly points out, "It is a play where a cobra plays the lover and proves to be better behaved than his human counterpart who is as insensitive as a husband as we read about in the bad tales" [Paul 1990:31].



3.2 Snake Woman:

The playwright Karnad does not give much place and importance to sub plot. Kurudavva's son Kappanna becomes hunted by a snake woman-Yakshini and leaves his mother forever. Kappanna, though blind, but she rightly senses that she might be snake woman: "...A temptress from beyond? A yaksha woman—Perhaps a snake woman? Not a human being" [Karnad 1990:38]. The love story of Kappanna and Yakshini runs parallel to the love story of Rani and Naga.

3.3 The Story and The Flames:

Girish Karnad uses dramatic devices but with different way. He uses Story as Narrator means as a human being and that Story tells the all the story in the play. As a good narrator, the Story appears where it's presence is essential in order to develop the action of the play. Jaysingh Dodiya puts in this context, "...In Naga Mandala, the human and nonhuman worlds enter into one another's lives to reveal the playwright's vision of reality"[Dodiya 1999: 201].

The Playwright Karnad also uses a mythical belief that the flames after being put up by their masters in the house at the time of night, they come in temple and by taking a shape of females do gossiping about their masters and mistresses. Karnad himself talks about beliefs: "Man: (To the audience) I had heard that when lamps are put out in the village the flames gather in some remote place and spend the night together" [Karnad 1990: 24].

4. Humans as Non Humans:

In the characters list, there are four human and four non human characters. But, Appanna and Kappanna also come in the list of non human characters. Both Appanna and Kappanna are insensitive, emotionless and hare hearted persons.

4.1. Appanna:

Appanna marries Rani but he has no love for her. He has already kept a woman. He comes to her only for having bath and lunch. He everyday locks her in house. He does not have a loving heart to understand her feelings and love for him. Whenever she tries to ask him, he makes her silent by saying- "Look, I don't like idle character. Do as you are told, you understand" [Ibid: 07]. He treats her just a piece of furniture of the house. In fact, he is immoral, but expects morality from wife. When his wife Rani gives the news of her pregnancy that he becomes very angry and wants to kill her, that time we find Appanna as a true representative of patriarchy. In anger he goes to villagers and demands justice. But this heartless person forgets that he himself did injustice to her. In short, though he seems to be human but he too belongs to non human world.

4.2 Kappanna:

Kappanna is the son of blind woman Kurudavva. In fact, it is his responsibility to take care of her. He forgets how his blind mother brought him up. And when becomes young, just forgets his mother and goes after Yakshini to gratify his sexual desires. The playwright Karnad has not given much place to him in the play, but we get the idea that Kappanna is merciless towards her mother and joins the group of non human world. The words of his mother ring in our mind, when she says- " ...I must go. Look for my son. Can't waste time like this—Kappanna, Son, it's your Mother. Don't torment me now, child..." [Ibid: 38].



5. Conclusion:

The playwright Girish Karnad intertwines two folk tales in the play *Naga Mandala*. As demand of the story, he has to paint super natural characters with all colors. But while painting the characters he very beautifully painted human traits in non human characters like Naga, Yakshini, the Story, the Flames. But the same time, he gives non human traits to human characters such as Appanna and Kappanna. In this way, human and non human characters become counterparts to one another.

6. Works Cited:

- Dodiya, Jaydipsingh. 1999. *The Plays of Girish Karnad*. New Delhi: Prestige Books
Karnad, Girish. 1990. *Naga Mandala*. Delhi: Oxford University Press
Paul, Rajinder. *Karnad Plays with Cobra in The Book Review*. July-Aug. 1990

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The Element of Intra Caste Prejudice In Selected Dalit Autobiographies

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Abstract:

The Dalits all over the world have been exploited, suppressed and marginalized by the powerful high class people. They have been crushed for their color, caste, religion and backwardness. But when the Dalits themselves did the same thing with their people, the question stands to study their socialization, their physical and mental situation. For the purpose, the researcher has selected three Dalit autobiographies to find out the reasons or mentality behind the intra caste prejudices and conflicts among them. For the study, the reference of African American Black slaves has been taken. The negative socialization, mentality crushed under assigning menial job by the high caste people. In addition, their humbug and sense of selfishness too are the reasons behind it.

Key Words: Dalits, High Caste People, Exploitation, Socialization, Panchayat

Preliminaries:

India, in the context of population, is the second in the world. People belonging to various castes, communities, sects and religions live happily in our country. In the same way, people make communications though have their own separate mother tongues. They have their own festivals, rituals and cultures. Unity in variety has always been maintained from all sections of people. It is undoubtedly true that India seems to be one from Kashmir to Kanya Kumari. But beneath that unity, a great bitter hatred is hidden. For times immemorial, the high caste people had exploited, humiliated, and lynched the low caste minorities. They on basis of their so called books like *Manushrutu*, first of all, made 'woman' a piece of furniture in the house. She was confined in a house as an inanimate thing or doll. Secondly, on the basis of four ideological classes called *Varna*, they did such inhuman atrocities on *Shudra* that the *Dalits* had lived the worst life for generations. The high caste people had a sense of superiority and power, by which they had crushed the Dalits. But what was there in the low caste people, they too exploited, humiliated and lynched the people from their own community, including women?

The aim of this paper is to find out the reasons behind the intra caste conflicts and prejudices among dalits themselves. For the purpose, the researcher has selected three dalit autobiographies- Kishore Kale's *Against All Odds* (2000), Sharankumar Limbale's *The Outcaste* (2008) and Laxman Gaikwad's *The Branded* (2005). All these books were originally written in Marathi.

Reasons behind Intra Casteism:

Many critics are of the opinion that there are many similarities between Indian Dalits and African American slaves. Both were brutally and inhumanly treated by their high caste people and White Americans respectively. The Noble Laureate Toni Morrison was too one if the victims of slavery. She, in her debut novel *The Bluest Eye* (1999) tries to put the exact reasons behind the intra racial prejudice among black people. She writes:

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It was their contempt for their own blackness that first insult its teeth. They seemed to have taken all of their smoothly cultivated ignorance, their exquisitely learned self-hatred their elaborately designed hopelessness and sucked it all up into a fiery cone of scorn that had burned for ages in the hallows of their mind - cooled and spilled over lips of outrage, consuming whatever was in its path [Morrison 1999: 50]

Morrison provides reasons—their own blackness, cultivated ignorance and self hatred and hopelessness. All these reasons seem to be present in the intra caste conflicts and prejudices of Dalits. Dalits were black, ignorant, and hopeless and resultantly they too hated themselves. The critic Harihar Kulkarni has his own views regarding to the intra racial prejudices among slaves. He puts: "At physical level, the manifest ramification of the socialization process are brutalization, destruction of the victim's family unit, rape, lynching, flogging, branding, assignment of menial jobs and traumatization of every sort"[Kulkarni 1990:55].

This view too seems to be there in Casteism among Dalits. Like Blacks, Dalits were too negatively socialized. Their families were destructed by doing rapes, lynching, flogging, branding and assigning menial jobs. That negative socialization at physical level disturbed their mental order and they sometimes blindly followed the high caste people and had done the same atrocities of which they were the victims.

Kishore Kale's *Against All Odds*:

Kishore Shantabai Kale was a great Dalit activist and writer. His *Against All Odds* (2000) is an autobiography. It deals with the atrocities inflicted on the writer Kale and his mother Shantabai as a tamasha dancer by their own Kolhati community and the high caste people. Like Shantabai, Kusum is also tamasha dancer. She is a good stage dancer. She is kept woman of a high caste rich man and has a son named Sanjay. The film producer by seeing her dance offers roles in movies. On a certain day, she elopes with a person Kamble, from Mahar community. According to her family, she has committed two crimes—one, elopes from house and second, marries with a Mahar, the lowest of the castes. Thus, the parents snatch away her son Sanjay from her. The Kolhati community declares Kusum as an outcaste and her family is warned if they allow her to come in their home, the family too will be declared as an outcaste. The writer further writes:

For a Kolhati to marry a Mahar or a Muslim is the ultimate crime, but they have no scruples when it comes to accepting money from Muslim or Mahar men at dance shows. In any case, Muslims and Mahars in that area are normally poor and cannot pay for the upkeep of a dancer's family, so relationships with them are not encouraged. [Kale 2000: 59]

Harianna is too Kolhati man. He decides of uniting Kusum and her son Sanjay. So he secretly takes Kusum's son Sanjay to Bombay for giving her son back. The parents and the Kolhati community too outcaste Harianna and threatens his parents for not taking Harianna in their house.

In fact, like Mahar community, the Kolhati community too comes under the Dalit communities. Both have been the victims of atrocities inflicted on by high caste people from



ages immemorial. The Kolhati people have been brutally socialized in the process. They too consider themselves superiors to Mahars and Muslims. They do not want to be corrupted with the contact of these communities. But they are humbuggers, when any high caste Patil offers money to keep their young girls as whores, then they have no problem. The fathers and brothers of the Kolhati community are money minded, beyond money nothing concern them.

Sharankumar Limbale's *The Outcaste*:

The Outcaste (2008) is an autobiography of Sharankumar Limbale. It deals with the starvation and poverty and atrocities inflicted on the Mahar community by high caste Patils. But it is to be noted that there are an intra caste conflicts and prejudices among themselves. The writer Sharankumar Limbale is son of Patil father and Mahar mother. In Maharwada, he is treated as an impure. He and all his sisters are from different fathers, in spite of it, his sister Nagi while quarreling with him abuses that he has no connection with them. She further says that they are not from a same father. The writer Limbale falls in love with a Mahar girl named Shewanta. In fact, it is not possible to the writer for being not a son of a Mahar to marry with Mahar girl. In past, Rohidasmama, a boy of born not by Mahar, also tried to marry with a Mahar girl, the people from Maharwada stopped him for doing so. At first thought, his grandmother Santamai consents the marriage but the next moment when she remembers the episode of Rohidasmama's. She persuades the writer by saying that: "*The Mahars are a fierce people. They will cut you into pieces, and there will be no one to care us. Our house has neither a male child nor a female one to continue our lives. They will force us to sleep with them. You'd better stop your affair with Shewanta*" [Limbale 2008:27].

The writer Limbale has a friend Mallya. Sonuaji. Mallya's grandmother suggests a girl for the writer. The girl belongs to sweeper family and is the niece of Janabai. On a certain day, Sharankumar and Mallya go to see the girl. But Janabai becomes angry and shouts loudly that still they have not lost their self respect to marry their girls with such bastard boy. From this moment Limbale decides to marry with only hybrid type of girl like him. "*The girl I married needed to be a hybrid like me to ensure a proper match. A bastard must always be matched with another bastard. No one else will marry their daughters to a bastard like me*" [Ibid: 98]. Finally he gets married with a drunkard Maryappa's daughter Kusum, but he a number of times gets insulted by family members of his wife. The writer Limbale has a Mang friend named Arjya. He is always warned by his family members for not living with Arjya. Santamai does not allow Arjya to drink water from the vessel which they use for drinking. She also scolds the writer for drinking water from Mang's water reservoir. Santamai shouts at him and warns him, if he does not stop playing with a Mang boy, she would stop feeding him.

The Mahar Community, Like the Kolhati community, is the victim of negative socialization. They consider the Mang people as inferior to them; in fact, they live in same locality divided as Maharwada and Mangwada. It is highly shocking that they have divided the same river bank into their own separate drinking water reservoirs and restricted themselves for using the water from other side. The writer is only an educated boy from their community, but they do not ready to give their daughter to him only because he is bastard. In fact, by time to time, the Mahar women get raped and molested by Patils.



Laxman Gaikwad's *The Branded*:

The Branded (2005) is the story of exploitation, suppression and oppression of the Uchalya community. They are too outcaste as the Kolhati and Mahar people. They also seem to be the victims of negative socialization. Like the Kolhati community, the Panchayat plays a great havoc in the lives of the Uchalya people. The writer has no faith in the Panchayat. He opines: "I found the functioning of the Panchayat obnoxious and disgusting" (Gaikwad 2005: 120). In this connection R.S. Jain has rightly attacked:

Jatpanchayat is a team of selected members of castes who settle the disputes of the people in the caste. It mostly played negative and at times destructive role in the overall development of the community. Though the Panchayats were constituted with high ideals of maintaining unity and harmony in the community, they in reality created hurdles in the individual progress of ambitious men. Arbitrary decisions of members of Jatpanchayat were aimed at suppressing the dissents of the innovative youth rather than discharging their duties as impartial Judges [Jain 2006: 10]

He narrates three decisions of Panchayat and makes clear that the Panchayat has nothing to do with the justice: they just make arrangement of their expenses of wine and food through the fine collected from the clients. The Panchayat has regular sessions throughout the surrounding villages where the Uchalya people live. But the final sessions used to be held in Kavatha. The decision given at Kavatha Panchayat is considered to be final and binding to all. Shankarya is a man who marries with his own daughter. The Panchayat gives a shocking verdict. Both the husband and wife are declared as outcaste and besides his moustache to be shaved with the urine of his daughter. The narrator further states that the community too has treated Shankarya as an outcaste strictly. It shows terror of the Panchayat on the mind of people.

It is a custom in the community regarding marriage rituals that a married woman cannot tie the sacred thread to a bathing bowl if she is punished by Panchayat in her life. The narrator Gaikwad describes one incident of marriage to which his family attended at Mahalagra. One of the headmen suddenly stops Kashibai, the elder sister-in-law of Gaikwad himself and accuses that she is tainted because her grandmother was eloped with a Maratha. The quarrel starts and it reaches to the Panchayat. The decision of Panchayat is very funny: "that Kashibai should be fined twenty-one rupees and received in the community as purified. It was declared that there was no other taint in her" [Ibid: 55]. The same type of situation occurs when Gaikwad and his whole family go to attend marriage at Salagara. The marriage is being solemnized of the younger brother of narrator's sister-in-law. The Panch Maruti of Holicha Majkura objects that bride's grandmother was married with a Maratha; it would bring taint to the narrator's family. The Panchayat again gives very disgusting decision that the head of the bride's mother to be shaved.

The narrator tells that how the persons from their own community treat badly their own people when they become rich and powerful. Shamrao Guruji is the leader of the Uchalya community. He runs an *Ashram Shala* for the students of his community. He gets grants from the government. But the narrator himself finds that the headmaster, who is the son of Shamrao Guruji, beats the little students for demanding more food at the hostel. There is one rich lady Smt. Jadhav at Latur. The narrator goes to her for help along with his sister-in-law. The lady Smt. Jadhav shows no sign of affection even to the relatives. Gaikwad regrets: "I thought that



being a rich woman of our fraternity she would have a soft corner for us I was, however disappointed for she drove us away" [Ibid. 93]

Conclusion:

The selected Dalit autobiographies belong to separate communities. Kale's *Against All Odds* (2000) deals with the Kolhati community, Limbale's *The Outcaste* (2008) with the Mahar community and Gaikwad's *The Branded* (2005) with the Uchalya community. The Kolhati people consider Mahar and Muslims as an outcaste, the Mahar community treats Mangs as low birth and dirty while the Uchalya community feel even superior to Dhobi people. The fact is that all are dalits and very badly exploited, suppressed and oppressed in the hands of high caste people. Toni Morrison and Harihar Kulkarni in the context of African American slaves opined that negative socialization and their physical suppression by White Americans made them mentally weak and in that rage the slaves badly treated their own people. The reasons provided by Morrison-- their own blackness, cultivated ignorance and self hatred and hopelessness. And by Kulkarni-- Their families were destructed by doing rapes, lynching, flogging, branding and assigning menial jobs. That negative socialization at physical level disturbed their mental order and they sometimes blindly followed the high caste people and had done the same atrocities of which they were the victims. All these reasons seem to be present in Dalits in more or less proportion. But so far as Indian Dalits are concerned, their problems somewhat different from black slaves. Undoubtedly Indian Dalits too have been negatively socialized. But they are highly governed by their Jat Panchayat too. In all three autobiographies, the headman or the Panchayat has a strong hold on them. The poor, uneducated people have no idea that they are being exploited even by their own people. In addition, humbugging is another fault in these people. They are stern and strict in the context of their own people but immediately surrender before high caste people. This is the tragedy that becomes the fate of them and quarrel among themselves like an ignorant armies fight at the time of night.

Works Cited:

Gaikwad, Laxman. *The Branded*. Trans. by P. A. Kolharkar from Marathi Autobiography. New Delhi: Swastik offset. 2005 Reprint (All page references are to this edition)
Jain, R.S. *Dalit Autobiography*. Amhednagar: Ritu Prakashan. 2006 Print
Kale, Kishore. *Against All Odds*. Trans. by Sandhya Pandey from Marathi Autobiography. New Delhi: Penguin. 2000. Print (All page references are to this edition)
Kulkarni, Harihar. *Black Feminist Fiction*. New Delhi : Creative Books. 1990
Limbale, Sharankumar. *The Outcaste*. Trans. by Santosh Bhoomkar from Marathi Autobiography. New Delhi: Oxford U. P. 2008 Reprint (All page references are to this edition) Morrison, Toni. *The Bluest Eye*. London: Vintage Books. 1999. (All page references are to this edition).

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प्रास्ताविक

मराठी साहित्यात स्त्रियांच्या कवितेची प्रदीर्घ परंपरा आहे. महदाईसा पासून तर मुक्ताईपर्यंत मौखिक परंपरेच्या वाटचालीतून त्यांनी आपल्या अंतर्मनातील भावना व्यक्त केल्या आहेत. पुढे जात्यावरच्या ओवींपासून, शेतात खुरणे चालवताना, लग्नविधीचा प्रारंभ करताना, गर्भारशीचे डोहळे गाताना, लेकराला झोपवताना अशा प्रकारे मौखिक परंपरेतली कविता निर्माण होत गेली. तिचा प्रवाह पिढ्यानपिढ्या वाहत राहिला. पुढे महिला शिकल्या. कवितेला लिखित स्वरूप प्राप्त झाले. स्त्री मनातील धग आणि भाव शब्दबद्ध करू लागल्या. काही सामाजिक व्यवस्थेमुळे स्त्रिया दुर्लक्षित राहिल्या. पुरुषप्रधान संस्कृतीमुळे त्यांची प्रगती खुंटली. त्यांची मुस्कटदाबी होऊ लागली. पुरुषनिर्मित संस्कृतीने स्त्रीला समाजाचा एक घटक मानले नाही. त्यांना कुटुंबाचा एक दुय्यम घटक मानले.

महात्मा जोतीराव फुले, सावित्रीबाई फुले, डॉ. बाबासाहेब आंबेडकर, छत्रपती शाहू महाराज यांच्या शैक्षणिक विचारातून मुलींच्या शिक्षणाला प्रोत्साहन मिळाले. स्त्रिया साक्षर झाल्या. चांगले, वाईट, न्याय- अन्याय- जुलूम याची ओळख झाली. 'चूल' आणि 'मूल' यांच्या चौकटीच्या बाहेर जाऊन तिने आपल्या भावनांना वाट मोकळी केली. आपले सुख-दुःख ती कागदावर उमटवू लागली. सांस्कृतिक कार्यक्रमात ती पुढे आली. शिक्षणामुळे तिचा सन्मान मिळाला. तो केवळ जोतीराव फुले व सावित्रीबाई फुले यांच्या प्रेरक विचारांमुळे. प्रारंभी लक्ष्मीबाई दिळक, सावित्रीबाई फुले यांनी आपल्या भावना कवितेत अभिव्यक्त केल्यात. या काळात हरिनारायण आपटे यांच्या प्रोत्साहनाने, प्रेरणेने व प्रभावाने कादंबरी-कथा लिहिणाऱ्या स्त्रिया दिसतात. परंतु आपली व आपल्यासारख्या स्त्रियांची दुःखे मांडणारी व आत्माविष्कारासाठी सहजगत्या हाताशी धरलेली कविता मात्र अभावानेच दिसते. ब्रिटिश राजवटीच्या पहिल्या शंभर वर्षांच्या काळात एकही ताकदीची कवयित्री निर्माण झालेली दिसत नाही. स्त्रिया हा त्या काळातील मौन धारण करणारा समूह होता.

**स्त्रीवादी साहित्य : बदलते आयाम**

नंतरच्या काळात विभावरी शिरुरकर 'कळ्यांचे निःश्वास' या माध्यमातून लिहू लागल्या. कवितेच्या क्षेत्रात इंदिरा संत, पद्मा, अनुराधा पोतदार, शिरीष पै, पद्मा लोकूर, अंजली ठकार, निर्मला देशपांडे यांच्या कविता वाचकांसमोर येऊ लागल्या. 1975 नंतर मात्र स्त्रीमुक्तीच्या आंदोलनानंतर स्त्री लेखिका मुक्तपणे लिहू लागल्या. बदलत्या साहित्य प्रवाहानुसार स्त्रीवादी साहित्य प्रसिद्ध होऊ लागले. नोकरी, उद्योग-व्यवसायात काम करणाऱ्या स्त्रिया आपले अनुभव, सुख-दुःख कवितेच्या माध्यमातून अभिव्यक्त करू लागले. पुढे अनुराधा पाटील, प्रभा गणोरकर, रजनी परुळेकर, नीरजा, प्रज्ञा पवार, मलिका अमरशेख या स्त्री कवयित्रींनी आपल्या काव्यलेखनावरती अमीट छाप टाकली. त्यांच्या स्त्रीवादी कवितांचा एक नवा बदलता आयाम या शोध निबंधात अधारेखित केला आहे.

*** स्त्रीवाद संकल्पना :-**

'मूळात समाजकारण, अर्थकारण, राजकारण, कला व वाङ्मय व्यवहार या सर्व क्षेत्रात स्त्रियांच्या बाळाला आलेले दुय्यम स्थान नाकारून, माणूसपणाचा क्षमताधिष्ठित हक्क प्राप्त करण्यासाठी केलेली राजकीय चळवळ म्हणजे स्त्रीवाद होय.' असे ढोबळमानाने म्हटले जाते. खऱ्या अर्थाने स्त्रीवाद ही पुरुषविरोधी विचारधारा नसून पुरुषी वर्चस्वाच्या विरोधी असणारी विचारधारा आहे. यात स्त्रीवादी साहित्यप्रवाह वेगळ्या जाणिवेतून निर्माण झाला आहे. विशेषतः पाश्चात्य जगातील चळवळ आणि लेखन यांच्या परिचयातून मराठीमध्ये स्त्रीवादी साहित्यप्रवाहाची ओळख झाली आहे. समाजातील स्त्री-पुरुष यांच्यातील भेदभाव दूर करण्यासाठी स्त्रीवादी चळवळींना चालना मिळाली आहे. सा संदर्भात डॉ. लीला दीक्षित म्हणतात, "स्त्रीला माणूस म्हणूनच प्रतिष्ठा मिळायला हवी, याच विचारधारेतून 1975च्या सुमारास स्त्रीवादी विचारधारा आपल्याकडे आल्याचे त्यांनी मान्य केले आहे"¹ दीक्षित यांच्या म्हणण्यानुसार खऱ्या अर्थाने स्त्रीवादी साहित्याच्या लेखनाला सुरुवात झाली असावी. वऱ्याच अलीकडील कवयित्री व लेखिका यांना आपल्या अनुभवाचा आत्रिष्कार करता आल्याचे त्यांच्या म्हणण्यातून सूचित होते.

स्त्रीवादी कवयित्रींनी मराठी कवितेत आपल्या दैनंदिन जगण्यातील ताण-तणाव, पुरुषसत्ताक परंपरेने चालत आलेल्या विचाराने स्त्रियांच्या मनाची होणारी घुसमट, पुरुष वर्चस्व, जगण्यातील मुस्कटदाबी तिच्यावर होणारे अन्याय-अत्याचार यातील विद्रोह स्त्रीवादी कवितेचे अलीकडील बदलते आयाम लक्षात घेण्याचा प्रयत्न प्रस्तुत निबंधात केला आहे.

स्त्रीवादी कविता :-

कवयित्री नीरजा यांची स्त्रीवादी कविता लक्षात घेण्यासारखी आहे. नीरजा यांनी स्त्रीवादाला मराठी काव्यविश्वात वैचारिक प्रतिष्ठा प्राप्त करून दिली आहे. 'स्त्रीवाद' हा आंतरराष्ट्रीय

**स्त्रीवादी साहित्य : बदलते आयाम**

मानवमुक्तीचा लढा आहे ही जाणीव त्यांच्या कवितेतून व्यक्त होताना दिसते. त्यांचा 'निरन्वय' (1987), 'वैणा' (1994) आणि 'श्रीगणेशा' (2003) या काव्यसंग्रहात सामाजिक वास्तव अधोरेखित झाले आहे.

स्त्रीची विपुल शोकात्मिका प्रतिमा 'ऑफेलिया-1' आणि 'ऑफेलिया-2' या कवितेतून प्रभावीपणे मांडली आहे. स्वतःच्या बापाच्या बदल्यासाठी सुडाला पेटलेला हेम्लेट ऑफेलियाच्या वडिलांचा खून पाडतो. पुरुषावलंबी परंपरेत एका पुरुषाने दुसऱ्याचा घेतलेला वेध एवढाच संदर्भ येथे शिल्लक न राहता प्रियकराने बापाचा अर्थाने एका नात्याने दुसऱ्या नात्याचा केलेला हा खून आहे. पुरुषी शौर्याच्या या मर्दुमकीची या ना त्या कारणाने स्त्रीला भोगावी लागलेली यातना इथे कवयित्री मांडताना दिसतात. ऑफेलियाच्या वाढ्याला येणारी शोकांतिका हा पुरुषी मानसिकतेचा परिणाम आहे.

“कुणी नवरा देता का नवरा?

मी तुम्हाला फुलांच्या माळा देईन तेवढ्या

कुणी नवर देता का नवरा?

कुणी नवरा देता का.....” (निरन्वय, पृ. 75)

आधाराने निराधार केलेल्या भ्रमिष्टावस्थेत रानोमाळ भटकणारी ऑफेलिया बदल्याच्या भावनेची हकनाक शिकार झालेली अबला आहे. कारण

“आता वेडाशिवाय काही उरलच नाही,

एखाद्या निर्विकार पुतळ्यासारखा

मठ बसलेला दिवस

अत रात्र

अशुभांच्या सावल्यांनी ओतप्रोत (निरन्वय, पृ. 79)

येथे भोवतालची परिस्थिती अतिशय भणंग बनते आणि मूकपणे निर्विकारपणे निर्दयीपणाचा घेतलेला हा अनुभव येथे प्रगट होतो. नीरजा याची 'निरन्वय' मधील कविता ही स्त्रीला शारीरिक अस्तित्व देणाऱ्या आणि व्यवस्थेच्या बळी ठरलेल्या अबलेची परिस्थिती आहे. 'स्त्री' कडे केवळ वासना पुरुषिण्याची वस्तू म्हणून पाहणे या अवमूल्यनाची तक्रार या काव्यसंग्रहातून चर्चिली आहे. नीरजा यांच्या कवितेसंदर्भात डॉ. समाधान इंगळे म्हणतात, “स्त्रीच्या व्यक्तिमत्वाला, कर्तृत्वाला, भावनेला, मानसिकतेला व बुद्धीला डावलण्याचा असंतोष हा त्यांच्या कवितेचा कणा आहे. अनेकानेक प्रतिमांच्या, पात्रांच्या, मिथक कथांच्या, पुराणांच्या माध्यमातून तसेच साहित्याच्या माध्यमातून प्रसिद्ध झालेल्या स्त्री-पुरुष पात्रांच्या माध्यमातून मांडण्याचा एक आगळा-वेगळा प्रयत्न

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नीरजा यांच्या कवितेतून झाला आहे."२ इंगळे यांनी नीरजा यांच्या कवितेचे सूक्ष्म निरीक्षण केले आहे.

बदलत्या आयामानुसार परिस्थितीनुसार नीरजा यांची कविता 'स्त्री' च्या अंतर्मनाचा वेध घेताना दिसते. शिक्षण आणि नोकरीसाठी स्त्री समाजात, ऑफिसात, बाजारात वावर लागते. तिचे कर्मक्षेत्र वाढते त्याबरोबर अनुभवही वाढतो. हा अनुभव प्रस्थापित समाजव्यवस्थेतील हक्कांचं प्रतीक म्हणून आला आहे. समाज बदलतो, परिस्थिती बदलते, मात्र काळाच्या या बदलासोबत मानसिकता मात्र बदलत नाही तेव्हा त्या म्हणतात -

"फक्त विटबनांचे
संदर्भ बदलत असतात
एवढेच" (वेणा- पृ. 41)

'आई' च्या परंपरेतून अखंड चाललेले हे विटबन देहाचा शाप असते. जिथे मनाचा विचार नाही. आपलं दुःख जाणणारी आणि आपण जिच्याजवळ मनमोकळं करू शकतो अशी 'आई' नीरजा यांनी चित्रित केली आहे.

'प्रिय आईस' शीर्षकाखाली नऊ कविता लिहिल्या आहेत त्यातील एक नमुन वेदनागर्भ आहे.

'नजरबंद पेटीत
जपून ठेवलेल्या
कस्तुरी देहावरून
नागर फिरला

त्याच्या राकट हाताचा (वेणा, पृ. 40)

"किचन नामक भट्टीमध्ये
माझ्या अस्तित्वाचे लचके तोडून
खरपूस भाजून
त्याला हवे तेव्हा
सव्ह केले. (वेणा, पृ. 41)

लग्न लागल्यापासून त्याच्या हवाली केलेल्या देहाचा तिच्या भावनाशी आणि मनाशी काहीही संबंध नाही. आपल्या स्वप्नांचा जाहीर लिलाव करताना इच्छेचा कुठे प्रश्नच येत नाही. येथे प्रत्यक्षात वाट्याला आलेले वास्तव उभे केले आहे. स्त्री कवितेने एक नवा आयाम बदललेला आहे.

स्त्री मुक्ती चळवळीनंतरच्या पिढीतल्या स्त्रियांची स्त्रीविशिष्ट अनुभूतींची अभिव्यक्ती अत्यंत निःसंदिग्ध व स्पष्ट दिसते. नीरजा किंवा मलिका अमरशेख यांच्या कवितेत स्त्रीवादी आविर्भाव प्रकटताना दिसतो-



“ती वयात येते व्हा
पांढऱ्या शुभ्र पातळावर
लाल किनार पेटून उठते
अन आभाळ तुडुंब भरते
काळ्याकुट सावल्यांनी
गिधाडांच्या
ती वयात येते तेव्हा
देवाच्या पुरुषत्वाला
माज चढतो.... (नीरजा, असंग्रहित)



अलीकडे स्त्री या युगात सावध आणि शहाणी होते आहे, पुरुषांच्या ***णेचात्रा सुगावा तिला लागतो आहे.

कवयित्री प्रभा गणोरकर आणि रजनी परुळेकर यांनीही स्त्रीवादी कवितेत नवा मार्ग चोखाळला आहे. आपल्या कवितेतून भावनांना वाट मोकळी केली आहे. त्या म्हणतात-

‘कोवळी पान ओरबाडताना कुणी
अचानक मूल ओढवित आत सुकत जाव रोपट
तसं होत गेलं जगताना
कवितेतले जगणं तेवढं खर उरल
बाकी हातात काहीच राहिल नाही

स्त्रीला पुरुषप्रधान समाजव्यवस्थेत काहीच किंमत नाही. सारे अभावग्रस्त जग वाट्याला आले आहे. अशी खंत कवयित्री व्यक्त करते, परंतु ती पुन्हा आशावादही बाळगते आणि म्हणते, ‘पुन्हा आपल्या जगण्याचा काळ येईल, पुन्हा भन्नाट वारे वाहतील. ‘स्त्रीवादी’ कवितेविषयी प्रभा गणोरकर म्हणतात, “स्त्रियांना कविता हाच वाङ्मयप्रकार अधिक जवळचा वाटतो. स्त्रियांनी कविता कोणत्या काळात विशेषत्वाने लिहिली वा लिहिली नाही याची कारणमीमांसाही समाजातील त्यांच्या स्थानाशी निगडित आहे. भारतीय समाजव्यवस्थेतील दुहेरी मूल्यव्यवस्थेने स्त्रियांची मानसिकता कशी प्रभावित होत गेली याची जाणीव प्रकट होते.”³ गणोरकर यांनी आपल्या मतातून प्रभावी स्त्रीवादी कवितेचे स्थान अधोरेखित केले आहे.

अनुराधा पाटील यांचा ‘तरीही’ या काव्यसंग्रहात स्त्रीच्या आदिग तत्वाचा शोध घेतला गेला आहे. या संग्रहाने नवी जीवनदृष्टी व नवा आयाम दिला आहे. कवयित्री काही आठवणी अभिव्यक्त करतात.

“झाडावर एकाकी बसलेल्या

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आणि आपणच आपल्याला परकं होऊन

उघड्या डोळ्यांनी पाहते मी

सगळ्याच उत्कटतेला लागलेल्या मुंग्या" (तरीही, पृ. 35)



मानवी जीवनात एकाकी पडणे ही सर्वात मोठी भीती असते. मात्र आपणच आपल्याला परके होत जाताना उघड्या डोळ्यांनी पाहणे ही पराकोटीची शोकात्म जाणीव येथे प्रकट होतांना दिसते. आपल्या उत्कटतेला मुंग्या लागणे ही सुद्धा स्वतःच्या अस्तित्वाच्या दुभंगलेपणाची जाणीव आत्यंतिक अस्वस्थ करणारी आहे. डॉ. समाधान इंगळे, अनुराधा पाटील यांच्या कवितेविषयी म्हणतात, "स्वतंत्र रूपके व प्रतिमांच्या वैशिष्ट्यातून 'तरीही' एक 'स्वयंभू' आत्मविष्काराच्या शैलीला जन्म देणारी प्रयोगशीलता सिद्ध करणारी कविता आहे."४ इंगळे यांनी स्त्रीवादी कवितेत अनुराधा पाटील यांच्या कवितेला स्वतंत्रतेने प्रतिमांकित केले आहे.

एकूणच समकालीन कवयित्रींनी बदलत्या काळानुसार स्त्रियांच्या अंतर्मनाचा सुख-दुःखाच्या भावनेला स्पर्श करून, पुरुषप्रधान संस्कृतीला छेद देऊन आपापल्या कवितेच स्थान टिकवून ठेवलं आहे, हे लक्षात घेण्यासारखे आहे.

निष्कर्ष

- स्त्रीवादी मराठी कवयित्रींना सावित्रीबाई फुले व लक्ष्मीबाई टिळक यांची प्रेरणा मिळालेली दिसते.
- स्त्रीवाद ही पुरुषी वर्चस्वाविरोधी असणारी विचारधारा आहे.
- कवयित्री निरजा व मलिका अमरशेख यांची स्त्रीवादी कविता 'स्त्री' च्या अंतर्मनाचा वेध घेणारी आहे.
- अनुराधा पाटील यांच्या स्त्रीवादी कवितेने नव्या आयाम व नवीन जीवनदृष्टी दिली आहे.
- स्त्रीवादी कवितेने पुरुषप्रधान संस्कृतीला तीव्र छेद दिला आहे.

संदर्भ ग्रंथ

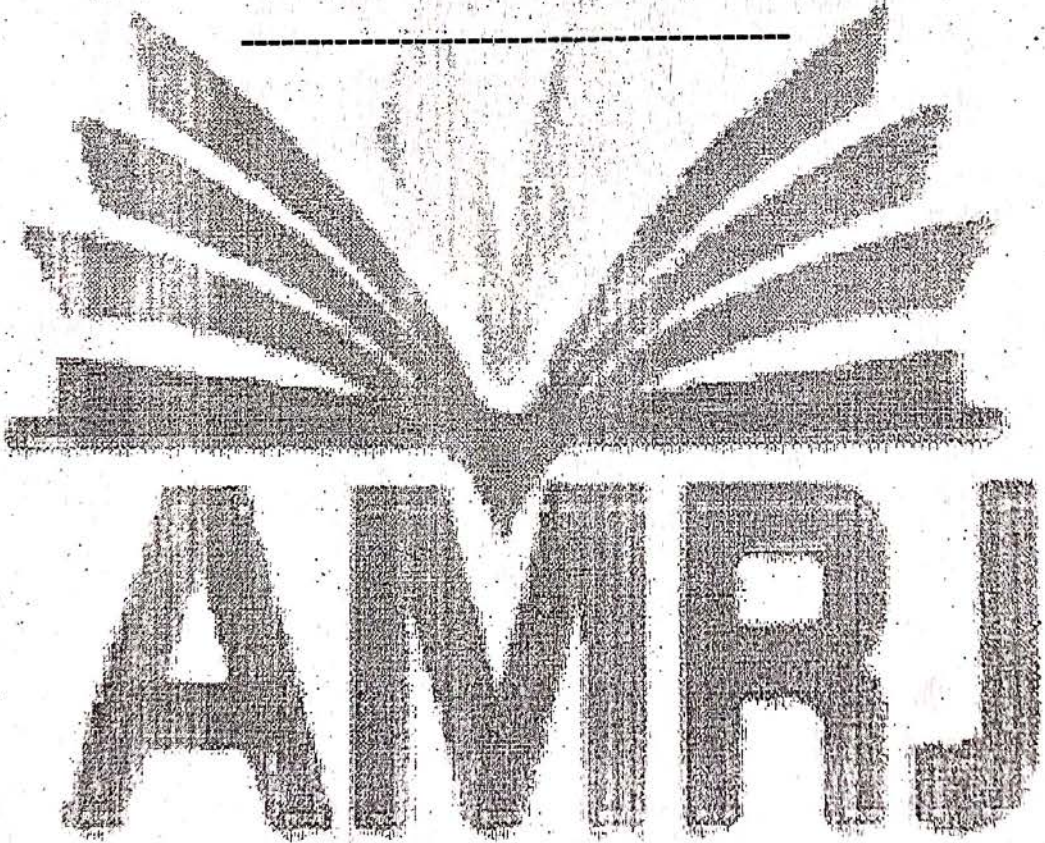
1. डॉ. लीला दीक्षित, 'स्त्री साहित्य मराठी', डॉ. मंदा खांडगे, संपा. 'भारतीय भाषांतील स्त्री साहित्याचा मागोवा' खंड-2, साहित्यप्रेमी भगिनी मंडळ, पुणे, प्रथमावृत्ती- डिसें. 2007, पृ. 29.

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2. डॉ. समाधान इंगळे, 'नीरजा यांची कविता', चिकित्सा अनुराधा पाटील आणि नीरजा यांच्या कवितेची, गोदा प्रकाशन, औरंगाबाद, प्रथमावृत्ती-2011, पृ. 124.
3. प्रभा गणोरकर, 'मराठीतील स्त्रियांची कविता: स्त्रीवादी दृष्टिकोनातून अवलोकन, डॉ. मंगला वरखेडे संपा. 'स्त्रीवादी समीक्षा: संकल्पना व उपयोजन', का.स. वाणी संस्था, धुळे, प्रथमावृत्ती-1999, पृ. 149.
4. डॉ. समाधान इंगळे, 'समकालीन मराठी कविता आणि कवयित्री', 'चिकित्सा अनुराधा पाटील आणि नीरजा यांच्या कवितेची', गोदा प्रकाशन, औरंगाबाद, प्रथमावृत्ती-2011, पृ. 55.



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आणि

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प्रा. बी. बी. गायकवाड



श्रीमती एन.एन.सी. कला, वाणिज्य व विज्ञान महाविद्यालय, कुसुंबा ता.जि. धुळे

प्रास्ताविक -

अण्णाभाऊ साठे यांचे मराठी वाङ्मयात महत्वाचे योगदान आहे. त्यांनी मराठी साहित्यामध्ये विविध प्रकारात विपूल लेखन करून मराठी साहित्याला समृद्ध केले आहे. कथा, कादंबरी, लोकनाट्य, तमाशा, पोवाडा, नाटक, लावणी इ. प्रकारातून लेखन करून त्यांनी आपल्या प्रतिभेची चुणूक दाखवून दिली. दीड-दोन दिवस शाळेत पाऊल ठेवणाऱ्या या लेखकाने मराठी साहित्य विश्वात क्रांतीच केली. सामाजिक, आर्थिक विषमतेविरुद्ध त्यांचे साहित्य बंड करते. वेदना, विद्रोह, नकार, बंड हे त्यांच्या लेखनाचे विशेष होत. दलित कष्टकरी, स्त्रियांचे प्रश्न, कामगार वर्ग आदिंच्या समस्या त्यांनी आपल्या साहित्यात मांडल्या. दलित अस्पृश्य मातंग समाजात जन्म झाल्यामुळे पिढीजात जातीयता, अस्पृश्यता, दारिद्र्य, अन्याय, अत्याचार त्यांना आणि त्यांच्या कुटुंबाच्या वाट्याला आले. भाकरीसाठी गाव सोडून त्यांच्या कुटुंबाला मुंबईला जावे लागते. तेथे गेल्यावर अण्णाभाऊ कामगार म्हणून जीवन व्यथित करतात. कामगार वर्गाशी जवळीक निर्माण झाल्यावर कामगार आणि भांडवलदार यांच्यातील संघर्ष जवळून अनुभवला. त्यातून कामगार चळवळीशी त्यांचा संपर्क होऊन साम्यवादी विचारांशी अण्णाभाऊ जोडले गेले. त्यांच्या एकूण जीवनावर मार्क्सवादाचा प्रभाव दिसून येतो. मार्क्सवाद आणि नंतर काही काळानंतर आंबेडकरवादाने ते प्रेरित झाले. या दोन्ही विचारातून अण्णाभाऊंची वैचारिक मशागत झाली. त्याचाच परिपाक म्हणजे त्यांचे

वाङ्मयीन कर्तृत्व होय. अण्णाभाऊंच्या कथा, कादंबऱ्या, लावणी, लोकनाट्ये, पोवाडे, याबरोबरच 'माझा रशियाचा प्रवास' हे प्रवास वर्णनपर लेखन प्रसिद्ध आहे. मराठी वाङ्मयात हे प्रवास वर्णनपर लेखन अमूल्य ठेवा आहे. त्याचा चिकित्सक अभ्यास पुढीलप्रमाणे केला आहे.

माझा रशियाचा प्रवास : एक अभ्यास

अण्णाभाऊ साठेच्या जीवन संघर्षाचे प्रामुख्याने दोन महत्वाचे टप्पे पडतात. वाटेगाव ते मुंबई हा पहिला टप्पा, तर मुंबई ते मॉस्को हा दुसरा टप्पा. अण्णाभाऊंनी रशियन क्रांतीचा



इतिहास अभ्यासलाए लेनिन आत्मचरित्र त्यांनी वाचले. या पुस्तकांमुळे त्यांच्या मनावर खूप परिणाम झाला. अण्णाभाऊंना रशिया पाहण्याची खूप इच्छा निर्माण झाली. रशियातील साम्यवादी क्रांतीमुळे अण्णाभाऊंच्या जीवनात बदल झाला. मार्क्सवादी विचारांमुळे अण्णाभाऊंना झपाटून सोडले. त्यामुळेच त्यांनी लोकनाट्य आणि इतर साहित्यातून शोषक वर्गावर प्रहार केले. सामाजिक, आर्थिक विषमता याचे चित्रण त्यांच्या साहित्यात आढळते. ते नुसते चित्रण करून थांबले नाहीत तर संघर्ष विद्रोहा शिवाय त्यातून मुक्तता होणे शक्य नाही.

१९४८ चा काळ होता. त्यांचे मित्र सिने अभिनेते श्री. बलराज सहानी यांनी अण्णाभाऊंची पॅरिसपर्यंतची तिकीटे काढली होती. त्यांना पॅरिसला भरण्या जागतिक शांतता परिषदेचे निमंत्रण मिळाले होते. पण जमले नाही. तेव्हा स्वातंत्र्य मिळूनही अण्णाभाऊंना पॅरिसला जाण्याची परवानगी नाकारली. तो काळ १९४८ चा होता. त्यांनी काँग्रेसच्या विरोधात बंड पुकारले होते. त्यामुळे त्यांना वैरी घोषित करून त्यांना परवानगी नाकारण्यात आली होती.

सोविएत रशिया विषयी मनात खूप आकर्षण होते. रशियाला जाण्याचे त्यांचे स्वप्न एकदाच १९६१ मध्ये पूर्ण झाले. माणूस आणि कलावंत म्हणून त्यांच्या वाट्याला जे चांगले दिवस आले त्याचे कलात्मक वर्णन म्हणजे माझा रशियाचा प्रवास हे लेखन होय. ५८ पृष्ठांचे प्रवास वर्णन सहज सुंदर भाषेत अण्णाभाऊंनी रेखाटले आहे. हे अनेक दृष्टीने महत्वाचे आहे. नाविन्यपूर्ण अनुभव, उठावदार प्रसंग चित्रण, पात्र चित्रण, भाषेचा गोडवा, निवेदनातील गोडवा, त्याचबरोबर रशियाचे सौंदर्य वर्णन, वैभव, तेथील कलादर्शन, ऐतिहासिक वर्णन त्यांनी मार्मिकपणे केले आहे. मुंबई ते मॉस्को, रशियातील भ्रमंती, मॉस्को ते लेनिनग्राड, लाल तान्याखाली, बाकूकडे, संपन्न बाकू, कलेचे माहेर, ताश्कंद ते दिल्ली असा हा त्यांचा रोमांचक प्रवास आहे.

अण्णाभाऊंचे प्रवास वर्णन इतर प्रवास वर्णनापेक्षा वेगळे आहे. कारण हा प्रवास मौजमजेसाठी नसून रशियन माणसाचे सन्मानाचे जगणे, त्यांच्या जगण्यातील तत्वज्ञान शोधासाठी केलेला हा प्रवास आहे. रशियन माणसाने क्रांतीसाठी केलेला संघर्ष, बंड, शौर्य याविषयी अण्णाभाऊंना आकर्षण होते. मार्क्सवादी विचार आणि आंबेडकरवाद यामुळे त्यांच्या लेखनाला विद्रोह, बंडाची किनार लाभली. डॉ. अविनाश सांगोलकर त्यांच्याविषयी म्हणतात,

अण्णाभाऊ तारुण्यात पदार्पण करण्यापूर्वीच म्हणजे इ.स. १९३४.३५ मध्ये वयाच्या चौदाव्या-पंधराव्या वर्षी मार्क्सवादी झाले होते. पुढे १९४२ मध्ये कम्युनिस्ट पक्षाचे पूर्ण वेळ प्रचारक



झाले.” मात्र बाबुराव गुरव म्हणतात, अण्णाभाऊ हे डॉ. आंबेडकरांच्या प्रेरणेने चाललेल्या चळवळीने त्यांची विचारसरणी ह्यांच्याशी १९३५ पासून विविध पातळीवर संबंधित होती. वादसंवादाच्या पद्धतीने ते डॉ. आंबेडकरांची विचारधारा समजून घेत होते.”^३ मार्क्सवाद आणि आंबेडकरवादाचा अण्णाभाऊंवर प्रभाव न दिसून येतो. मार्क्सवादामुळे आणि लेनिन, स्टॅलिनच्या संघर्षामुळे झालेले परिवर्तन त्यांना अनुभवयाचे होते. म्हणून एका अर्थाने रशियाचा प्रवास ही अण्णाभाऊंच्या बंडखोर मनाची गरज होती.

अण्णाभाऊंना रशियाबद्दल नेहमीच आकर्षण होते. समाजवादी रशियात एखाद्या दरिद्री, भिकारी, गुलाम माणूस सापडतो का? याचा शोध अण्णाभाऊंनी घेतला. तेथे गेल्यावर त्यांना सर्वत्र आर्थिक समता, स्वातंत्र्य आणि सामाजिक न्याय पहायला मिळाला. या संदर्भात बाबुराव गुरव यांचे मत महत्वाचे आहे. ते म्हणतात, विशेषतः अण्णाभाऊ रशियात कुठे दारिद्र्य भेटते कारण त्याची कसून चौकशी करतात. आपल्या आवडत्या तत्त्वज्ञानावर उभ्या असलेल्या देशाची कठोर तपासणी करतानाच अण्णाभाऊ आपल्या जीवन हेतूचाही येथे कठोर आत्मशोध घेताना दिसतात. त्या अर्थाने हे प्रवासवर्णन भूक आणि भीक यांचा शोध घेणारे प्रवास वर्णन आहे.”^४ अज्ञान, विषमता, दारिद्र्य, शोषण यांवर मात करत अण्णाभाऊ रशियाला पोहोचले होते. थोडक्यात एका बंडखोर लेखकाने क्रांतीकारी देशाचा केलेला अभ्यास म्हणजे माझा रशियाचा प्रवास हे लेखन होय.

संदर्भ ग्रंथ -

1. विद्रोही कलावंत, अण्णाभाऊ साठे, डॉ. राजेश्वर दुडूकनाळे, प्रकाशक- लोकायत, 13, यशवंतनगर, गोंडमाळ, सातारा-प्र.आ. नोव्हेंबर-2015, पृष्ठ क्र. 198
2. लोकशाहीर साहित्य सम्राट, अण्णाभाऊ साठे, गौरव ग्रंथ, प्रकाशक-बार्टी, द्वितीय आवृत्ती- जुलै-2015, पृष्ठ क्र. 112
3. विद्रोही कलावंत, अण्णाभाऊ साठे, लेखक- डॉ. राजेश्वर दुडूकनाळे, लोकायत प्रकाशन, सातारा-प्र.आ., पृ.क्र. 199.

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समाजाचे साहित्यातील प्रतिबिंब

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श्रीमती एन.एन.सी. कला वाणिज्य व विज्ञान महाविद्यालय, कुसुंबा ता.जि. धुळे

साहित्य हे समाजाचेच एक अंग आहे किंवा साहित्य हा समाजाचा आरसा असतो असे आपण म्हणतो. म्हणजेच समाज आणि साहित्य हे एकमेकांना परस्पर पूरक म्हटले जाते. अर्थात साहित्यामध्ये समाजाचे प्रतिबिंब पडलेले असते. असे जरी आपण म्हणत असलो तरी साहित्यकृती ही कलावंतनिर्मित कलावस्तू असते, हे तितकेच खरे असते. अशा कलावस्तू मौखिक परंपरेने वा पुस्तकरूपाने समाजासमोर येऊन त्यांच्या परंपरा होत असतात. या कलावस्तूंचे समाजावर बरेवाईट परिणाम होतात. आपल्या संतांनी अभंग, भारुडाच्या व प्रवचनाच्या माध्यमातून सामाजिक प्रबोधन केलेले आहे. संतांच्या काव्यनिर्मितीने मराठी कवितेची अशी भक्कम परंपर निर्माण केली आहे. तसेच या काव्यनिर्मितीचे मराठी समाजावर व्यापक परिणामही झालेला दिसतो.

आधुनिक काळातील केशवसुत, हरिभाऊ, मर्ढेकर या सारख्यांच्या निर्मितीच्या संदर्भातही असेच म्हणता येण्यासारखे आहे. त्यामुळे साहित्याला एक सामाजिक अंग असते. हे म्हणजे उचित ठरते. साहित्यकृतीतून व्यक्त होणारा आशय आणि ज्या भाषेच्याद्वारे कलावस्तू निर्माण होते ती भाषा हे विशिष्ट समाजाचेच भाग असतात. साहित्याच्या या स्वरूपामुळे साहित्याला सामाजिक अंग प्राप्त होणे अपरिहार्यच असते. व्यक्तीने निर्माण केलेली कलावस्तू एका स्तरावर सामाजिक वस्तू होते. साहित्याच्या सामाजिकतेचा हा अभ्यास हे साहित्याच्या अभ्यासाचेच एक अंग आहे. अशा साहित्यातून सामाजिक रुढी परंपरा, राहणीमान, जीवन पद्धती यांचे प्रतिबिंब कळत-नकळत पडत असते.

महात्मा ज्योतिराव फुले, छत्रपती शाहू महाराज, डॉ. बाबासाहेब आंबेडकर व वि.दा. सावरकर यांनी आपल्या साहित्यातून सामाजिक प्रबोधन केले आहे. फुले यांनी 'शेतकऱ्यांचा आसूड' या ग्रंथातून शेतकऱ्याला कर्जबाजारी करून आपली तुंबडी भरण्याचा 'ब्राह्मणी कावा' उघड केला आणि त्याचबरोबर पीडित महिलांच्या आश्रयासाठी व स्त्रीशिक्षणाच्या सुस्थापनेसाठी तसेच जातिभेदाच्या निर्मूलनासाठी कृतिशील प्रयत्न केल्याचे दिसते. त्यांच्या पत्नी सावित्रीबाई यांनी व्यक्तिगत निंदानालस्तीला व विरोधाला धैर्याने तोंड देऊन त्यांना सर्वतोपरी साथ दिली आहे. शाहू महाराजांनी जातिभेद निर्मूलन, ब्राह्मणवर्चस्व विरोध आणि अस्पृश्यता निवारण या बाबतीत कोल्हापूर संस्थानात क्रांतिकारक पावले उचलून महाराष्ट्रासमोर राजर्षींच्या नव्या



राजधर्माचा आदर्श निर्माण केला आहे. या दृष्टिकोनातून डॉ. निशिकांत मिरजकर म्हणतात की, "विसाव्या आणि एकविसाव्या शतकातील मराठी साहित्य विभिन्न पातळ्यांवरील सामाजिक स्थित्यंतरांशी संवाद साधताना दिसते. जातीयता आणि अस्पृश्यता यांचा विच्छेद करण्याच्या उर्मीने वि.दा.सावरकरांनी पारंपरिक संस्कृतिशी युद्ध न पुकारता तिच्यामध्ये उत्क्रांती करण्याचा प्रयत्न केला आहे. यासाठी त्यांनी कथा-कादंबऱ्या लिहिल्यात."¹ मिरजकर यांनी विचारवतांनी आपल्या साहित्यातून सामाजिक समस्या कशा अधोरेखित केल्या आहेत व त्यातून कशी उत्क्रांती घडवून आणली हे आपल्या विधानातून सूचित केले आहे.

दुसरे महायुद्ध, औद्योगिकीकरण, स्वातंत्र्योत्तर निर्माण झालेली नवी सामाजिक सत्ताकेंद्रे, विकास योजना आणि त्याची विडंबने, भाषावार प्रांतरचना, गुन्हेगारी जगाचे कर्करोगासारखे वाढत चाललेले प्रभाव, फुटीरवाद आणि दहशतवाद या सगळ्या जागतिक आणि राष्ट्रांतर्गत पातळ्यांवरील घटनांचे सामाजिक प्रतिबिंब साहित्यात उतरलेले दिसते. त्याचप्रमाणे या स्थित्यंतरांचे परिणाम अपरिहार्यपणे मराठी साहित्यावर झालेले दिसतात.

समाजातील पूर्वापार चालत आलेल्या रुढी आणि त्यांचे बदलत चाललेले स्वरूप, विशिष्ट जनधारणा आणि त्यांना सामाजिक स्थित्यंतरामुळे मिळणारे धक्के, नव्या विचारांना व मूल्यांना पारंपरिकतेशी करावा लागणारा संघर्ष या सर्वांचे प्रतिबिंब श्रेष्ठ साहित्यात उमटले आहे. ते कधी काही साहित्यकृतींमधून वास्तवदर्शी निरपेक्ष स्वरूपात अवतरते, तर कधी त्या त्या लेखकाच्या संवेधतेनुसार विशिष्ट रंग धारण करून सापेक्षतेने प्रकट होताना दिसते.

बाबुराव बागुलांची 'सूड' ही लघुकादंबरी एका मुरलीच्या जीवनप्रवासातील सुडाचे उन्नयन आलेखरूपाने मांडते. मुरलीच्या पोटी जन्म घेतल्यामुळे पारंपरिक धारणेने समाजाच्या वासनेची शिकार बनलेली जानकी स्वतःच्या स्त्रीत्वाचाच द्वेष करू लागते आणि स्त्रीत्वाला भोगविषय बनवणाऱ्या प्रवृत्तीचा सूड घेण्यासाठी पुरुष संन्याशाचा वेष धारण करून परिभ्रमणाला बाहेर पडते. या भयानक अशा अनुभवांना सामोरे जावे लागते. अर्थात येथे सामाजिक, दैहिक, मानसिक व आत्मिक असा या काहणीचा विकास झालेला आहे. अर्थातच सामाजिकतेची प्रतिबिंबे या विकासात अखेरपर्यंत पडत राहिलेल आहेत. हे काहणीचे सूत्र सामाजिकतेकडून आत्मिकतेकडे सरकले तरी ही प्रतिबिंबे निरपेक्षपणे पडत राहताना दिसतात.

त्याचप्रमाणे विश्वास पाटील यांची 'झाडाझडती' ही कादंबरी देखील एकाचवेळी विविध स्तरांवरील आणि विविध क्षेत्रातील सामाजिक राजकीय स्थित्यंतरांची प्रतिबिंबे धारण करताना दिसते. त्यात धरणासाठी शेतकऱ्यांची जमीन सरकारकडून हस्तगत केली गेल्याने विस्थापित झालेल्या गावकऱ्यांची ही काहणी प्रतिबिंबित झाली आहे. यादृष्टीने दिगंबर, पाध्ये म्हणतात की, "साहित्यकृती निर्माण करणारा लेखक आणि त्याने समाजाचे अधोरेखित केलेले भीषण



प्रश्न याचा समाजाशी असणारा संबंध लक्षात घेऊन आपल्या साहित्यकृतीत सामाजिक समस्या वास्तवतेने मांडत असतो.”² अर्थातच पाध्ये यांनी लेखकाचे किती सूक्ष्म निरीक्षण असते याविषयीचे महत्त्व विशद केले आहे.

आनंद यादवांच्या 'गोतावळा' कादंबरीत नांगरणीसाठी ट्रॅक्टरचे आगमन झाल्यावर गुराढोरांत पशुपक्ष्यांत आणि झाडा-रानांत रमणाऱ्या नारबाचे भावविश्व कसे उद्ध्वस्त झाले याचे चित्रण आलेले आहे. यंत्रयुगाच्या प्रवेशामुळे खेड्यापाड्यात आणि शेतमजुरांच्या जीवनानुभवात जे सामाजिक स्थित्यंतर झाले, त्याची कारुण्यमय कहाणी यात आहे त्याचप्रमाणे अलीकडील सदानंद देशमुख यांच्या 'बारीमास' कादंबरीतही असेच सामाजिक प्रतिबिंब आणि स्थित्यंतरे आली आहेत. बदलत चाललेल्या कृषिजीवनाचे करुणामय चित्रण मानलेले एकूणच सामाजिक स्थित्यंतरामधील कारुण्य या लेखकांच्या संवेद्यतेला उत्कट स्पर्श करीत असल्यामुळे त्यांच्या साहित्यातील सामाजिक स्थित्यंतराचे प्रतिबिंब करुणामय स्वरूपातच व्यक्त झाले आहे.

सामाजिक स्थित्यंतरामुळे खेडीत बदलत चालली. ग्रामीण परिसर शहरी बनण्यात धन्यता मानू लागला आहे. गावातले परिदृश्य, वातावरण, माणसा-माणसातले संबंध सारेच बदलत चालले आहे. या परिवर्तनाची समाजशास्त्रीय अथवा प्रगतिसापेक्ष चिकित्सा न करता काही संवेदनशील साहित्यिक 'पूर्वीचे ते आपले खेडे हरवले' या नोस्टाल्जिक जाणीवेने हळवे बनून जातात. ज्ञानेश्वर मुळे यांचे 'दूर राहिला गाव' हे दीर्घ काव्य याचे उदाहरण देता येईल. त्यात गावातील सामाजिक-राजकीय-सांस्कृतिक स्थित्यंतरांचे प्रतिबिंब अवतरते ते अशा साहित्यातूनच. समाजलेखनाचे भान ठेवणारे लेखक साहित्यिकांच्या बाबतीत स.शि.भावे म्हणतात, "शुद्ध साहित्यव्यवहार ही वैयक्तिक लहर नसून ती एक सामाजिक जबाबदारी आहे. साहित्यिक या नात्याने साहित्यिकांनी हे सत्य मान्य केले पाहिजे."³ स. शि. भावे यांनी लेखकांना सामाजिक जाणिवेच्या दृष्टीने सत्यान्वेशी दृष्टी बाळगण्याचे सूचित केले आहे.

सारेच साहित्य सामाजिक स्थित्यंतरांचे प्रतिबिंबच केवळ दाखवते असे नाही तर काही प्रकारच्या साहित्यातून सामाजिक स्थित्यंतर त्या त्या साहित्यिकांना इष्ट त्या दिशेने आणि इष्ट त्या प्रकारे घडून यावे म्हणून त्यांनी जाणिवपूर्वक प्रबोधन करण्याचाही प्रयत्न केलेला दिसतो: सावरकर, आंबेडकर, नरेंद्र दाभोलकर, आ. ह. साळुंखे यांचे वैचारिक लेखन अशाच प्रकारचे आहे. अंधश्रद्धा, जातिभेद, शोषण आदि विघातक वृत्ती नष्ट व्हाव्यात आणि नव्या प्रबुद्ध समाजाची प्रगतिशील रचना अस्तित्वात येण्याच्या दृष्टीने सामाजिक स्थित्यंतर घडून यावे, अशी कळकळ व तळमळ या लेखनामागे जाणवते. डॉ. निशिकांत मिरजकर या साहित्याच्या स्थित्यंतराबाबत व प्रतिबिंबाबाबत आपले मत व्यक्त करताना म्हणतात,

I/c. Principal



“सामाजिक स्थित्यंतराचे नेमके निखळ प्रतिबिंब तो नेहमीच दाखवेल असे नाही तर कधी हे प्रतिबिंब विकृत, विरूप, विचित्र असू शकेल तर कधी ते हास्यास्पद असू शकेल तर कधी भयकारीही असू शकेल.”⁴ या विधानात समाजाचे साहित्यावरील प्रतिबिंब असे होणारे स्थित्यंतर याविषयी निरजकर यांनी आपले सत्यान्वेशी मत अभिव्यक्त केले आहे. एकूणच प्राचीन संतवाङ्मयातून तर आजच्या समकालीन लेखकांपर्यंत अनेक लेखकांनी आपल्या समाजवास्तवाचे प्रतिबिंब आपल्या अनुभवविश्वातून सत्यान्वेशी दृष्टिकोनातून साकार केले आहे. म्हणून विज्ञान कितीही पुढे गेले तरी संतवाङ्मय आणि आधुनिक लेखकांची ग्रंथसंपदा याचे महत्त्व शब्दातीत आहे हेही तितकेच खरे.

निष्कर्ष :-

- साहित्य हा समाजाचा आरसा आहे.
- सामाजिक वास्तवदर्शन घडविण्यात संतसाहित्याचे योगदान सर्वश्रेष्ठ आहे.
- महात्मा जोतिराव फुले, छत्रपती शाहू महाराज, डॉ. बाबासाहेब आंबेडकर, सावरकर यांनी आपल्या साहित्यातून समाजाचे वास्तवजीवन अधोरेखित केले आहे.
- विसाव्या आणि एकविसाव्या शतकातील मराठी साहित्य विभिन्न पातळ्यांवरील सामाजिक स्थित्यंतराशी संवाद साधताना दिसते.
- अलीकडील जागतिकीकरण, दहशतवाद, फुटीरवाद, सत्ताकेंद्रे याचे राष्ट्रांतर्गत पातळ्यांवरील घटनांचे सामाजिक प्रतिबिंब समकालीन साहित्यात अधोरेखित झाले आहे.
- साहित्यिक आणि लेखकांनी समाजाचे वास्तवदर्शन सत्यान्वेशी पातळीवर अभिव्यक्त करणे गरजेचे आहे.

संदर्भ ग्रंथ

1. डॉ. निशिकांत मिरजकर, 'साहित्य: रंग आणि अंतरंग', आकांक्षा प्रकाशन, नागपूर, प्रथमावृत्ती-2009, पृ. 15.
2. दिगंबर पाध्ये, साहित्य समाज आणि संस्कृती, लोकवाङ्मय गृह प्रकाशन, मुंबई, तृतीयावृत्ती-2005, पृ. 14.
3. स.शि. भावे, 'साहित्य, साहित्यिक आणि समाज', भालचंद्र भणगे संपा. 'साहित्य विचार आणि समाजचिंतन', ओरिएंट लाँगमन्स लिमिटेड, मुंबई, प्र.आ. 1968, पृ. 138.
4. डॉ. निशिकांत मिरजकर, 'साहित्य: रंग आणि अंतरंग', आकांक्षा प्रकाशन, नागपूर, प्रथमावृत्ती, 2009, पृ. 20.

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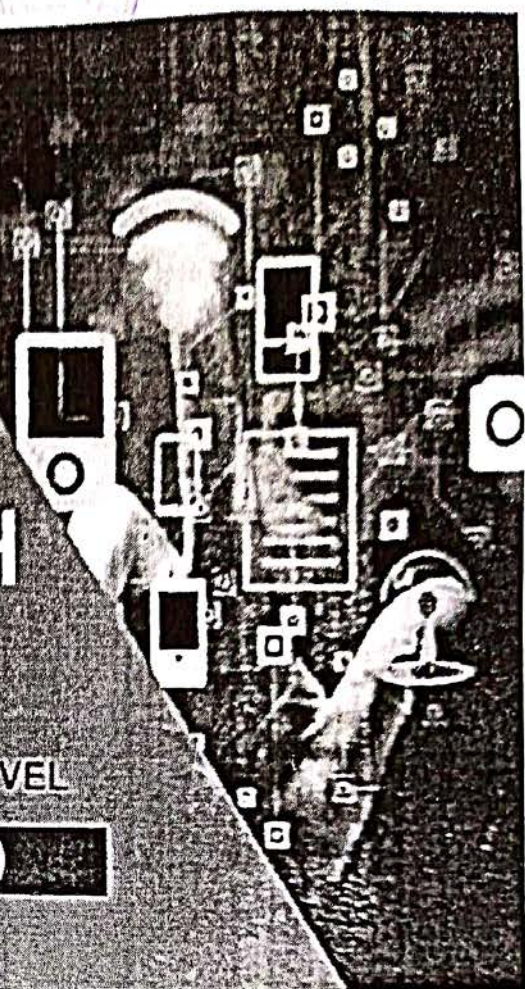


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A Psychoanalytical Approach In Tennessee Williams's "The Glass Menagerie"

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Abstract:

The most significant Pulitzer Prize winner American dramatist Tennessee Williams during 20th century has been regarded as one of the greatest dramatists in the American literature. As a committed dramatist, he endeavoured to focus on the various themes such as pride, betrayal, reality/illusion, urbanization, abandonment lies and deceit etc. in his worldwide famous dramas. Apart from these themes, Tennessee Williams in his significant dramas tried to present social, political, psychoanalytical, moral, socio-critical and cultural issues of the American culture during 20th century.

Tennessee Williams's dramas primarily deal with the theme of psychoanalytical aspects of the human mind. In the present research paper, the study explores the psychoanalytical approach of his one of the significant dramas "The Glass Menagerie". His characters, themes, story and plot are critically examined from the psychoanalytical point of view. This paper discusses human psychology under critical judgment of the characters, causes and effects of the psychological traumas of the human mind.

Keywords: Psychoanalytical, human psyche, consciousness, mind, soul, logos

Introduction:

A leading American dramatist Tennessee Williams considered as the most eminent dramatists of the 20th century American literature. He handled almost all kinds of literary genres such as dramas, novel, short-story, one act play, and poetry. The Glass Menagerie (1944), (2) A Streetcar Named Desire (1947), (3) The Rose Tattoo (1955), (4) Eat and Hot Tin Roof and The Loss of A Teardrop Diamond (1957) are the most significant dramas to his credit. In the present research paper, The Glass Menagerie (1944) is selected for study from the psychoanalytical point of view.

The play deals with the themes of autobiographical elements, inner thoughts, anxieties depression, inferior complexities, fear and frustration etc. of the human mind. The incidents, interaction of the characters show the changes of the human psychology during different kinds of situation. In short, whatever is presented in the play is clearly focused on psychoanalytical approach of the human mind. Before to study it from psychoanalytical point of view, we must have a glance on the concept of psychoanalytical theory.

Psychoanalytical Theory (Psychoanalysts):

To understand the psychoanalytical theory, It is important to focus on the concept of psychoanalysis. Sigmund Freud (1856-1939) an Austrian neurologist was the originator of the discipline of psychoanalysis. His disciple Carl Jung after dispute with him on the psychoanalytical theory laid his own theory known as analytical psychology.

The term psychoanalytic was used to study many aspects of Sigmund Freud's work and research to develop his theories. In his theories observations and case studies of the patients are studied and analyzed to focus on the

human mind. The analysis of the brain, physiological studies and childhood painful events of the adults were also major aspects in the writing of Freud. His ideas and theories about various subjects such as sex, dream, culture, religion, human mind and woman are discussed in his major books. Some of his major books are The Interpretation of Dreams, The Psychopathology of Everyday Life, Totem and Taboo, Civilization and Its Discontents and The Future is on Illusion. His theories started to gain prominence in 1899 after publication of the "Interpretation of Dreams".

Meaning / Definitions:

The term psychoanalytical theory or psycho analysis simply meant 'The analysis of the human psyche' in psychology; The word psyche is the whole human mind, conscious and unconscious. Psychology is the scientific or objective study of the psyche. The word "psychology" is made up to the word "psyche", meaning soul, and "logos," to study. In depth psychology, at its core, is the study of the mind.

"Psychoanalysis is a form of therapy propounded by the Austrian Psychologist Sigmund Freud (1856-1939) in order to treat patients of hysteria and neurosis during the late nineteenth century."

"Psychoanalysis itself is a form of therapy which aims to cure mental disorder by 'investigating the interaction of conscious and unconscious elements in the mind'"

In a very simple manner psychoanalysis is a combination of two words that is psycho and analysis. The word psycho is "combination of mind, soul and understanding", and the word analysis is "A process of the separation for a substance into its constituent elements".



Apart from the above definitions the term psychoanalysis indicates other following meanings as given below -

Firstly, psychoanalysis is a school of psychology which focuses on the psychic determinism and dynamics. It also emphasizes the importance of childhood experiences in shaping one's adult personality and behavior.

Secondly, psychoanalysis is a specialized method for investigating the unconscious mental activities which emphasizes on the role of unconscious in determining abnormal human behavior.

Finally, psychoanalysis is a therapeutic method for the investigation and treatment of mental disorders, especially the neurotic disorders in the human mind. According to above mentioned definitions psychoanalysis simply is a study of psychic determinants of human behavior. During Freud's time and afterwards psychoanalysis has changed in many revisions. It is globally known as a High-Level theory which includes different kind of sub theories such as 'levels of consciousness'.

'Psychic structure of personality', 'psychosexual development', 'defense mechanisms' and 'theory of instincts'.

A Psychoanalytical Approach in Tennessee Williams "The Glass Menagerie":

The traditions of realism and expressionism dominated throughout the late 19th and early 20th century of American literature. Especially, a moment expressionism emerged while development of psychology at end of the 20th century. The expressionist plays concern with not the external reality but the inner reality of the characters mind. In this sense, "The Glass Menagerie" (1944) a memory play written by Tennessee Williams deals with the mental or psychological aspects. The inner thinking of the characters becomes primary concern of the expressionistic plays to study closely psychology of characters. Therefore, the research paper is made to find out the inner process of the mind of each character and tried to focus on their inner psychology by reaching psychoanalytical approach.

Tennessee Williams' memory play "The Glass Menagerie" was first staged in 1944. It has many autobiographical elements that present many past memories of the narrator. The term memory is coined by Tennessee Williams in which the audiences experience past memories of the narrator. The play is set against the great depression period of 20th century in America. The chain of anxieties, frustrated desires, depression, and fantasy, imaginary world of Laura and fear of the human psychology are closely examined in the play. The feelings of low self esteem and neurosis a state of human mind is also presented in the play.

Before to examine the play "The Glass Menagerie" from the psychoanalytical approach, it would be important

to have a glance on study of a brief summary of "The Glass Menagerie".

The action of The Glass Menagerie (1944) takes place in the Wingfield family's apartment in St. Louis, 1931. All the events of the play are framed by memory of Tom Wingfield. He is the narrator and protagonist of the play. Tom, his mother Amanda and his sister Laura are the central characters in the play.

The action of the play revolves around Tom, his mother Amanda, and his sister Laura. In 1937 they were abandoned them so Tom is now the family's responsible person. He works at the continental shoemakers warehouse during the day, but he disappears night to watch the movies for relax. Amanda is a loving mother, who always thinks about future of Tom and Laura. Tom is grown man who earns the wages that support the entire family. Laura is a frightened and terribly shy girl, having weak nerves. She is also slightly lame in one leg and she sometimes leaves the apartment for own desires. She cares always for her "glass menagerie", a collection of delicate little glass animals.

Amanda dreams constantly about her past day when she was a young southern belle and thinks about sweet memories. Meanwhile she enrolled Laura in classes at Rubicam's Business College, hoping that a career in business would make Laura self dependent. She discovers that Laura stopped attending class from long time, because the speed tests on the typewriter terrified her. After the Laura's unsuccessful at Rubicam's College Amanda gives up hope on a business career for Laura and puts all her hopes into finding a husband for her.

Amanda's relationship with Tom is not soft. He wants to be free like his father to abandon Amanda and Laura and set off into the own world. He has stayed because of his responsibility for them, but his mother's nagging and his frail sister's strange behaving make the apartment a depressing and oppressive place. He also hates the job. His only escape comes from his frequent visits to the movies. but his nightly disappearances anger and baffle Amanda. He dispute with Amanda all the time, and the situation at home grows more unbearable.

Amanda tries to make a deal with Tom. If Tom and Amanda can find a husband for Laura, a man who can take care of her, then Tom will be free of his responsibility to them. Amanda asks Tom to bring home gentlemen callers to meet Laura. Tom brings home Jim O' Connor a fellow employee who works at the warehouse. He is an outgoing and enthusiastic man on whom Laura had a terrible crush in high school. Jim chats with Laura, growing increasingly status, until he finally kisses her. Then he confesses that he has a fiancé and cannot meet again. For fragile Laura, the news is devastating.

Amanda is furious, and after leaves she accuses Tom of playing a cruel joke on them. Amanda and Tom have one final dispute, and not long afterward Tom leaves for good. In his closing monologue, he confesses that he cannot escape the memory of his sister. Though, he abandoned her years ago, Laura still haunts him. In a brief summary of the play, we find that the play mainly concerns with psychological aspects. Hence, a psychoanalytic approach is assessed to focus on in the play as following.

As earlier said the play "The Glass Menagerie" is a memory play where all memories occurs in the characters mind. The three characters, Amanda a mother of Laura and Tom are studied to reach the psychoanalytic approach in the play.

While examining the play, we find there is a struggle between ego, superego and id in each characters mind. Amanda a central character of the play has many several past cherished memories in her mind and when she wants to narrate the memories, she presents them in front of her children Laura and Tom. Laura next central character of the play has crippled body which broken her self-esteem, confidence and increased feeling of fear and depression. She failed to make contact with reality and created her own imaginary world where she likes a collection of glass menagerie. Tom narrator of the play works in the shoe warehouse as a family responsibility but he is not satisfied with the job. In his mind we always find negative feelings, depression, anger, anxieties feeling of low esteem while examining the play. The last character of the play is a photograph hanging on the wall is father of Laura and Tom who abandoned them some years ago and this causes negative feelings in each characters mind.

While examining the play we find Amanda always takes care of her children by guiding them. She does not like Tom's behaviour of addiction smoking cigarette which increases tension in her mind. She always wants that Laura should be stay fresh and pretty for the gentlemen callers due to her crippled body. But Laura always says her mother that due to her crippled body nobody will love and marry. Psychologically, Laura has a feeling of low esteem and wants to live alone in her world of glass animals happily. We also find the Amanda's past cherished memories in which she always tells her children about the seventeen gentlemen callers who were came to see on a same day to marry her. But among them she was attracted toward Mr. Wingfield happily and married with him who left Amanda and children to survive on their own responsibility. Amanda

always worries about Laura and wants a gentleman caller for her responsibility after having marriage. Also, She wants happiness of her son Tom so takes care by guiding him how to live the life.

In the happy conversation of Amanda and Laura for Laura's future life partner, we find Laura had a school friend Jim whom she likes since her school days. He would call her "Blue Rose". Her old memories and collection of her the glass menagerie are things to escape from the harsh reality of her life. After discussion on marriage of Laura with his mother Amanda, Tom invites Jim O' Conner to dinner as gentleman caller. When conversation begins between Laura and Jim O' Conner, she gets feeling of nervousness and low esteem but Jim O' Conner tried to remove her Inferiority complex and boosted her confidence. Both happily dances and remember past memories and finally Jim O' Conner kissed her, but after some time he reveals about his engagement with another pretty girl. Here, crippled Laura completely broken innerly on psychological level of mind. And when her mother knows the reality she scolds on both of Tom and Jim O' Conner. Finally, psychologically feelings of depression, low esteem, anxiety, tension, worries and fear came into existence in each characters mind.

Conclusion:

In the present research work an investigation is done to search out the psychoanalytical approach of Tennessee Williams' one of the best entitled play's "The Glass Menagerie". Various themes, plot and characters in the play are solely examined from the psychoanalytical point of view.

During the study of dramatical works of Tennessee Williams such as "The Glass Menagerie", we find the psychological variables and psychoanalysis of the characters to deal their inner conflict under psychoanalytical approach. Someone easily examines the inner conflicts, mental process interactions of the characters and depression on the psychological level in the play.

Works Cited:

1. Presely, Delma E. The Glass Menagerie: An American Memory. Boston: G.K. Hall 1990. Print Random house
2. Williams T. (1944) The Glass Menagerie New York:
3. Sparknotes.com. The Glass Menagerie
4. Myers. G. David Psychology Seventh Edition. New York. Worth Publishers, 2004



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Abstract:

Caste system is double edged sword. It cuts the weaker section of society from both sides. It is so mixed and absorbed with human blood. Every blood claims superiority over other. The water tight compartments have been made that largely breaks that custom or goes against caste system, he and his family gets declared as outcaste and dishonored by the so called controller of society. Such controllers are present in each and every caste with power. Dalits are born outcaste. But they too have such controllers or Jatpanchayats in them and do injustice with their own people. Sharankumar Limbale belongs to Mahar community. But being an illegitimate, he gets humiliated, insulted, pierced by his own people.

Key Words: Agony, Outcaste, Humiliation, Customs, Dalits etc.

1. Preliminaries:

Sharankumar Limbale is one of the great Dalit writers of India. His autobiography *The Outcaste* (2008) is the translation into English by Santosh Bhoomkar of Limbale's Marathi book *Akkarmashi* (1984). It is the story of his life from childhood to young age, dealing with the exploitations, humiliations by the high caste people. Being a Dalit, he has to face stark poverty and hunger. Hunger and poverty are born problems of Dalits. The agony which one experiences that person can only put the intensity of the problem in appropriate words. Like other Dalit autobiographies, it too makes the readers to listen their heart tormenting sobs, wails while living a life of outcastes. Dalits were outcaste, they had to live outside the village, were not allowed to live a normal human life. All types of atrocities were inflicted on them. As a human being to live a life of outcaste is always difficult and unbearable. But the writer-narrator has to live a double outcaste life. The main aim of this research paper is to record the agony he as a representative of all bastards has experienced as double outcaste in the present autobiography. His grandmother Santamai always tells him the stories of injustice done by so called high caste people. The narrator expresses his agony in apt words:

My agony was not limited to myself alone. Injustice done to me was not just today's phenomenon but had a long history. The roots of this injustice went deep into history, for many thousands of years. My agony was also the agony of Lord Buddha. I see the same agony even today but why isn't the Buddha in me aroused? [Limbale 2008: 79]

2) Sharankumar Limbale: Double Outcaste:

In the Author's Note, Sharankumar Limbale himself expresses his sorry that his own community "humiliated me, calling me 'akkarmashi'. This humiliation was like being stabbed over and over again. I have always lived with the burden of inferiority." [Ibid: x] The research scholar Sachin Bhume rightly points out the double burden of caste

on Limbale. He observes:

The caste tyranny colonizes one's mind. It tends to see everything from caste and discriminatory lenses. Sharankumar's fight was multi-folded. It was the fight to create his space in the society. On the one hand, he had to brawl with the humiliation inflicted by high and low castes and on the other hand, he had to fight with an invisible caste bias. [Bhume 2015: 290]

Right from the first page, the narrator tells the story of outcaste community with the burden on his head as an illegitimate or bastard child of a Patil. In fact, it is highly unbearable to live an outcaste life, but the narrator Limbale lives a double outcaste life. He does not get the love and affection of his biological Patil father and also does not get the same from his own people. The narrator describes the incident that once Shrimantanna asks him for fetching bidies for him. He refuses to bring bidies then Shrimantanna abuses him and says that he is alien, does not belong to this Maharwada. He then for a few days does not go to community hall in fear of abusing by Shrimantanna. "I am Alien. My father is not Mahar by caste. In the Maharwada I felt humiliated as I was considered a bastard: they called me akkarmashi. Yet in the village I was considered Mahar and teased as the offspring of one." [Limbale 2008: 62] Even his own sister Nagi says him, "You have no connection with us...Our fathers are not the same" [Ibid: 63] In this way, at every step of his life, his heart gets shattered into pieces, especially when the time comes of his admission in School and of his marriage. While narrating his burdened life, he compares himself with Karna, the great character from Indian epic Mahabharata. He too compares himself with another Mahabharatian character Jarasandh. His heart touching introspection on his own identity brings tears in the eyes:

My father and his forefathers were Lingayat. Therefore I am one too. My mother was Mahar. My



mother & father and forefathers were Mahar, hence I am also a Mahar. From the day I was born until today, I was brought by my grandfather Mahmood Dastagir Jamadar. My grandfather in the sense he lives with my grandmother, Santamma. Does this mean I am Muslim as well? Then why can't the Jamadar's affection claim me as Muslim? How can I be high caste when my mother is untouchable? If I am untouchable, what about my father who is high caste? I am like Jarasandh. Half of me belongs to the village, whereas the other half is excommunicated. Who am I? To whom is my umbilical cord connected?" [Ibid: 38-39]

2.1. His Admission in School:

Sharankumar Limbale, though is very child, he clearly reminds that heart tormenting incident of his admission in school. The headmaster Bhosale decides to register the name of little Limbale in school by seeing his interest in school. The headmaster asks his father's name. "The name of Hanmanta Limbale, Patil of Baslegaon, was added to my name in the school record." [Ibid: 45] When his biological father gets the news of adding his name as father, he and his relatives make a quarrel with the headmaster. Hanmanta Limbale also tries to bribe the headmaster. But the headmaster is a very upright man. He says boldly, "The mother of this boy will say who the father is, and I will register only that name in the record." [Ibid: 45] It makes clear that how becomes very difficult for a bastard to get a father's name. In fact, his biological has not to pay a single farthing on the boy's education. The fear is that this boy would claim the right on his property. So, he opposes to give his to the boy, though, he is the result of his rape on his mother.

2.2. His Marriage:

The most difficult time comes when becomes marriageable. Nobody from Mahar community is ready to give his or her daughter to the narrator. On the contrary, the narrator is the only qualified, young and handsome gentleman. The excuse is that he is bastard, his blood is impure. He gets rejected many times. That time he decides to remain unmarried. He expresses: "I was ashamed of this culture. I was terribly angry at its customs, but I was helpless. I had suffered the pain of insults. The thought of marriage was intolerable to me. The thought of selecting a girl as a match shocked me like acid thrown on me" [Ibid: 92]

As a young boy, the narrator falls in love with a Mahar girl Shewanta. He really wants to marry with her. His grandmother also gives her consent to the marriage. But she reminds the past episode of Rohidasmama, she dissuades young Limbale's mind by saying that: "The Mahars are a fierce people. They will cut you into pieces, and there will

be no one to care us. Our house has neither a wife, nor a female one to continue our lives. They will leave us alone with them. You'd better stop your affair with her." [Ibid: 27] The research scholar Mr. Sachin Shewanta very rightly comments on love affair of the narrator Shewanta as caste repercussion. He puts

The serious assault about his legitimate caste system. It not only constrained low castes from mixing together but also fenced them from expressing their sentiments. What kind of system it is which stops persons from loving others. It is the cruel repercussion of the caste system that it allows the low caste women for sexual trafficking but restricts low caste even from loving the girl of one's son. [Bhume 2015: 63]

Mallya is the friend of the narrator. The narrator visited many times to his grandmother Sanyasi. She was a girl for the narrator. The girl belongs to sweeper caste and is the niece of the sweeper named Janabai. She and along with his friend go to see the girl. But Janabai becomes angry and shouts loudly: "We haven't yet lost our respect. Our family is of pure blood so we also expect same of a bridegroom. Just anyone won't do for us. It does it matter however good the man is?" [Limbale 2015: 88] Even the parents of his intimate friend reject to give daughter on the same basis: "Mallya's parents had rejected the proposal because I was not of pure blood. These people love conventions more than they do human beings." [Ibid: 92] From this moment Limbale decides to marry with a hybrid type of girl like him. "The girl I married must be a hybrid like me to ensure a proper match. A bastard must always be matched with another bastard. No one else will marry their daughters to a bastard like me" [Ibid: 98]. It is not easy to find a hybrid girl. Finally Maryappa Karna a drunkard Z. P peon becomes ready to give his daughter to the narrator.

2.3. Limbale and Karna:

Every Indian very well knows the story of Kurukshetra Mahabharat. The narrator finds many similarities between Karna and himself. Karna though a great warrior and devotee had a heart tormenting troubles about his real race. He always had questions about his real mother and father. At the end of his life Lord Krishna and then his real mother Kunti tell him the truth. But the whole life he struggles to find the secret. The narrator well understands the questions. In other words, it is only narrator knows how he gets insulted, humiliated, tortured by the society for his illegitimacy. He has also a great anger against the society and culture which has given him such incurable wound. The narrator introduces Gangoobai, the close friend of



... She advised me to go to the law against my father... she exchanged her items for stale bhakaris and... When Gangoobai left I was quiet upset. I was... like Karna in the Mahabharata." [Ibid: 37]

3. Conclusion:

Like all Dalits, the narrator Limbale has to live a wretched life of outcaste but due to his illegitimacy makes the double outcast. It means that an extra burden gets loaded on his neck. Right from his childhood, he as per his bear... he drinks the poison of hatred by his own people, and even by his family members. The agony becomes more intensive when the narrator gets wounded by our own people. He feels stabbed, pierced and blooded. He thinks that they all are sailing in the same boat but do not recognize themselves. "Our eyes are blindfolded and we wander not... where, like Dhritarashtra and Gandhari or Karna or Duryodhan and Ashwathama. On the battlefield of life we fight our own fathers, uncles, sisters, brothers, mothers. We battle with ourselves as if we are our own enemies. All this is because we are controlled by caste." [Ibid: 91] In short, the narrator has more wrath against his own people who do play the same bloody game of caste superiority by which sharpness they have been cut and blooded by times immemorial.

References:

1. Bhume, Sachin. Malevolence of Caste Tyranny and Struggle for Central Locus: a Study of Selected Marathi Dalit Autobiographies into English Translation. Thesis. SRTMU Nanded, 2015, Shodganga www.inffibnet.com. Accessed 01 August 2020.

2. Gaikwad, Laxman The Branded Trans by P. A. Kolharkar from Marathi Autobiography New Delhi: Swastik Offset. 2005 Reprint (All page references are to this edition)
3. Jain, R.S. Dalit Autobiography. Ambedkar Ritu Prakashan 2006 Print
4. Kale, Kishore. Against All Odds Trans by Sandhya Pandey from Marathi Autobiography New Delhi: Penguin 2006 Print (All page references are to this edition)
5. Kulkarni, Harihar. Black Feminist Fiction. New Delhi: Creative Books. 1990
6. Morrison, Toni. The Bluest Eye. London: Vintage Books. 1999. (All page references are to this edition).
7. Kumar, Raj. Dalit Personal Narratives Reading Caste, Nation and Identity. New Delhi: Orient Blackswan, 2010. Print
8. Limbale, Sharankumar. The Outcaste. Trans. by Santoshi Bhoomkar from Marathi Autobiography. New Delhi: Oxford U. P. 2008 Reprint (All page references are to this edition)
9. Omvedt, Gail. Dalit Vision. New Delhi: Orient Blackswan, 2012. Print
10. Prasad, Amr Nath, Dalit Literature: A Critical Exploration. New Delhi: Sarup & Sons Publications, 2011. Print
11. Sharma, K. L. (ed). Caste and Class in India. Jaipur: Rawat Publications. 1994. Print
12. Surya, Anil. Ambedkariate Autobiographies: A Sociological Study. Pune: Sugrva Prakashan, 1996. Print
13. Thapar, Ramesh (ed). Tribe, Caste and Religion in India. Delhi: Macmillan, 1977. Print

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A Study of Moral Dilemma In Arthur Miller's "All My Sons"

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Abstract :

The most celebrated Pulitzer Prize winner American dramatist Arthur Miller was representative of the post war American literature. As a leading voice of American drama, his literally works acquired new dignity and gave birth to creative writings to change evils of contemporary American society during post-world war period. We find, social and personal issues in his entire literary writing. His popular plays such as All My Sons, Death of Salesman, The Crucible, A View from the Bridge etc. concern with the personal as well as social issues in the contemporary American society. The most significant play All My Sons (1947) is one of the world wide famous plays which studies how personal issues effect the social life of protagonist.

The play is a family tragedy which shows the relationship of human beings with society. As other plays, it is concerned with large personal issues rather than social issues. It is a play about the protagonist, Joe Keller who wants prosperity in business and high standard life for his family. For this he behaves morally wrong. It is a play where a brother wants to marry with his own brother's beau. It is also a play of cheating to own loyal friend for the sake of wealth and progress in business. The play entirely examines the internal conflict of the characters which birth stomoral dilemma. How should human beings behave in the society while fulfilling their personal duties is studied in the present research paper from the moral point of view.

Keywords:

Arthur Miller, morality, dilemma, social, personal issues etc.

Introduction :

Arthur Miller along with his literary contemporaries Tennessee Williams and Eugene O Neil was regarded as one of the most dominant and renowned American dramatists of the 20th century American literature. His literary career spanned near about sixty years. During his literary career, his achievements were recognized and understood by many readers, scholars and researchers across the world. He successfully handled all kinds of literary genres such as dramas, essays, screenplays, fictions and non-fictions. His first play "No Villain" won the A very Hop wood Award while he was in the university. His another plays such as All My Sons (1947) Death of Salesman (1949) The Crucible (1953) and A View from the Bridge (1955, revised 1956) are the most significant dramas on his credit.

Arthur Miller along with his literary contemporary Tennessee Williams concerns with the themes like evils in the society, the American dream, innocence, pride, betrayal, abandonment lies and deceit etc. The present research paper investigates the theme moral dilemma in the play "All My Sons" (1947).

The play explores several themes such as guilt and blame, familial responsibility, greedness, lies and deceits, wealth, inner conflict, morality etc. In the present research paper, an attempt is made out to find, how the incidents, story, plot, and characters are interwoven to study the major

aspect of moral dilemma. Internal conflict of each character births to moral dilemma is studied to solve their difficulties. The complexities of each character in the play is more focused by Arthur Miller. Before study the play from the moral point of view, it would be better to understand the concept of morality.

Morality:

Many philosophers, critics, researchers and scholars tried to study and define the morality. In general sense, "Morality concerns with human beings and how they behave to others in the world around them".

Morality derives from the Latin word 'Moralis' meaning customs or manners. In simple sense, we use the term to speak of people being moral to mean good or right.

Oxford dictionary defines the term as "The principle of distinction between good and bad or right and wrong" It also deals with a system of values or principles of human beings conduct. Mostly the term is used as a medium for correcting conducts of human beings in all critical consequences.

According to Roth morality is concerned with "beliefs, obligations, and the social norms which boost confidence to take correct decisions."

Duval, one of the prominent philosophers states morality as "belief and practises related to the notion of right conduct which is accepted or sanctioned according to



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the term morality refers moral conduct or conduct. It solely explores how our conduct is good or bad and morally right or wrong by evaluating through socially accepted norms.

A Study of Moral Dilemma in Arthur Miller's "All My Sons"

All My Sons is a three-act play by Arthur Miller which presents major themes such as familial responsibilities social responsibilities, loss and profit, memory, war, morality, wealth, guilt and blame, etc. He had grown up of through the period of depressions (1930), in which he experienced the bitter realities of American society. In his literary works, he revealed the evils of American culture.

In his prominent plays such as All My Sons, Death of a Salesman and the Crucible etc Miller presented contemporary American society in realistic manner. All My Sons (1947), first successful play deals with the basic theme of the relationship of person with a family as well as society that creates amoral dilemma. All My Sons as a social play deals with the theme of individual's dilemma to choose between personal interest and the larger interest of the society.

All My Sons is a play that depicts, how protagonist's guilt and responsibility not only become a matter for the individual but also have an important impact on the community or society in which he survives. In All My Sons through the character of Joe Keller, the chief protagonist, Miller introduces a realistic product of the economic system of contemporary American society. In this play Miller presents the conflicts and clash of morals between individual and the social environment. Miller observed the contrast between sacrifice and aggrandizement seemed both sharp and profoundly disturbing in his introduction to the "Collected Play" as: "When all public voices were announcing the arrival of that great day when industry and labour were at, my personal experience was daily demonstrating that beneath the slogans nothing had changed." The play was thus "an unveiling of what I believed everybody knew but nobody publicly said."

Miller's notable play All My Sons concerns with the story of protagonist Joe Keller, a successful manufacturer of aircraft engines who with his loyal friend Steve shipped defective cylinder heads of airplane motor to the U.S Army Air Force in World War II. Because of defective parts, twenty one American pilots were killed in plane crash in Austria. Joe does not feel anything about this incident for personal profit. He only wants the progress of his family and development in business. For this he never behaves morally and commits many crimes. During the investing of the defective cylinder heads of airplane motor, he lies to the investigating authorities that he was unknown of

the supplying of the defective cylinder heads. According to him his business partner Steve who was responsible for the tragic death of the 21 pilots.

Miller's "All My Sons" presents contemporary American economical system where we find conflict between personal notions of well being and social responsibility. In the play the protagonist Joe whatever did wrong, he did for the sake of wealth and stability in his business. While understanding the character of Joe, we find there is no value to his moral and social norms in the personal and social life. He is described by Christopher Bigs by in the introduction to the Penguin Classic Edition of All My Sons: "heavy man of stolid mind and build," a businessman who bears the imprint of " machine worker and the boss"; "when he reads, when he speaks, when he listens, it is with the terrible concentration of the uneducated man for whom there is still wonder in many commonly known things, a man whose judgment must be dredged out of experience and a peasant-like commonsense."

When we examine his character, we find he always pretends to be innocent, but he is the symbol of greed and betrayal in the society for the sake of wealth and in business. As earlier pointed out, he did many wrong things for prosperity and well being of his family and business. When the family knows his crimes, they want to send him in the prison. The tragedy arises out of the character of Chris and Larry. Chris angers when knows about the crimes committed by his own respectable father. The following conversation shows the killing emotions in the heart of Chris:

KELLER : I was afraid maybe....

CHRIS : You were afraid maybe! God in heaven, what kind of a man are you? Kids were hanging in the air by those heads, You knew that !

KELLER : For you, a business for you !

CHRIS (with burning fury) : For me ! Where do you live, where have you come from ? For Me !— I was dying every day and you were killing my boys and you did it for me ? What the hell do you think I was thinking of, the Goddam business ? Is that as far as your mind can see, the business? What the hell do you mean, you did it for me ? Don't you have a country ? Don't you live in the world ? What the hell are you ? You're not even an animal, no animal kills his own, what are you?

Both Larry and Chris, whom Joe loves more than the entire universe, become the medium of his own doom. Larry, Joe's elder son, commits suicide when he knows about his father's crime.

Through the character of Larry, we find that morality is more important than wealth. His father Joe committed crimes for the sake of wealth and progress of family but Larry and his family do not want this kind of wealth and progress. Hence, moral dilemma takes place which results in



Larry's suicide. His brother Chris horrifies when he knows the bitter reality that the real criminal in supplying defective material to the Army Air Force was his own father not Steve Deever. After knowing the black truth of his father's crime, he thinks morally and asks his mother Kate Keller to send him in the prison to take revenge of the suicide of Larry and the tragic death of innocent 21 pilots. In the conversation with Chris Joe justifies that he did wrong actions for better life of our family. He confesses his sinful crime to Chris and says, I did it for only you and our family.

Joe's both sons were moral and aware with familial as well as social responsibility. So both of them do not accept his anti-social act that births moral dilemma in the family. While study the play, we find that Larry commits suicide and Chris neglects father completely. The conversation shows that Chris wants his father should accept the crime and should go in the jail:

CHRIS : It's not what I want to do. It's what you want to do.

KELLER : What should I want to do ? (CHRIS is silent.) Jail ? You want me to go to jail ? If you want me to go, say so ! Is that where I belong ? -- then tell me so !

Miller presents the idea that we cannot live without society for the well- being of our family. But Joe does this and he isolates himself from the society. Through his character, plot and story Miller wants to say that we should behave morally in the family and society. In "All My Sons" Miller has highlighted the aspects of morality in very detail manner.

An extreme love of Joe's with the sons Larry and Chris presents his only aim to provide enough money and a bright future to the family. For Joe a good father means to provide financial stability in the family and growing a business. For this, he performs several crimes. In the final conversation, Joe tells Chris, that he committed these crimes only for him. Here, Joe reminds his duty as a father but he totally ignores his responsibility as a responsible citizen. But when in the conversation Joe understands his mistake, he commits suicide by pulling gunshot on himself.

In the play "All My Sons" miller wants to admit that man cannot break social norms for the sake of money and business. It as a social play that explores the theme that man needs society to survive. In this play Joe did wrongs things to gain prosperity and stability in business. He creates a morally right world of illusion. In this world of Joe, there is no place for social rules, norms and social responsibility. The fact of the death of his own pilot son Larry changes him. He takes a moral standpoint and kills himself by gunshot.

In All My Sons, Joe performs role as a father whose limitations are only centered on his family; whatever he does

is inspired by a deep concern for his family and business. In this play, Miller puts light on the particular conditions of modern life of American society. In the American society, governing laws never matters for the success. Joe Keller, the product here of the same society. To progress in business was the main purpose of Joe. In order to develop business, he neglects morality and social responsibility and does an anti-social act for the sake of his business and family's fact, Joe had to play his role as a responsible person on the family on the one hand as a responsible citizen on the other hand. But he ignores his role to perform as a responsible citizen.

At the end of the play when he realizes that his sons think social norms are bigger than family. But Joe never follows social norms and commits crimes so finally Chris call him an animal and says that they do not want to live with him in the dirty world. As earlier said, he finally kills by putting gunshot on himself. Hence, Arthur Miller exposes the value of morality in family as well as social life.

Conclusion :

Arthur Miller was always considered social dramatist but many of his dramas were concerned with moral views also. During his life span, he faced familial as well as social problems which created moral dilemma. Social norms, social responsibilities, familial responsibilities, moral etc. as a citizen, value of culture etc. aspects were studied in his entire literary works. In the present research paper an investigation is made to study the moral dilemma in Arthur Miller's one of the world wide famous dramas "All My Sons (1947)"

It is searched out in the play that human being should perform his role morally in the society. Through the character Joe, Miller wants to put the idea that only family is nothing entire world but something is beyond it and that is social obligations. The present play "All My Sons" is entirely assessed and studied from the moral dilemma point of view.

References :

1. Miller, Arthur. All My Sons. New Delhi Penguin,2001
2. Miller, Arthur, Collected Plays, London: Cress Press, 1985
3. Rodane, Matthew. Conversation With Arthur Miller. London: Jackson,1987
4. Miller, Arthur. Death of a salesman, The Crucible, All My Sons, A Memory of Two Mondays, A View from the Bridge. London Methuren Publishing Ltd,1988
5. <https://www.gradsaver.com>
6. <https://www.litchoarts.com>

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Dr. Sunil Ganpat Baviskar



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Abstract :

Mother is a 'Second God' in every child's life. A number of poems, stories, essays and novels have been written all over the world to describe the essence and place of mother. The Marathi saint Ramdas Swami writes that though man is a master of three worlds, he is beggar sans mother. The love of mother is always same if she is rich or poor, if she is even or maid, if she is saint or prostitute. A mother from well-to-do family, of course, tenderly and lovingly takes care of her children. In addition, she also becomes 'other mother' and takes care of other women's children, who are in need of motherly affection. Kishore Shantabai Kale, the dalit activist and writer, who writes the name of his mother in the place of father. It also shows the place of Shantabai in the writer's life. Though, it is the custom of the Kolhati community, the children use the name of their mothers in place of fathers. Shantabai was a tamasha woman. She had to dance on the stage, had to marry and remarry with three different rich men. She had two sons from two different husbands. She did all those things in order to run the house of her father and brothers. But at the same time she proved herself as good and loving in spite of her all helplessness due to the adverse situations in life. There were other Kolhati women like Jiji, Mana aji, Sakeela maushi, Rambha maushi, Nagin maushi etc; they too proved as good other and personal mothers as well.

Key Words: Mother, Good Mother, Kolhati Community, Tamasha dancer, Other Mother

Preliminaries:

Kishore Shantabai Kale was the greatest dalit writer of Marathi literature. He was also a poet, novelist and playwright. His Kolhtyache Por (1994) which was later translated into English entitled Against All Odds (2000) by Sandhya Pande, played havoc in Marathi Literature. He then wrote second part of his autobiography Me Doctor Zhalo. His autobiography made his famous overnight. Kishore Kale and his mother Shantabai are the representatives of all Kolhati community. Kale stands for children, to whom what type of brutal treatment has been given for being an illegitimate child of Tamasha dancer. His mother along with his aunts, great aunts and grandmothers represent all Kolhati women who get thrice jeopardized in the hands of people inside and outside the house. Like African American women, they are too marginalized, subjugated and oppressed right from their birth to death. The book records their heart rendering sobs, cries and wails from first page to the last.

The aim of this research paper is to present how did in such adverse condition the Kolhati women play the role of mothers and proved as an incarnation of maternal archetype as described by the great psychologist C. G. Jung. The symbolic approach of C.G.Jung in order to describe the various manifestations of mother figure depicted in the present autobiographical work of Kale. Jung has discovered a number of archetypes. He defines an archetype as, "a universal and recurring image, pattern, or motif representing a typical human experience" [Jung 1967: 81]. Mother Archetype encompasses the personal mother, grandmother, step-mother, mother-in-law, nurses, surrogate mother, governess and even goddess. He further discusses 'positive' and 'negative' representations of mother Archetype that

is also known as the 'loving' and 'terrible' mother. They are associated with things and places standing for fertility and fruitlessness. It has three forms: the good, the terrible and the good-bad mother. While discussing the positive qualities, he writes:

Maternal solicitude and sympathy; the magic authority of the female; the wisdom and spiritual exaltation that transcend reason; any helpful instinct or impulse; all that is benign, all that cherishes and sustains, that fosters growth and fertility. The place of magical transformation and rebirth...are presided over by the mother [Ibid: 82].

For the negative qualities, he suggests the list: "anything secret, hidden, dark; the abyss, the world of the dead, anything that devours, seduces, and poisons, that is terrifying and inescapable similar like fate" [Ibid].

Shantabai: A Loving but Helpless Mother:

As pointed earlier, Shantabai was the voice of all Kolhati women, who had to earn money by either dancing or selling her body or becoming a keep of any rich man for running the house of her father and brothers. Her father Kondiba played a role of destroyer. R.S. Jain aptly describes the brutality of the Kolhati community: "Girls born in Kolhati community were treated as a public property for entertainment and sexual appeasement by the male in the society Their parents looked at them as unfailing source of Income" [Jain 2006: 57]. The life of Shantabai was full of stormy. She was the great victim of the brutal and inhuman customs of the Kolhati community. Her father Kondiba Kolhati was fully responsible for the tragic and sorrowful life she had lived. Her dream of becoming school teacher was cruelly broken. She lost the chance of getting married



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with government officer due to again selfishness of her father. In fact, she had no interest in tamasha life. But she had to rejoin tamasha at regular intervals. Three rich persons one after another entered in her life as husbands. Shantabai remained very loyal to every husband to their respective time period in her life. She had a child named Kishore from her first husband MLA Namdeorao Jagtap who abandoned her because her father was not ready to send Shantabai to his house. She again started her old life of tamasha dancer. Her two months child cried and cried for his mother when she was on the stage. The whole scene narrates the story of her helplessness. She had no time even for breast feeding to her son Kishore:

All night she (Shantabai) was on stage singing and dancing... A tamasha dancer has no time for her own children. Bai often had no time even to breast-feed me... When I was very hungry, Bai suckled me for a few minutes before she went on stage. But often that wasn't enough for a growing baby and I cried piteously with hunger. My wails could be heard all over the hall. Bai would rush back from the stage and try to feed me quickly, so that I stopped crying. But there was never enough time to assuage my hunger as the spectators would start shouting with impatience. If she didn't get back on stage they would pelt stones at the musicians and other dancers [Kale 2000: 18]

This shows Shantabai was helpless mother. As her life continued, another person entered in her life. Dharurkar was a rich but a great drunkard. She delivered a child for him too. But he died and left alone her with no means of survival. Again she had to rejoin the tamasha party. She was totally fatigued with humiliating and oppressed life of a stage dancer and singer. She then eloped with Mr. Krushnarao Wadkar alias Nana. From this point, there started the real test of Shantabai as a mother of two children from two different men and living now with third lover.

Shantabai had two sons. Kishore (six years old) was from her first husband MLA Jagtap. Another son Deepak (three years old) was from her second husband Dharurkar. She was now living with her third husband Nana. Both of her sons were at Nerla with their grandparents. At the time of marriage of her brother Popat, she was expected to come to attend marriage and meet her sons. But she could not: "Bai had no choice. She pined for her sons, but remained duty bound to her husband" [Ibid: 43]. On Susheela maushi's insistence, Jiji took both the children to Sonpeth where Shantabai was living with her husband. The autobiographer narrates that episode in following way:

...found Bai (Shantabai) ill in bed with high fever... When she saw us, her face lit up and she tried to sit up... The very next day morning after we reached there, she woke up with her fever completely

gone. She bathed us and dressed us up and cooked all kinds of things for us to eat. She was like a cow when returns home at sundown to its calf and lovingly licks it and feeds it [Ibid: 44-45]

That loving mother planned to separate her son Kishore from her because her husband was not ready to keep him in his house. The helpless mother told to her son: "Nana will beat you Kishore. When you are older, you come here" [Ibid: 45].

Shantabai then after seven years came back to meet her parents and son. "Then, Bai stepped inside and pulled me to her and hugged me with tears flowing down her cheeks... She dressed me in them and oiled and combed my hair" [Ibid: 80]. When her one time classmate Gurusurji asked her questions regarding Kishore, Bai remained silent:

*Shanta, what shall I say to you? Said Gurusurji
You have abandoned this child and ruined his life
Don't you have a mother's heart?*

Bai's eyes filled with tears and had nothing to say to this, but Gurusurji saw her helplessness [Ibid: 80]

Shantabai wanted to live with her both sons. After ten days she received the letter of her husband for coming back to Sonpeth. She started crying at the thought of separating from her elder son. It became very difficult to her to leave for Sonpeth leaving behind her ailing son. She was totally helpless. She knew if she left the husband for the son, her father and brothers again would send to tamasha party. She also knew that how horrible and terrible was the life of a tamasha dancer.

The present book is an autobiography of Kishore Kale. He is the narrator. The whole story of his life along with his mother's life is told through his lenses. Kishore at the time blamed his mother that she was not ready to keep him with her. But when he took admission in eight class and started to live with Bai, he understood that it was his own father who was not a good man. Though, he married Bai and while having legitimate wife and children, he continued to go to other tamasha dancers and spend money on them. On the other hand, Shantabai was very loyal to him. Kishore had many complaints against his mother regarding his love for him, but he got answers and realized the love and helplessness of his mother for him:

I could understand my mother's feelings. She felt uncertain and insecure and afraid that she would be abandoned. She was in the grip of such sorrow and despair that she spent all her time in prayers, oblivious to anything else in the house [Ibid: 123]

So for as the life of Shantabai is concerned as a legitimate woman and illegitimate wife of one person to other, it becomes very difficult to say that she was a bad or negative





mother. She had a loving heart to love her children. Her heart cried day and night for her sons. She wanted to take care of them, but to whom she was living he was not the real father of her both the children. In spite of it, she showered as much love possible on her sons. Thus, she is good mother with all her helplessness:

Maternal solicitude and sympathy; the magic authority of the female; the wisdom and spiritual elevation that transcend reason; any helpful instinct or impulse: all that is benign, all that cherishes and sustains, that fosters growth and fertility. The place of magical transformation and rebirth... are presided over by the mother [Jung 1967: 82].

Jiji or Tarabai: A Good Other Mother:

At the outset of the book, the story of Tarabai is narrated. Kondiba, her step brother and bloody customs of Kolhati community created a storm in life of Jiji. She was pretty, with a fair complexion and a straight nose. Years of training had made her a graceful dancer and a competent acrobat" [Kale: 5]. Madhavrao Patil fell in love with her while seeing her dance at tamasha show. Kondiba, being a greedy dog, did the ceremony of 'chira utarna' of her sister with Madhavrao Patil and earned good money and land. The critic R. S. Jain rightly attacked on the tradition:

Height of the entire episode was that parents and others of the family guarded the doors shamelessly and waited for the pair to come out. So that they could extract handsome amount from her paramour [Jain 2006: 58].

When Jiji was a mistress of Mr. Patil, Kondiba was obedient servant of her. But just after the death of Madhavrao Patil, she was thrown in the corner. She was assigned "to guard the crops" [Kale: 8]. Being a childless, she has no options.

Though Jiji was childless, she showered great motherly love on Kishore and all her younger step sisters. Jiji was great solace and comfort for Kishore whenever he was beaten by grandparents and uncles. When Kishore was five months old, Jiji accompanied his mother to tamasha party at Dhebegaon. She "now not only looked after me but also kept a close watch on the men who approached Bai" [Ibid: 19]. She saved Bai from molestation by a drunkard and abused that man: "You bastard, you pimp! She's a dancer, not a whore. Her dance is an art. Do you understand?" [Ibid: 19]. Even in Sangali, Jiji saved Bai from being kidnapped by a landowner and dada of the town. It was Jiji who bought slate and chalks for Kishore for starting his schooling. When she had to go tamasha party as guardian of dancing girls and the nurse of their children, Kishore missed her very much. "She used to help me in the chores and often gave me money to buy myself candies or other goodies" [Ibid: 48]. Kishore was also in opinion that Jiji loved him like her own son:

"Jiji had looked after me since I was three years old and she loved me like her own son. I now slept close to her at night. Susheela maushi's presence reminded me constantly of my mother. I wished I had wings and could fly to Sonapeth and see Bai" [Ibid: 72].

Jiji was a good other mother. She was a guardian of fields and nurse of all the children including Kishore. "Other mother is a woman caring for children who are not biologically her own" (<http://othermother.co.tv> (14.07.2020)).

Mana and Rest Other Mothers:

Mana aji, Susheela maushi, Rambha maushi, Nagin maushi etc are good other mothers. Mana aji was the wife of Kondiba ajoba's cousin brother. She was a good other mother. She was always ready to help Kishore. Kishore himself narrates: "Whenever I visited her she would feed me milk and ghee and talk to me lovingly" [Kale: 88]. Throughout Kishore's stay at Nerla, like Jiji, Mana Aji was the great source of comfort and solace. She gave him money for books, provided food and treated his wounds at many times.

Susheela maushi was one more important other mother who had taken care of Kishore and provided all the possible help to him. She too had given money to Kishore for books and dress. Many times Kishore felt that Susheela was his mother.

Though, Nagin maushi was not his real aunt, but she too loved him very much. Like Susheela, she always gave him shelter, money and love which Kishore lacked.

Conclusion:

The Marathi dalit writer Kishore Kale's *Against All Odds* (2006) is an autobiography. The whole story is narrated through the angle of narrator-writer. The book tells the heart touching and heart rendering realistic story of the life of the Kolhati children and tamasha dancer girls. Kolhati girls, as the customs of the community, are the source of money. They are compelled to dance or to become mistress of any rich person to run the house of their fathers and brothers. The tamasha girls portrayed in this book are too victims of that inhuman and brutal customs of Kolhati community. Shantabai, the mother of the writer and all his aunts, great aunts are all tamasha girls. They have their own children from different men. The life they live is of thrice jeopardized. They do not have the time for their children. In such adverse situation, they, like African American Black Mothers, prove as good and loving mothers. In fact, it is really difficult to take care and give comfort to them. But they do that by taking the risk of their lives. The only thing shocks that how they shed tears day and night and bring up their children. They are helpless, have no money, dependant either on their fathers or brothers or the illegal husbands. Throughout their lives they are marginalized, oppressed and



साहित्य, कला आणि लोकसंस्कृतीला वाहिलेले त्रैमासिक

तिफण

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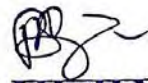
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• संपादक •

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व विज्ञान महाविद्यालय,
कुसुंबा-४२४३०२, ता. जि. धुळे

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तिफण

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लोककवी डॉ. विठ्ठल वाघ विशेषांक

वर्ष ११ वे, अंक - ४था, जानेवारी ते मार्च २०२१

● संपादक ●

डॉ. शिवाजी हुसे

● अतिथी संपादक ●

डॉ. अनिता खंडागळे

● संपादक मंडळ ●

डॉ. सर्जेराव जिगे
डॉ. फुला बागूल
डॉ. अनिल गर्जे
डॉ. संजय भालेराव

डॉ. ताहेर पठाण
डॉ. वंदना महाजन
डॉ. प्रकाश खेत्री

डॉ. ममता इंगोले
डॉ. वामन जाधव
डॉ. यशवंत सोनुने
डॉ. रामचंद्र झाडे

मूल्य : १७५ रुपये

या अंकातील लेखकांच्या मताशी संपादक सहमत असतीलच असे नाही. या नियतकालिकास महाराष्ट्र राज्य साहित्य आणि संस्कृती मंडळाकडून अनुदान प्राप्त झाले आहे. परंतु या नियतकालिकात प्रसिद्ध झालेली मते मंडळास मान्य असतीलच असे नाही.

पत्ता : संपादक, तिफण, 'शिवार', श्रीराम कॉलनी, हिवरखेडा रोड, कन्नड,
जि. औरंगाबाद - ४३११०३, मो. ९४०४०००३९८

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लोककवी विठ्ठल
वाघ विशेषांक



काया मातीत मातीत तिफन
चालते तिफन चालते...
ईज नाचते थयथय ढग ढोल
वाजवते...
नंदी बैलाच्या जोडीले
सदाशिव हाकलते,
वटी बांधून पोटाळें पारबती
उनारते...

- विठ्ठल वाघ



ढीं ला घा ना ट
ढीं ला आ ना ट
ढीं ला ना ट टा
ढा ना ढीं हि षीं
- विठ्ठल वाघ

विठ्ठल वाघ यांच्या कवितांमधील
कृषिविषयक जाणिव



डॉ. जितेंद्र शामसिंग गिरासे

कवी विठ्ठल वाघ यांचे जीवन ग्रामीण भागात व्यतीत झाल्यामुळे तेथील सभोवताल, कृषिजीवन, शेतकरी, शेतमजूर या सर्वांच्या जगण्याचा वेध त्यांनी आपल्या कवितेत घेतला आहे. यामुळेच त्यांच्या भागातील काव्यरसिकाला वाघ यांची कविता स्वतःची व जवळची वाटते. कृषिजीवनाचे वास्तव चित्रण हा त्यांच्या कवितेचा केंद्रबिंदू आहे. माणसाचे मातीशी असलेले अतूट नाते, त्यातील जिवंतपणा शेतकऱ्यांच्या जगण्यातील अकृत्रिमता, लोकजीवनाचे तरल कलात्मक आविष्करण त्यांच्या प्रत्येक कृषिविषयक कवितेत ठायीठायी लक्षात येते. त्यांच्या 'काया मातीत मातीत', 'कपाशीची चंद्रफुले', 'पंढरीच्या वाटेवर', 'पाऊसपाणी', 'वृषभसूक्त' या काव्यसंग्रहांतील कवितेत कृषिजीवनाशी निगडित संस्कृतीचे, अनुभवाचे दर्शन घडते.

उपरोक्त त्यांच्या काव्यसंग्रहातील कवितेतील सामाजिक जाणीव, तेथील खेडे, कृषिजीवन, जनजीवनाचे सुखदुःख, दारिद्र्य, रूढी परंपरा, वास्तवतेला अनुसरून आत्मकेंद्री ग्रामीण नेतृत्व, शेतकरी चळवळ ग्रामीण स्त्री-पुरुषांचे प्रेमानुभव, ग्रामीण स्त्रीचे जीवन जाणिव कवितांच्या केंद्रस्थानी लक्षात येतात. याचा शोध घेण्याचा प्रयत्न प्रस्तुत शोधनिबंधात केला आहे. ग्रामीण जीवनाचे अविभाज्य अंग असलेल्या शेती, पेरणी, बैल, शेतकरी, त्यांचे सुखदुःख, काबाडकष्ट ही सारी कृषिनिष्ठ विविधता कृषिविषयक कवितांमधून अभिव्यक्त झाली आहे.

विठ्ठल वाघ यांच्या 'काया मातीत मातीत' या काव्यसंग्रहातील एकूण कविता कृषी आणि कृषकांप्रमाणे

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सर्जनशील धाटणीची कविता आहे. यातील तिफन, वावर, पन्हाटी, पानी, ढगामुचूक अभाय इ. कवितांमधून कृषिविषयक जीवनानुभवाचे अतिशय प्रत्ययकारी दर्शन त्यांनी घडविले आहे. त्यांच्या कृषिविषयक भावानुभवाने त्यांच्या कृषिरचनातील आशय निश्चितच नव्हे तर विस्तारितही झाल्याने त्यांच्या कवितेला सकस साहित्यमूल्य प्राप्त झाले आहे. विठ्ठल वाघ यांनी 'तिफन' या कवितेत शेतकरी जीवनाचे चित्रण केले आहे. एकूण विश्व ही एक शेती आहे. या शेतीत परमेश्वर आपल्या मायेच्या साहाय्याने पेरणी करतो आहे, जगाची निर्मिती करतो आहे. ही कल्पना लौकिक कृषक आणि कृषकपत्नी अलौकिक पातळीवरचे अर्थात शिवपार्वती या जोडीच्या मिथकातून मातीशी माणसाचा असलेला आदिम ऋणानुबंध व्यक्त करणारी आहे. 'तिफन' हे पेरणीचे अवजार असते. पाऊस पडून शेतात मातीला वाफ आली की मग शेतकरी पेरणी करतो. तेव्हा काळ्या मातीत तिफण फिरू लागते तेव्हा कवी म्हणतो -

“नंदी बैलाच्या जोडीले सदाशिव हकालते,
वटी बांधून पोटाले पारबती उनारते ” (पृ. १)

येथे कवी वाघ यांनी शंकर-पार्वती, सदाशिव-पारबती अशी 'पुरुष' आणि 'स्त्री' चे प्रतिनिधित्व करणारी जोडी या रूपकातून साकारलेली आहे. आणि शेतकरी आणि त्याची पत्नी कारभारीण यांचे चित्र रसिकांसमोर उभे केले आहे.

विठ्ठल वाघ यांच्या 'वावर' या कवितेत शेताची रूपकात्मक थोरवी आणि माहात्म्य याचे वर्णन केले आहे. विठ्ठल आणि त्याची भक्ती याचे साग्ररूपक सदृश्य उपयोजन कवितेत केले आहे. यात पंढरी आणि विठोबा यांच्याशी शेतीचे रूपक योजिले आहे. यात वावर म्हणजे पंढरी, पिकाची पाने म्हणजे विठोबाची झेंडी, अबीराचा टीका म्हणजे काळ्या मातीचा टीका, चंद्रभागेची आंघोळ म्हणजे मोटेखालची आंघोळ, त्याचप्रमाणे सावता माळी या संताच्या गाथांमधून विठ्ठलाचे गीत स्फुरते. यातील पांडुरंगाचा अष्टगंध म्हणजे शेतात आलेलं सूर्यफूल, तुकड्याच्या चिपळ्या म्हणजे चिंचेचे घड, शेतातला आंबा आणि त्याच्या सभोवतालची कणसं म्हणजे गाडगेबाबांच्या कीर्तनात डोलणारी माणसं होतात. काळी माती म्हणजे आईचं रूप मात्र जसं मुलाचं भरणपोषण करते तसेच शेती माणसाचं भरण पोषण करते. असे रूपक याठिकाणी योजिले आहे.

“काया माती पोटी कोंब टरारून वर आले
सावत्याच्या गाथेतून गीत इटूचे फुलले”

(का. मा. मा. पृ. २)

विठ्ठल वाघ यांच्या बहुतांश कविता या शेतकऱ्यांच्या मनोगताशी, मनोरथांशी सरळ-सरळ बांधिलकी सांगणाऱ्या वाटतात. शेतकऱ्यांच्या कष्टाचं, उपेक्षेचं, दीनवाणी क्रांतीचं प्रतिबिंब त्यांच्या 'तिसरा डोया' कवितेतून प्रतिबिंबित झालं आहे. येथे बैलाची व्यथा आणि

बैलप्रमाणे राबणाच्या शेतकऱ्याचे दुःख कवीच्या संवेदनशील मनाला भेडसावणारे आहे. येथे तिसरा डोळा म्हणजे शंकराचं प्रतीक आहे. शेतकऱ्याची दैनावस्था खालील ओवीतून प्रकट होताना दिसते.

“आमी जलमलो मातीत, किती होणार गा माती?
खापराच्या दिव्यात या कधी पेटणार वाती?”

(का. मा. मा. पृ. २८)



प्रस्तुत रचनेतून शेतकऱ्याची व्यथा व क्रांतीचे सूचन प्रकट होताना दिसते.

डॉ. मधुकर वाकोडे हे वाघ यांच्या चिंतन कवितेबाबतीत म्हणतात, “वाघ हे ग्रामीण कवी आहेत. ग्राम आणि ग्रामीण लोक हे त्यांच्या चिंतेचे आणि कृषी हा त्यांच्या चिंतनाचा विषय आहे. उजाड होऊ पाहणारे गाव उद्ध्वस्त होणारे शेतकरी यांच्यासंबंधी त्यांना खूप खोलवर असलेली आस्था असल्याने त्यांची त्यांना चिंता वाटणे स्वाभाविक आहे. आणि या चिंतेतूनच ते कृषीचे चिंतन करतात.”^१ वाकोडे यांच्या विधानातून वाघ यांच्या कृषिविषयक जीवनाविषयी व शेतकऱ्यांच्या व्यथेविषयीच चिंतनशीलता सूचित होताना दिसते.

गेल्या २५ वर्षांपूर्वी जी स्थिती होती तीच स्थिती आजच्या २१व्या शतकाच्या वाटचालीत दिसून येत आहे. स्वातंत्र्योत्तर काळात सर्वाधिक भरडून निघालेला शेतकरी वर्ग आणि शेतकरी चळवळ याविषयीच्या समकालाचे भान कवीने चित्रित केले आहे. त्यावेळी देखील शेतकरी काबाडकष्ट करून त्यांच्या शेतमालाला भाव मिळत नव्हता. त्याकाळीही महागडे बियाणे, आकाशाला भिडणारे किटनाशकांचे, खतांचे भाव आणि उत्पादित मालास योग्य भाव न मिळाल्याने शेतकरी कसा डबघायीस जातो याविषयीची वास्तव जाणीव त्यांनी आपल्या कवितेत अधोरेखित केली आहे. अशी वाघांची कविता परिस्थिती शरणतेपेक्षा प्रचलित चौकट मोडण्यासाठी हाक देताना दिसते.

‘दूर सालचं मरण असं किती मरणार?’ त्यामुळे त्यांच्या काही कविता शेतकरी चळवळीचे स्फूर्तीस्थान ठरतात. येथे समाजाभिमुख कवीच समस्याग्रस्तांच्या वेदनांनी विव्दलिताना दिसतो. न परवडणाऱ्या शेतीमुळे कुटुंबाची ससेहोलपट झाल्याने यवतमाळ जिल्ह्यातील चिलगव्हाणच्या साहेबराव पाटील नावाच्या कास्तकाराने १९ मार्च १९८६ साली कुटुंबासह दत्तपूर गावी हौतात्म्य पत्करल्याच्या घटनेची नोंद कवीने घेतली आहे. अशावेळी कवी म्हणतात -

“आग उरात पेटते होते जीवापार ताप
आसवांचा जीव देते दोही डोयातून शाप”

अशा या शापाचे धनी आहेत आजची पुतना मावशीच्या रूपाने आलेली लोकशाही आणि भस्मासुरी नोकरशाही या शब्दात कवीने वास्तव व्यवस्थेचा समाचार घेतला आहे.

विठ्ठल वाघ यांच्या आजवरच्या एकंदर कवितांपैकी लक्षात राहाव्यात अशा कविता

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म्हणजे 'तिफन', 'मेंढरं', 'म्हैस', 'आक्के', 'खापराचे दिवे', 'साहेबराव पाटील', 'ढगासुधुक आभाय' आणि 'पिपय'. डॉ. सुभाष सावरकर यांनी विठ्ठल वाघ यांच्या 'तिफन' कवितेविषयी गौरवोद्गार काढले आहेत. ते म्हणतात, " 'तिफन' ही कष्ट, कारुण्य आणि सृष्टिसान्निध्यातील निसर्गमानव एकात्मता यांच्या एकत्रित रसायनाची प्रचिती देणारी एक उत्कृष्ट गीतकविता आहे."२ सावरकर यांच्या मनातून वाघ यांच्या 'तिफन' या प्रतीकाभोवती ग्रामजीवनसंबद्ध झाल्याचे सूचित होते.

'कपाशीची चंद्रफुले' या काव्यसंग्रहातील कविता शेतकरी आणि त्याच्या भोवतीचा परिसर, गणगोत, शेतमजूर या घटकांशी नाते सांगणाऱ्या आहेत. शेतकऱ्यांच्या आणि संपूर्ण मानवाच्या जीवनात कापसाला किती अनन्यसाधारण महत्त्व आहे हे अधोरेखित झाले आहे. निसर्गातील ऊन, वारा, पाऊस, आभाळ, ढग, पशूपक्षी यांनाही तो कापूस आपल्यात सामावून घेणारा आहे. या काव्यसंग्रहातील सर्व कविता केवळ कपाशीच्या पिकावर लिहिण्याचा आगळावेगळा प्रयोग कवीने सिद्ध करून दाखविला आहे. यातील 'दीपावली', 'अवतार', 'वैभव', 'धूप', 'दंगा', 'लुगडं', 'स्वप्न', 'अंबर', 'कदर', 'चोरी', 'सरकी', 'दान', 'पाऊस' आणि 'कापूस', 'समर्पण', 'गलका', 'आनंद', 'वाती', 'लक्ष्मी', 'उजेड', 'ग्राख' इत्यादी कवितांमधून कृषीविषयक जीवनाचे वास्तवचित्रण कवी विठ्ठल वाघ यांनी रेखाटले आहे. या कृषिजीवनातील अपार कष्ट, श्रमाचा मोबदला, पिढ्यान्पिढ्यांपासून त्यांची होणारी परवड, त्याचे सुखदुःख, आनंद या भावानुभवाचा परिघ कवितेत शब्दांकित केला आहे.

'दीपावली' कवितेत कापूस विकून आल्यानंतर शेतकऱ्याला झालेला आनंद. यामुळे दिवाळी कशी चैतन्यमय जात असते याची अनुभूती कवीने सांगितली आहे.

"सकाळचे हसू फुटे काळ्या जमिनीच्या ओठी
 कपाशीची दीपावली जशी अवसेच्या पोटी"

(क. चं. पृ. १३)

कधी कधी कपाशी शेतकऱ्याच्या आयुष्याचा कायापालट करून टाकते, गरिबी दूर करते, प्रकाश देते. असा अनुभव आविष्कृत केला आहे. 'वाती' कवितेत कापसाच्या वातीला 'सोन्याचा पिंपळ' कल्पून समृद्धीचं प्रतीक मानलं आहे. कवितेत सुंदर अशा रूपकांचा वापरही केला आहे. यात 'सरकी', 'चंद्र', 'दूध', 'रथ', 'चंद्रमिठी', 'नागीण' अशी वैशिष्ट्यपूर्ण रूपके मांडलेली आहेत.

विठ्ठल वाघ यांनी आपल्या कवितेतून उत्कृष्ट प्रतिमांचा वापर केला आहे. यात 'दहीदूध', 'दहीहंडी', 'स्वप्न', 'पन्हाटी', 'माती', 'फुले', 'पाने', 'कापूस', 'झाड', 'चंद्र कालवंडला', 'हळद' या प्रतिमा प्रभावी वाटतात. त्यांच्या कवितेतील प्रतिमेसंदर्भात डॉ. सुभाष सावरकर म्हणतात, "विठ्ठल वाघ यांच्या कवितेतील प्रतिमासृष्टी ही जनजीवन संबद्ध

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ग्रामीण निसर्ग साहचर्यातून जन्मलेली अशीच आहे. त्यांनी जीवनातील तरंगत वर प्रतिमा ते एकेका कल्पना खंडामधून चपखलपणे वापरताना दिसतात.”^३

‘कपाशीची चंद्रफुले’ या काव्यसंग्रहातील ‘न्हाण’ ही संपूर्ण कविता प्रतीकात्मक आहे. ‘हाती हळद घेऊन’ (पृ. १२) यातील ‘हळद’ ही प्रतिमा लक्ष्मीचं, वैभवाचं प्रतीक मानले आहे.

“मातीतल्या देहावर

जाय सोनं मढवून” (क. चं. पृ. १२)

यात ‘माती’ ही प्रतिमा विविध संवेदना व्यक्त करताना दिसते. मातीला देहाचे रूप देऊन तिला सोन्याने मढविण्याचा भाव व्यक्त झाला आहे. ‘कापूस पालखी’ आणि ‘सनई चौघडा’ या प्रतिमांमधून एक विवाह सोहळ्याचे चित्र साकार झाले आहे. ‘पुनवेच्या डोही’, ‘चंद्राचं कमळ’ (पृ. १६) यात ‘कमळ’ या प्रतिमेत कमळ, त्याचं फुलणं हे दृष्य डोळ्यापुढे उभे राहते.

‘विठ्ठल वाघ’ यांच्या ‘पंढरीच्या वाटेवर’ या काव्यसंग्रहातील कविता विठ्ठल आणि पंढरी यांच्याशी संबंधीत आहेत. प्रारंभीच्या ‘माऊली’, ‘सुख’, ‘ज्ञानदेवी’, ‘ज्ञान’ या कवितांमध्ये प्रत्यक्ष ज्ञानदेवांचे आध्यात्मिक श्रेष्ठत्व वर्णन केले आहे. या चार कवितांमध्ये ज्ञानेश्वर माऊलीची स्तुती, ज्ञानेश्वरांची थोरवी, त्यांची अभंग रचना, त्यांचे अथांग कारुण्य याचे दर्शन घडविले आहे.

विठ्ठल वाघ यांनी सर्वच कवितांतून आध्यात्मिक ज्ञानाचे, शास्त्रीय ज्ञानाचे, उपनिषदादि ज्ञानाचे दर्शन घडविले आहे. ‘राही’ कवितेत राही म्हणजे राधा पंढरीच्या वाटेवर चालून चालून थकलेला वारकरी स्त्री-पुरुषांची सेवा जणू वारकरी स्त्री-पुरुषांची सेवा जणू काही विठ्ठल, राही, रखुमाबई करतात.

“शेला राहीनं दिलेला

विठ्ठलानं अंथरला” (पं. वा. पृ. २४)

येथे जीव-शिवाचे रूपक योजून जीव म्हणजे राही, रखुमाई आणि शिव म्हणजे विठ्ठल. जीव हा शिवाची सेवा करतो. यात ‘मुक्त, भक्ती’ या कवितेतून व्यक्त झाली आहे.

‘पाऊसपाणी’ या काव्यसंग्रहातील कवितेत पावसाविषयी विविध लोकतत्त्वीय संदर्भ अधोरेखित केले आहेत. सरळ आभाळातून कोसळणारा पाऊस मानवी जीवनासाठी विविध रूपे धारण करणारा आहे. यात ग्रामीण परिसर आणि त्या परिसरातील लोकगीते, कृषी संस्कृती, ग्रामीण माणसाच्या जीवनातील चढ-उतार, भावनिक संबंध या कवितांमधून वाघ यांनी रेखाटले आहेत. तसेच यात शेती कसणाऱ्या शेतकऱ्यांचे दुःख, दैन्य व्यक्त करताना ग्रामीण स्त्रीच्या भावविश्वाचे, वेदनेचे चित्रण कवी करतात. येथे ग्राम्य जीवन व कृषिजीवन विविध पातळ्यांवर चित्रित केल्याचे दिसते.

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पावसाच्या माध्यमातून कवीला जीवन विविध अंगांनी भेटते. पावसाच्या समृद्धीस सर्वस्पर्शी, सर्वस्पर्शी प्रतिमेतून जीवनाच्या रथचक्राचे अनेक संदर्भ कवीला भेटतात. यात 'पाऊस', 'फुले', 'अक्षता', 'हिरवे झुंबर' अशा आकर्षक प्रतिमांचा वापर केला आहे. 'फुले' या प्रतिमेतून पावसाचे व पडत्या पावसात पडणाऱ्या 'गारा' आणि या गारा वेचणारी कुणब्यांची मुले हे दृष्यचित्र साकार केले आहे. येथे काही विदर्भ बोलीचे स्थानिक शब्दयोजना प्रभाव टाकून जाते. या संदर्भात डॉ. रवींद्र ठाकूर म्हणतात, "विठ्ठल वाघ यांच्या ग्रामीण कवितेतील स्थानिक बोलीतील शब्दयोजना आणि त्यांनी वापरलेली प्रतिमासृष्टी वैदर्भीय स्वरूपाची आहे. ग्रामीण मानसिकता त्याच बोलीभाषेतून पकडण्याचे त्यांचे कौशल्यही असामान्य आहे."* ठाकूर यांनी वाघ यांच्या ग्रामीण कवितेतील वैदर्भीय प्रतिमासृष्टीकडे काव्य रसिकांचे लक्ष वेधले आहे.

'वृषभसूक्त' हा कृषिजीवनावर आधारित काव्यसंग्रह 'बैल' या प्रतीकातून ग्रामीण शेतकरी जीवनाची यथार्थता अभिव्यक्त करणारा आहे. यातील 'बैल' हा लोकजीवनाचा अविभाज्य घटक आहे. कारण कुणब्याचे, शेतकऱ्याचे आराध्य दैवत बैल आहे. वृषभसूक्तातून शिवशक्तीचाही उल्लेख आलेला आहे. वृषभदेव म्हटल्याने क्षणभरात शेतातला बैल हा शंकराचे वाहन बनतो. आणि मग बैलाच्या जागी देवत्व दिसू लागते. एकूणच बैलाचा महिमा आणि बैलाविषयी कृतज्ञताभाव भूदेव, गाडा, देणे, ऋचा, दिवा, जागर, अंबर, कूल, झुंबर, संकीर्तन, साज, तापस, कौल, आर्त, पुरुषसूक्त, औत, सोयरा, बीज, लेणी, सर्जन, पोळा, खळे, मोट, पिठोरा व बैल गेला, या कवितांमधून बैलाचे महत्त्व, गुणगान, बैलाची विविध रूपे, व्यथा आणि कृषक व बैल यांचे किती अतूट नाते असते हे कवीने आपल्या कृषिविषयक जाणिवेतून अभिव्यक्त केले आहे.

निष्कर्ष :

- * विठ्ठल वाघ यांच्या कवितेत शेतकऱ्यांच्या जगण्यातील अकृत्रिमता, लोकजीवनाचे तरल कलात्मक आविष्करण प्रकट झाले आहे.
- * 'काया मातीत मातीत' संग्रहातील कविता कृषकांप्रमाणे सर्जनशील धाटणीची कविता आहे.
- * विठ्ठल वाघ यांनी आपल्या कृषिविषयक कवितांना आध्यात्मिकतेची जोड दिली आहे.
- * विठ्ठल वाघ यांच्या बहुतांश कविता शेतकऱ्यांच्या मनोगताशी, मनोरथांशी बांधिलकी सांगणाऱ्या आहेत.
- * विठ्ठल वाघ यांच्या कवितांनी शेतकरी चळवळीला स्फूर्ती दिली आहे.
- * विविध प्रतिमासृष्टीचा वापर करून कृषिविषयक जीवनाचे वास्तवचित्रण कवी विठ्ठल वाघ यांनी अधोरेखित केले आहे.



- * 'पंढरीच्या वाटेवर' या संग्रहात आध्यात्मिक ज्ञानाचे, शास्त्रीय ज्ञानाचे, दर्शन घडविले आहे.
- * 'पाऊस पाणी' काव्यसंग्रहातील कवितेत पावसाविषयी विविध लोकतत्वीय संदर्भ अधोरेखित केले आहेत.
- * 'वृषभसूक्त' काव्यसंग्रहात 'बैल' या प्रतीकातून शेतकरी जीवनाची यथार्थता अभिव्यक्त केली आहे.

संदर्भ ग्रंथ :

१. डॉ. मधुकर वाकोडे, विठ्ठल वाघ लिखित 'काया मातीत मातीत' काव्यसंग्रहाच्या प्रस्तावनेतून देशमुख आणि कंपनी प्रा. लि. पुणे, प्रथमावृत्ती, १९९१, पृ. २५.
२. डॉ. सुभाष सावरकर, 'वैदर्भी रीती', मराठी जनसाहित्य परिषद, अमरावती, प्रथमावृत्ती, मार्च १९९३, पृ. १०७.
३. तत्रैव, पृ. १०२.
४. डॉ. रविंद्र ठाकूर, 'मराठी ग्रामीण कविता', डॉ. सुषमा करोगळ' स्वसंपादित स्वातंत्र्योत्तर मराठी कविता, प्रतिमा प्रकाशन, पुणे, प्रथमावृत्ती, १९९९, पृ. २९८.

- डॉ. जितेंद्र शामसिंग गिरासे

मराठी विभागप्रमुख

श्रीमती एन.एन.सी. कला वाणिज्य व विज्ञान महाविद्यालय,

कुसुंबा, ता. जि. धुळे

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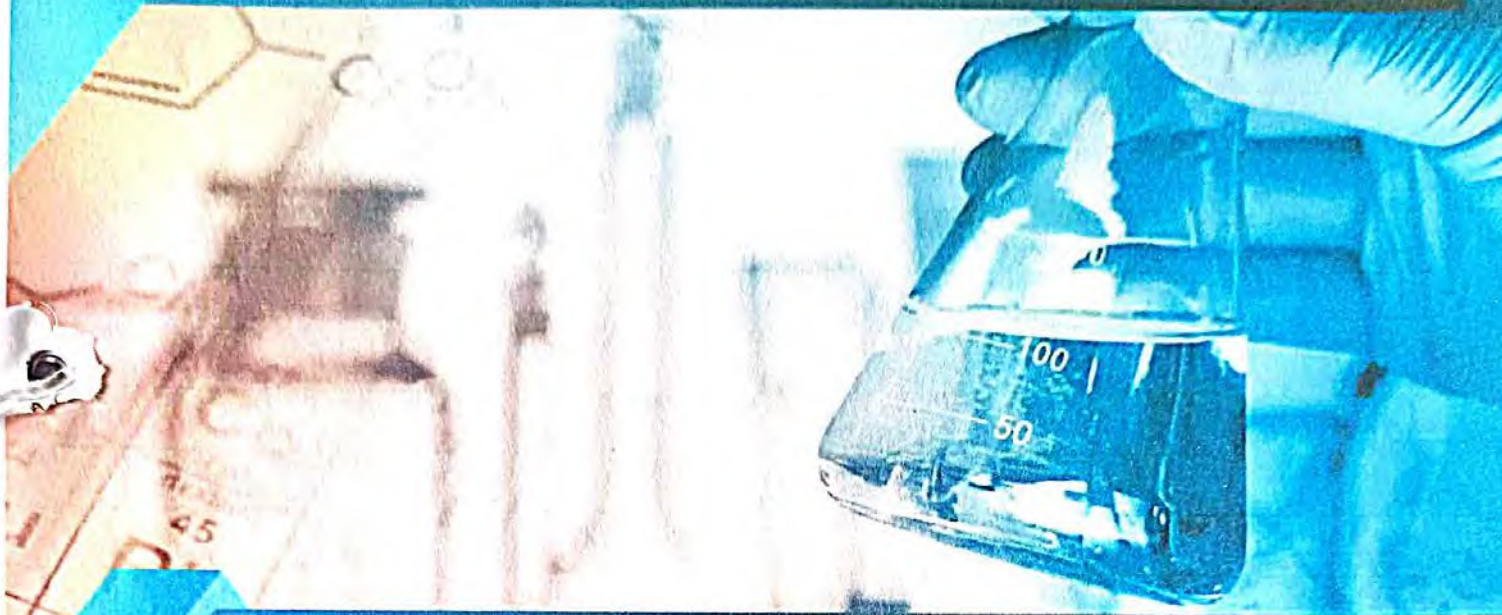
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Thin film Deposition Methods: A Critical Review

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Abstract: The aim of this review paper is to present a critical analysis of existing methods of thin film deposition. Paper discusses some thin film techniques which are advanced and popular. The advantages and disadvantages of each method are mentioned. The two major areas of interest discussed are physical and chemical vapor deposition techniques. In general, thin film is a small thickness that produces by physical vapour deposition (PVD) and chemical vapour deposition (CVD). Despite the PVD technique has a few drawbacks, it remains an important method and more beneficial than CVD technique for depositing thin films materials. It is examined that some remarkable similarities and difference between the specific methods. The sub methods which are having common principle are classified. The number of researchers attempted to explain the how the specific method is important and applicable for the deposition of thin films. In conclusion the most important method of depositing thin films is CVD. For our research work the Spray Pyrolysis technique, which is versatile and found suitable to use.

Keywords: Thin films, CVD, PVD, advantages and Disadvantages of CVD and PVD.

I. INTRODUCTION

Thin film deposition is the process of creating and depositing thin film coatings onto a substrate material. These coatings can be made of many different materials. Thin film coatings also have many different characteristics which are leveraged to alter or improve some element of the substrate performance. 'Thin' is, of course, a relative layer, but in most cases, the techniques of thin film deposition are designed to produce layers which are only a few tens of nanometers thick. In today's world, thin films are commonly thought of in connection with semiconductors. However, thin films are important in a multiplicity of other areas where coatings only a few microns thick are needed. The thin film is important because it changes the surface interactions of the newly formed platform from the bulk substrate properties. Thin films have a range of properties depending on those types are-

- 1) Optical thin films
- 2) Electrical or electronic thin films
- 3) Magnetic thin films
- 4) Chemical thin films
- 5) Mechanical thin
- 6) Thermal thin films

The electron microscopy techniques can be used to 'see' thin films. Various refinements of these methods have been used such as scanning electron microscopy (SEM). Thus, the wavelength of light is not a hard and fast rule either when it comes to defining thin films [1].

II. THIN FILM DEPOSITION TECHNIQUES

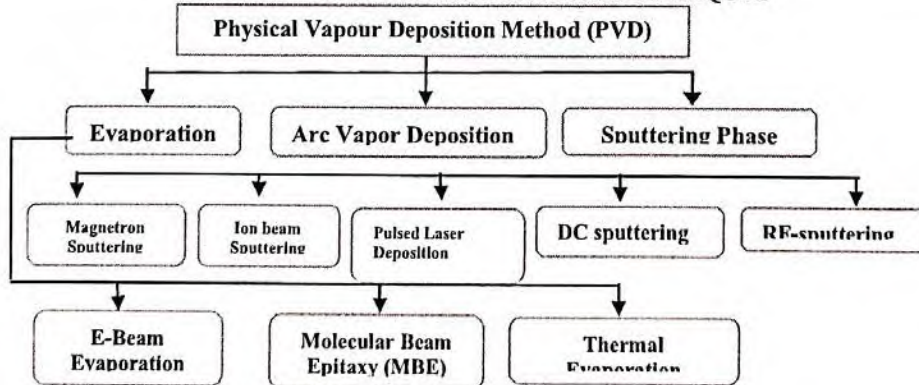


Fig. I. Classification of PVD techniques

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Over the years, various materials have been synthesized in the form of thin films due to their prospective technological significance and scientific interest in their properties. They have very extensive range of applications and extend from nanostructures to coatings of several square meters on window glasses. Several techniques have been inspected in the search for the most reliable and inexpensive method of producing the thin films. Based on the nature of the deposition process, the techniques employed for thin film deposition can be classified into two groups, namely, physical and chemical deposition processes [2].

III. COMPARATIVE STUDY OF PVD AND CVD

The deposition process is classified into two types systems physical vapour deposition (PVD) and chemical vapour deposition (CVD), depending on the different principle causing film deposition. The table 1 shows the difference between them. The key difference between PVD and CVD is that the coating material in PVD is in solid form whereas in CVD it is in gaseous form.

TABLE.I.
Difference Between PVD AND CVD

Parameter	Physical Vapour Deposition (PVD)	Chemical Vapour Deposition (CVD)
Definition	Physical vapor deposition (PVD) is a series of vacuum deposition methods used to produce films and coatings. PVD is characterized by a process in which the material changes from a condensed phase to a gas phase and then back to the condensed phase of the film (physical process). The most common PVD processes are sputtering and evaporation.	Chemical vapor deposition (CVD) is a vacuum deposition method. In a typical CVD, the wafer (substrate) is exposed to one or more volatile precursors that react and/or decompose on the surface of the substrate to produce the desired deposit. Volatile by-products are also typically produced which are removed by the gas stream through the reaction chamber.
Application	PVD is used to make articles that require films for mechanical, optical, chemical or electronic functions. For example, semiconductor devices, thin-film solar panels, glass coatings, and etc.	Chemical vapor deposition (CVD) is used to produce high quality, high-performance solid materials. This process is commonly used in the semiconductor industry to produce thin films.
Temperature	Relatively low	The process temperature of CVD method is very high, usually exceeds the tempering temperature of the high speed steel. Thus in order to restore the hardness, the tools must be subjected to vacuum heat treatment after coating.
Cleaning Requirement	High	Low
Film thickness	about 2.5 μm	about 7.5 μm
Surface	The PVD coating well reflects the surface of the tool and has a good metallic lustre without grinding.	The surface of the CVD coating is slightly rougher than the surface of the substrate.
Crafting Process	Nearly all PVD technologies have poor coating performance both on the back and sides of the tool due to low air pressure. The PVD reactor must reduce the loading density to avoid shadow formation, and the loading and fixing are complicated.	CVD occurs in a low-vacuum gaseous environment and has good coating performance. Therefore, except for the support points, all the surfaces of the cutters sealed in the reactor, even deep holes and inner walls, can be completely coated.
Cost	More expensive	Less expensive
Safety	PVD is a kind of "green engineering", which produces little pollution during the process because it is "physical".	The reactive gas and reaction tail gas of CVD may have certain corrosiveness, flammability and toxicity, and there may be powdery and fragmented substances in the reaction tail gas.

IV. PHYSICAL VAPOUR DEPOSITION (PVD) METHOD

PVD stands for Physical Vapor Deposition. PVD Coating refers to a variety of thin film deposition techniques where a solid material is vaporized in a vacuum environment and deposited on substrates as a pure material or alloy composition coating. It evaporates or sputters a material, producing a gaseous plume or beam that deposits a film on the substrate. It describes a group of thin film deposition techniques that involve vaporizing a solid material in a vacuum, then depositing that material onto a substrate. Coatings created in this manner are highly durable, and resistant to scratching and corrosion. PVD is useful in the production of devices ranging from solar cells to eyeglasses to semiconductors [3].

The benefits of PVD are numerous, and include the creation of a hard coating that is resistant to corrosion and scratching. PVD also creates thin films that can tolerate high temperatures. Potential drawbacks of PVD include cost, as these methods may require a larger investment than other thin film deposition processes. The cost can also vary among PVD methods themselves. These are environmentally friendly or "plating" technique that greatly reduces the number of toxic substances that must be used, manage and disposed of as compared to other "wet" processes that involve fluid precursors and chemical reactions used to achieve the same result. Because it is capable of producing extremely pure, clean and durable coatings, Physical Vapor Deposition is the technology of choice for the surgical and medical implant industry [4].

The most common types of physical vapor deposition (PVD) are evaporation and magnetron sputtering.

A. Evaporation

Evaporation methods are considered as the common deposition of materials in the form of thin-layer films. The general mechanism of these methods is obtained by changing the phase of the material from solid phase to vapor phase and converting again to solid phase on the specific substrate [5-6]. It takes place under vacuum or controlled atmospheric condition. There are two types of thermal evaporation: pulsed laser deposition and electron beam deposition. Both processes use energy to evaporate a metal material (such as Titanium, Zirconium, Chromium, Aluminium, or Copper) into a vacuum. The vacuum then allows vapor particles to travel to the relatively cooler production parts where it will once again condense and crystallize into a thin, hardened, metal state. This PVD type is most commonly used in computer industry microfabrication or for products such as film packaging [7].

There are multiple types of evaporative deposition:

1) E-Beam Evaporation (Electron Beam)

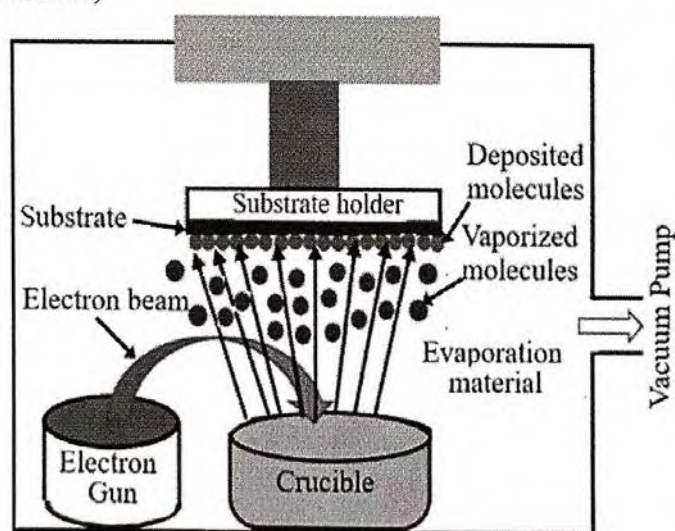


Fig.2.Schematic diagram of electron beam evaporation

In this process, a highly-charged electron beam evaporates the target material. The evaporated material is then deposited onto the substrate, and the atoms formed create the thin film. This process is often used for optical thin films such as solar panels, glasses and architectural glass. In this method the intensive beam of electrons is generated from a filament and steered through both electric and magnetic fields to hit the target and vaporize it under vacuum environment as shown in figure 2. Thin films prepared by electron beam evaporation are of good quality and purity [8].

- 2) **Molecular Beam Epitaxy (MBE):** It is one of the several methods of depositing single crystals and invented in the late 1960s. In the process of epitaxy, a thin layer of material is grown on a substrate. With respect to crystal growth, it applies to the process of growing thin crystalline layers on a crystal substrate. The deposition of single crystal films by the condensation of one or more beams of atoms and molecules from Knudsen sources under ultra-high vacuum (UHV) condition is called molecular beam epitaxy [9].

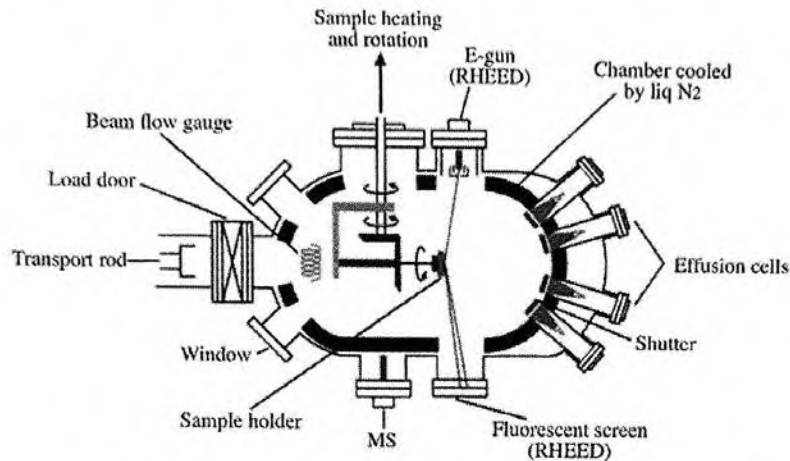


Fig.3. shows the experimental set up of molecular beam evaporation

Epitaxial growth takes place due to the interaction of molecular or atomic beams on a surface of a heated crystalline substrate. Molecular beam epitaxy takes place in high vacuum or ultra-high vacuum (10–11 torr). The Knudsen effusion source consists of a metallic chamber, containing the evaporant with a small orifice. The orifice dimension is smaller than the mean free path of the vapor in chamber [10]. Flow of the molecules from source is by effusion. The effusion molecular beam has a large mean free path compared to source substrate distance. The flux of beam is precisely determined by the partial pressures of the vapor species within the chamber, their molecular weight, and source temperature and orifice dimension. The beam is directed on the substrate by orifice slits and shutters. By controlled these shutters, one can grow superlattices with precisely controlled uniformity, lattice match, composition, dopant concentrations, thickness, and interfaces down to the level of atomic layers.

A typical MBE chamber is shown in Figure 3. The substrate is chemically washed and then put into a loading chamber where it is further cleaned using argon ion bombardment followed by annealing. This removes the top layers of the substrate, which is usually an undesired oxide which grew in air and contains impurities. The annealing heals any damage caused by the bombardment. The substrate then enters the growth chamber via the sample exchange load lock. It is secured on a molybdenum holder either mechanically or with melted indium or gallium which hold the substrate by surface tension. Each effusion cell is a source of one element in the film as shown in figure 3.

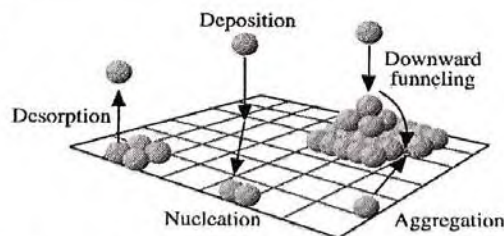


Fig.4. Schematic illustration of processes on growing surface during MBE. Adsorption of atoms on the surface, surface diffusion of atoms, formation of crystalline lattice, desorption of particles from the surface.

Advantages: complex layers or superlattices, low temperature requirement epitaxy (Si: 400 - 800°C, GaAs: 500 - 600°C)

Disadvantages: limited product throughput, complex operation, expensive equipment. Also in Molecular beam epitaxy the substrate rotation is required for uniformity in thickness and conformity.

3) Thermal evaporation

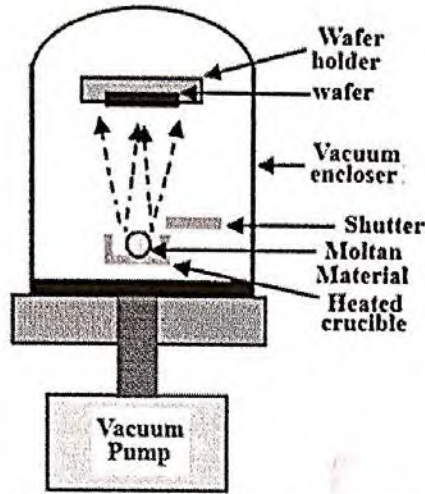


Fig.5. Schematic diagram of thermal evaporation system

In this simpler form of PVD, a resistive heat source heats the target material until vapor pressure is produced. The evaporated material then coats the substrate, forming the thin film. It is used to deposit metals such as silver and aluminium for OLEDs, solar cells and thin film transistors.

B. ARC Vapor Deposition

In Low-temperature arc vapor deposition (LTAVD) process uses a low-voltage arc to evaporate metal source material into vaporized metal particles. These evaporated metal atoms combine with reactive gas molecules in a plasma state that once again condense on relatively cooler production parts in close proximity. Production parts spin on a multi-axis rack carousel to produce an evenly distributed lifetime coating in colours that include hues of black, bronze, gold, graphite, nickel, blue, purple, and "rainbow" combinations of more than one colour.

LTAVD is the most environmentally friendly method, and it results in a very thin (0.25 to 4.0 microns) hard metallic coating that is available in a wide variety of colours. PVD finish has a transparent quality that allows underlying chrome or polish to shine through. Matte and brushed metal finishes also receive PVD to lock in these desired physical appearances for a lifetime of corrosion, chemical, and scratch resistance.

C. Sputtering

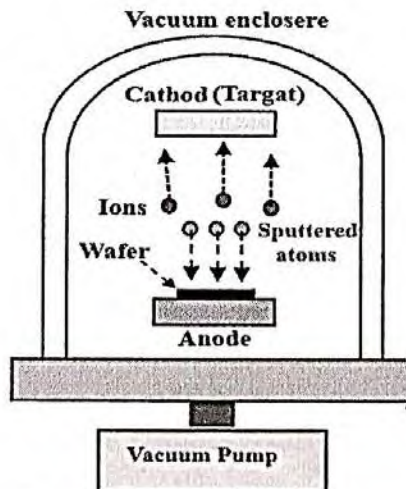


Fig. 6. Schematic of sputtering process

Sputtering involves the bombardment of a target material with high energy particles that are to be deposited on a substrate like a silicon wafer or solar panel. The substrates to be coated are placed in a vacuum chamber containing an inert gas, usually Argon and a negative electric charge is placed on the target material to be deposited causing the plasma in the chamber to glow. Atoms are "Sputtered off" the target by collisions with the Argon gas atoms, carrying these particles across the vacuum chamber and are deposited as a thin film. Several different methods of vapor deposition methods coating systems are widely used, like magnetron sputtering, DC sputtering, RF sputtering, Ion beam sputtering, Pulse Laser Deposition etc. [11].

Ion beam sputtering and magnetron sputtering. In the former, an ion beam directs a high electric field toward the surface of the material to be vaporized. This causes the metal vapor gases to ionize after which momentum transfer directs those ions toward the target production part. In magnetron sputtering, positively charged ions are accelerated by an electrical field and then superimposed onto the target parts. This process is commonly used in the medical industry for manufacturing lab products and optical films.

The disadvantage of sputtering is -

Sputtering rates are low compared to those that can be attained in thermal evaporation.

- Sputtering targets are often expensive and material use may be poor.
- Most of the energy incident on the target becomes heat, which must be removed.
- In reactive sputter deposition, the gas composition must be carefully controlled to prevent poisoning the sputtering target.

1) *Magnetron Sputtering:* Sputter deposition, commonly called sputtering, removes atoms/molecules from a solid target's surface, projecting them into the gas phase from which they condense on another surface. In contrast to the various evaporation techniques available, sputtering does not require melting of the base material, rarely "spits" lumps at the substrate, and the source can be mounted in any orientation. There is comparatively very little radiated heat transferred to substrates, the coverage is not strictly line-of-sight, and elemental mixtures, alloys, and compounds can be sputtered without changes in stoichiometry. It is plasma-based coating technique. In this process, magnetically confined plasma is created near the surface of the target material. Ions from that plasma collide with the target material, and the atoms ejected from those collisions are what are "sputtered", or deposited onto the substrate to create the thin film. It is often used for metallic or insulating coatings for optical and electrical purposes. Because the plasma is both electrically neutral and highly conductive, there is little voltage drop across it. The voltage drop occurs across thin "dark space" regions. The target's negative potential attracts positive ions from the plasma's edge, which in turn hit the target with sufficient kinetic energies to eject neutral target atoms/molecules by energy transfer. While traveling from target to substrate, each ejected atom hits numerous gas atoms/molecules that deflect them and cause energy loss. By optimizing the target-substrate distance, the atoms approach the substrate's surface from partially randomized directions, producing a uniform film thickness across a textured substrate's surface. The advantage of Magnetron sputtering is-

- Excellent precision of film thickness and density of the film. Also it achieve denser coatings than evaporation
- Perfect for metallic or insulating coatings with specific optical or electrical properties
- Can be configured with multiple magnetron sources

The disadvantages of magnetron Sputtering are an erosion track in the target, this leads to poor efficiency of sputtering yield versus target volume compared to non-magnetron sputtering also non-uniform removal of particles from target result in non-uniform films on substrate.

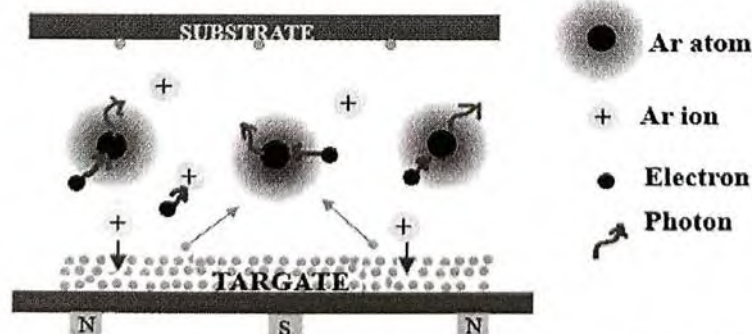


Fig.7. Spatial distribution of particles inside the high vacuum sputtering chamber.

The basic process of sputtering involves a process gas (in our case argon, Ar) which is introduced inside the high vacuum chamber. An electric field is applied between the target and the substrate which leads to the creation of plasma with the positive Ar^+ ions accelerated towards the cathode (target) located on the bottom of the chamber. Particles are detached from the target due to the momentum transfer of Ar^+ ions when colliding with the target material, contained within a plasma plume similar to a flash light or a cone resulting in deposition of film on the substrate situated just above the cathode. Free electrons generated during the process are confined close to the target material using a magnetic field created by a magnet ring located just behind the cathode (target). It is then less probable that these ions recombine with free electrons in their way to the target, leading to an increased sputtering rate [12].

- 2) **Ion Beam Sputtering:** This process uses an ion source to sputter the target material—either metallic or dielectric—onto the substrate, forming the thin film. Thin films created through ion beam sputtering are of a high quality, and have very precise thickness due to the monoenergetic ion beam used. This process is often used to create coatings for precision optics and semiconductors, where the utmost precision is required. Ion beam directs a high electric field toward the surface of the material to be vaporized. This causes the metal vapor gases to ionize after which momentum transfer directs those ions toward the target production part.
- 3) **Pulsed Laser Deposition (PLD):** Pulsed-laser deposition (PLD) is another physical deposition technique to deposit the thin film coating system [13]. During the thin-film deposition process, the laser beam is used to ablate the material for depositing the thin films inside a vacuum chamber as shown in Figure 8. Pulsed laser deposition is a type of evaporation process that uses laser pulses to evaporate the target material. This produces a plume of plasma that then deposits onto the substrate, forming the thin film. While optimizing this process can require more time and effort than other methods, due to the many variables at play, its benefits include high deposition rates and a streamlined process, as well as no filaments for easier maintenance. In the case of metal oxide thin films, oxygen is used to deposit the oxides of metals [14]. The thin-film quality from the PLD depends on the various parameters such as wavelength of the laser, energy, ambient gas pressure, pulsed duration, and the distance of the target to the substrate [15]. The ablation process during the deposition may control and monitor by using laser-induced fluorescence [16], laser ablation molecular isotopic spectroscopy [17], and optical emission spectroscopy [18].

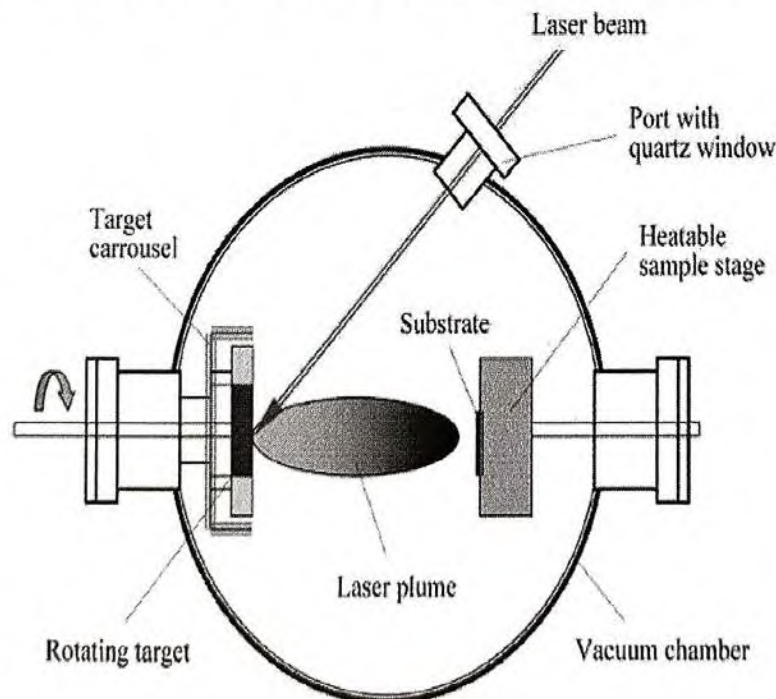


Fig. 8: A schematic diagram of the pulsed laser deposition setup.

4) **DC Sputtering:** This is a very straight forward technique of the deposition, in which target is held at high negative voltage and substrate maybe at positive, ground or floating potential. Substrates may be simultaneously heated or cooled depending upon the requirement. Once the required based pressure is attained in the vacuum system, usually argon gas is introduced at a pressure < 0.1 Torr. or visible glow is offered and current flows between anode and cathode indicating deposition on set. When sufficiently high voltage is applied between anode and cathode with gas in it, a glow discharge is set up with different regions as Cathode glow, Crook's dark space, negative glow, Faraday dark space, positive column, anode dark space an anode glow. These regions are result of plasma, i.e. mixture of electrons, ions, neutrals and photons released in various collisions. The density of various particles and the length over which they are spread and distributed depends upon the gas pressure. Energetic electron impacts cause gas ionization. Ratio of ions/neutrals can be typically 10^{-4} . Thus at a few milli torr (mTorr) pressure, sufficiently large number of ions are generated that can be used to sputter the target.

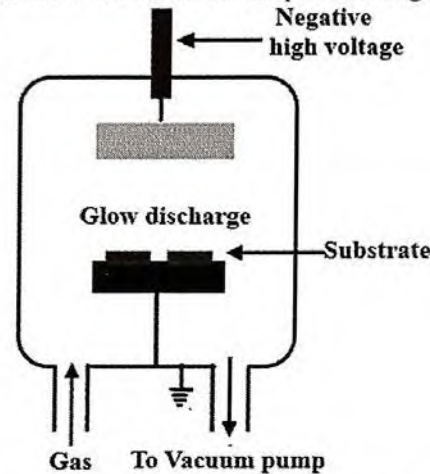


Fig.9. Schematic of DC sputtering unit

5) **RF Sputtering**

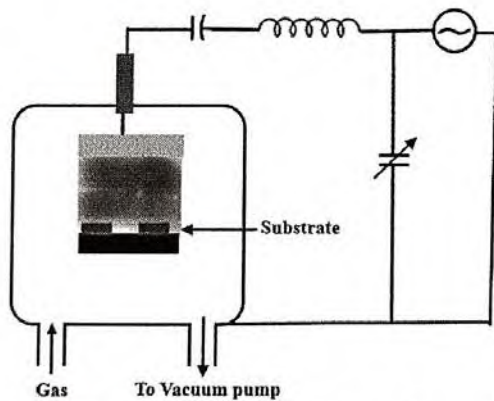


Fig.10.R F Sputtering set up with required network

If the target is to be sputtered is insulating, it is difficult to use DC sputtering. This is because it would mean the use of exceptionally high voltage ($>10^6$ V) to sustain discharge between the electrodes. In DC sputtering, 100 to 3000 Volts is usual voltage. However, if some high frequency lower voltage is applied, the cathode and anode alternatively keep on changing the polarity an oscillating electrons cause sufficient ionization. In principle, 5 to 30 MHz frequency can be used and electronics can be insulating. However, 13.56 MHz is commonly used frequency for deposition, as it is reserved worldwide for this purpose and others are available for communication. Target itself biases to negative potential becoming cathode when the arrangement is depicted.



Table II
Difference Between Evaporation And Sputtering

Parameter	Evaporation	Sputtering
Rate	1000 atomic layer/sec (Thickness control is difficult)	1 atomic layer/sec (thickness control possible)
Choice of Material	Limited (to those with low melting point)	Almost unlimited
Purity	Better	Possibility of incorporating impurity
Alloy composition	Little or no control	Can be tightly controlled
Changes in source Material	Easy	Expensive
Decomposition	High	Low
Adhesion	Often poor	Very good

V. CHEMICAL VAPOR DEPOSITION (CVD)

A. Chemical Vapor Deposition (CVD)

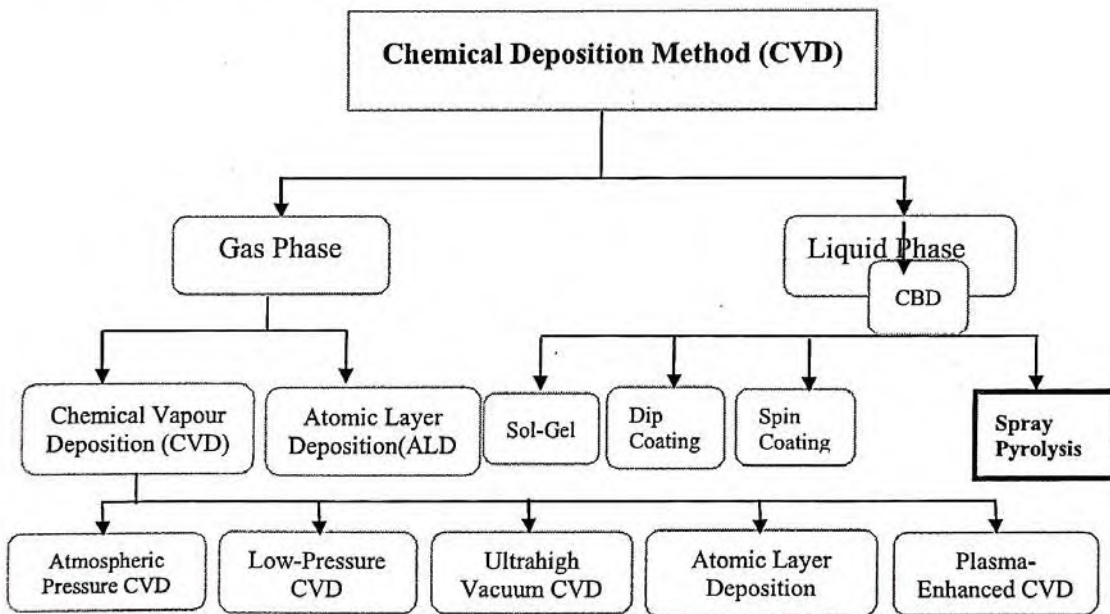


Fig.11. Classification of chemical thin film deposition methods [27]

The chemical methods comprise gas phase and liquid phase deposition methods. The gas phase methods are chemical vapor deposition (CVD) [19-20] and atomic layer epitaxy (ALE) [21], while spray pyrolysis [22], sol-gel [23], spin- [24] and dip-coating [25] are liquid phase methods.

The CVD method uses reactive, volatile compounds that decompose on a heated substrate. The starting materials are often organo- or hydrido-compounds that pyrolyse at relatively low temperatures into a non-volatile (film) component and a pumpable vapor/gas. Both methods sub-divide into a variety of techniques with auxiliary mechanisms to achieve some goal. In this process substrate is placed into a vacuum chamber, two chemical precursors are heated, which causes them to vaporize. When they meet on the substrate surface, a chemical reaction occurs to form a high-performance thin film coating. CVD is useful in creating coatings for a wide variety of applications including medical devices, automotive components and silicon wafers [26]. Benefits of CVD methods include the ability to use these processes on a wide variety of substrates, as well as the ability to coat intricate or complex topographies. Thin films created through CVD also typically maintain their bonds well in high-stress environments.



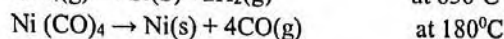
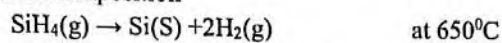
The liquid phase methods for the preparation of thin films have been studied extensively owing to their simplicity and inexpensiveness and such processes facilitate the designing of materials on a molecular level.

The CVD is the process to chemically reacting a volatile compound of a material to be deposit, with other gases to produce a non-volatile solid that deposits automatically on the surface of a substrate.

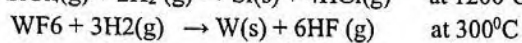
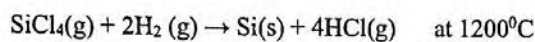
There are many possible reactions and the chemistry is the most important component of this method. Gas phase and surface reactions are intrinsically mixed in this method. The wide range of possible reactions can be grouped into pyrolysis, reduction, oxidation and compound formation

Examples of the above chemical reactions are:

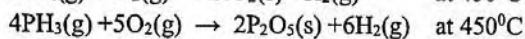
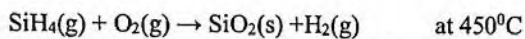
1) Pyrolysis or thermal decomposition



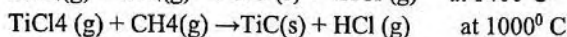
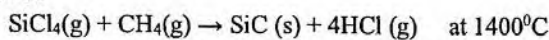
2) Reduction



3) Oxidation



4) Compound formation



The versatility of CVD process is further demonstrated by the fact that several reactants or precursors can be used to deposit a given film. For example, silica films can be obtained by either of these possible reactions.

- $\text{SiH}_4(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{SiO}_2(\text{s}) + 2\text{H}_2$
- $\text{SiH}_4(\text{g}) + \text{N}_2\text{O}(\text{g}) \rightarrow \text{SiO}_2(\text{s}) + 2\text{H}_2 + 2\text{N}_2$
- $\text{SiH}_2\text{Cl}_2(\text{g}) + 2\text{N}_2\text{O}(\text{g}) \rightarrow \text{SiO}_2(\text{s}) + 2\text{HCl}(\text{g}) + 2\text{N}_2(\text{g})$
- $\text{SiCl}_4(\text{g}) + 2\text{N}_2\text{O}(\text{g}) \rightarrow \text{SiO}_2(\text{s}) + 3\text{Cl}_2(\text{g}) + 2\text{N}_2(\text{g})$
- $\text{Si}(\text{OC}_2\text{H}_5)_4(\text{g}) \rightarrow \text{SiO}_2(\text{s}) + 4\text{C}_2\text{H}_4(\text{g}) + 2\text{H}_2\text{O}(\text{g})$

A variety of CVD reactors can be constructed depending on the type of precursors used in the chemical reaction and the deposition conditions. When metalorganic compounds are used as precursors, the method is referred as MOCVD (Metalorganic Chemical Vapor Deposition), and when plasma is used to enhance the reaction is called PECVD (plasma enhanced CVD).

B. Atomic Layer Deposition (ALD)

Atomic layer deposition, ALD, is a thin film technology that enables new and highly competitive products. ALD is also a powerful resource for advanced nanotechnology research. Typical applications of ALD contain a requirement to manufacture very precise nanometre-thick, pinhole-free and totally conformal thin films on any shape and geometry. For today's businesses, Beneq ALD offers the necessary tools to accelerate growth, by means of new and innovative applications, production equipment you can count on and affordable cost of ownership.

ALD is based on surface controlled thin film deposition. During coating, two or more chemical vapours or gaseous precursors react sequentially on the substrate surface, producing a solid thin film. Most ALD coating systems utilize a flow-through traveling wave setup, where an inert carrier gas flows through the system and precursors are injected as very short pulses into this carrier flow. The carrier gas flow takes the precursor pulses as sequential "waves" through the reaction chamber, followed by a pumping line, filtering systems and, eventually, a vacuum pump.

C. Disadvantage of ALD

- 1) The ALD process is a high precision process and this often leads to high precursor gas usage and energy.
- 2) Approximately 60% precursor dosage is wasted in the ALD process which implies that most of the energy has been wasted.
- 3) Another drawback in ALD for commercial use is the cost-effectiveness which is principally due to its deposition rate; however, this challenge has been partially overcome using spatial atmospheric ALD [28].

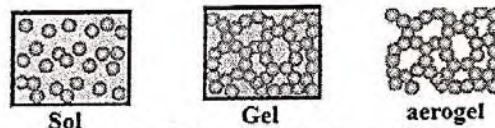


D. Gas Phase CVD

- 1) **Atmospheric Pressure CVD:** In this process, which takes place at normal, or atmospheric, pressure and a lower temperature than other methods, the substrate is exposed to at least one volatile precursor. The precursor(s) react on the surface of the substrate to deposit the thin film. It can be used to deposit doped and undoped oxides, and the deposition is fairly quick. Thin films produced by this method are low-density and have moderate coverage.
- 2) **Low-Pressure CVD:** In low-pressure CVD, heat is used to break down a precursor gas inside the chamber where the reaction will take place. This causes the reactive gas to react with the substrate when it is injected into the chamber, and this reaction creates the thin film coating. Low-pressure CVD is commonly used for the deposition of materials including polysilicon and silicon nitride, and can be useful for batch processes. Coatings created with this process are more uniform and feature fewer defects, but the process requires a higher temperature which can limit the materials available to use.
- 3) **Ultrahigh Vacuum CVD:** In ultrahigh vacuum CVD, the substrate is exposed to precursor gases in an ultrahigh vacuum near about ($<10^{-6}$ Pa). These precursors then react and deposit onto the substrate, forming the thin film.
- 4) **Atomic Layer Deposition:** While atomic layer deposition falls under the CVD umbrella, it differs in that precursor materials are kept separate during the reaction. In this process, the reaction occurs due to sequential pulsing of precursor vapours, one atomic layer is formed during each pulse. Pulses are repeated until the thin film reaches its desired thickness. Benefits of atomic layer deposition include high quality defect-free coating, as well as improved thickness uniformity.
- 5) **Plasma-Enhanced CVD:** It is a lower-temperature alternative to standard CVD, and is often used in the production of electronic devices. One common application for PE-CVD coatings is to protect these devices from corrosion. In plasma-enhanced CVD, a pair of reactive gases are excited to create a plasma. This causes a chemical reaction that results in the thin film being deposited onto the substrate

E. Liquid Phase CVD

1) Sol-Gel



The name suggests that there are two types of materials 'Sol' and 'Gel'. The sol-Gel is synthesized by M. Ebelman in 1845. Sol-gel formation is low temperature process so there is minimum energy consumption and less pollution. It is therefore not surprising that in the nuclear fuel synthesis it is a desire process. Although sol-gel process generates highly pure, well controlled ceramics, it competes with the process like CVD. The choice, of course, depends the upon the product off interest, its size, instrumentation available ease of processing etc. In some cases, sol-gel can be an economical route, provided precursors are not very expensive. Some of the benefits like getting unique materials such as aerogels, zeolites, ordered porous solids by organic-inorganic hybridization are unique to sol-gel process. It is it is also possible to synthesize nanoparticles, nanorods, nanotubes etc. using sol-gel technique. Sols are solid particles in a liquid. They are thus a subclass of colloids. Gels are nothing but a continuous network of particles with pores filled with liquid (or polymers containing liquid).

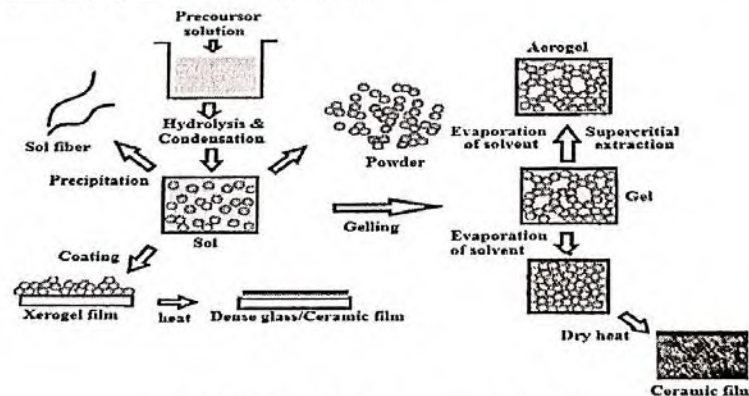


Fig.12. Different sol-gel process steps [29]



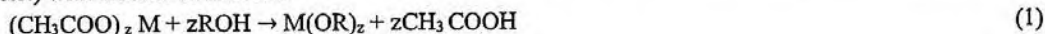
A sol-gel process involves formation of 'sols' in a liquid and then connecting the sol particles (or subunits capable of forming a porous network) to form a network. By drying the liquid, it is possible to obtain powders, thin films or even monolithic solid. Sol-gel method is particularly useful to synthesize ceramics or metal oxides although sulfides, borides and nitrides are also possible. Synthesis of sol-gel in general involves hydrolysis of precursors, condensation followed by polycondensation to form particles, gelation a drying process by various routes as shown in figure 12. Precursors are to be chosen so that they have a tendency to form gels. Both alkoxides or metal salts can be used. Alkoxides have a general formula $M(\text{ROH})_n$, where M is a cation, R is an alcoholic group and Italian n is the number of (ROH) groups with each cation. For example (ROH) can be methanol (CH_3OH), ethanol ($\text{C}_2\text{H}_5\text{OH}$), propanol ($\text{C}_3\text{H}_7\text{OH}$) etc. bonded to a cation like Al, Si etc. Salts are denoted as MX, in which M is a cation an X is an anion; Like in CdCl_2 , Cd is a cation and Cl^- is an anion. Although it is not mandatory that only oxides be formed by a sol-gel process, often oxides ceramics are best synthesized by a sol-gel route. For example, in silica, SiO_4 group with Si at the center and four oxygen atoms at the apexes of tetrahedron are very ideal for forming sols with interconnectivity through the corners of tetrahedrons, creating some cavities or pores. By polycondensation process (i.e., many hydrolyzed units coming together by removal of some atoms from small molecules like OH) sols are nucleated and ultimately solgel is formed. The sol-gel technique is broadly used for the synthesis of oxide materials [30]. Sol-gel process is one of the famous wet-chemical methods. It works under lower-temperature processing and gives better homogeneity for multicomponent materials. The word "sol" means the formation of a colloidal suspension and 'gel' means the conversion of 'sol' to viscous gels or solid materials. Two routes are used to prepare transition metal oxides (TMOs) as follows:

- Preparing of inorganic precursors via inorganic salts in aqueous solution.
- preparing of metal alkoxide precursors via metal alkoxides in nonaqueous solvents.

In this section, we are concerned on the famous route "the metal alkoxide precursor solution by an alcoholic solution.

Alkoxide precursors in organic solvents

The sol-gel technique is based on the polycondensation of metal alkoxides $M(\text{OR})_z$ in which R represents an alkyl group ($\text{R} = \text{CH}_3, \text{C}_2\text{H}_5, \dots$) and z is the oxidation state of the metal atom M^{z+} [31-32]. It can be synthesized via the reaction of metal salt (chloride, acetate, nitrate, etc.) with alcohol as follows:



After this process, two important steps should be involved:

- Hydrolysis:** this step is aimed to form reactive M-OH groups-
$$\text{M}-\text{OR} + \text{H}_2\text{O} \rightarrow \text{M}-\text{OH} + \text{ROH} \quad (2)$$
- Condensation:** condensation is the second step after hydrolysis leading to the departure of a water molecule. The process of condensation can be either olation process or oxolation process.
- Olation:** a hydroxyl bridge ("ol" bridge) is formed between two metal centres as shown in Figure.
- Oxolation:** oxolation is a reaction in which an oxo bridge ($-\text{O}-$) is created between two metal centres. When the metal is coordinately unsaturated, oxolation with rapid kinetics leads to edge or face shared polyhedral.

2) Dip Coating

Dip coating is a simple and effective technique which is commonly used in manufacturing across a wide range of different industries. In research and development, it has become an important coating method for the fabrication of thin films using a purpose-built dip coater. When the process is optimised, dip coating can be used to produce highly uniform films. Importantly, key factors such as film thickness can be easily controlled. Dip coating is a relatively straight-forward technique. However, in order to achieve maximum control when coating a substrate, it is important to be aware of what can affect your results. To make high-quality films, parameters such as withdrawal speed must be optimised. Atmospheric factors including temperature, airflow, and cleanliness also play a big part in film quality and must be closely monitored during the dip coating process. As with other methods, defects can occur, but by understanding the underlying causes it is relatively easy to find the root of the problem and take appropriate action. Dip coating involves the deposition of a liquid film via the precise and controlled withdrawal of a substrate from a solution using a dip coater. The dip coating process involves a minimum of four unique steps (or stages) followed an optional fifth curing step:

- Immersion
- Dwelling
- Withdrawal
- Drying
- Curing (Optional)

All these stages are essential in the dip coating process. However, the two critical points for determining the properties of the deposited film are the withdrawal and drying stages. Dip coating is one of the most effective processes for the production of thin films. The solution substrate is immersed in the solution for effective formation of the material. Once the material is deposited then the substrate can be removed by evaporation which will result the thickness of the layer are unique. The major forces that are used for the dip coating process are force of inertia, viscous drag, gravitational force, and surface tension. The merits of dip coating are low cost and layer thickness can be easily adjusted. The drawbacks of dip coating are process is slow and it has the ability to block the screen, which will create major impact in the final product [33].

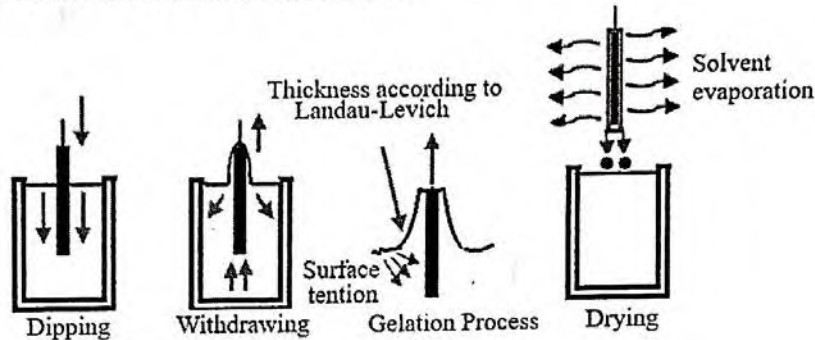


Fig. 13. A schematic view of the dip-coating method

3) *Spin Coating*: Spin coating is a procedure used to apply uniform thin films to flat substrates. A typical process involves depositing a small puddle of a fluid resin onto the centre of a substrate and then spinning the substrate at high speed (typically around 3000 rpm) [34]. (Mitzi et al. 2004). Spin coating is a common technique for applying thin films to substrates. When a solution of a material and a solvent is spun at high speeds, the centripetal force and the surface tension of the liquid together create an even covering. After any remaining solvent has evaporated, spin coating results in a thin film ranging from a few nanometres to a few microns in thickness. Spin coating is used in a wide variety of industries and technology sectors. Its primary advantage of spin coating over other methods is its ability to quickly and easily produce very uniform films. Spin coating generally involves the application of a thin film (a few nm to a few um) evenly across the surface of a substrate by coating a solution of the desired material in a solvent (an "ink") while it is rotating. Put simply, a liquid solution is deposited onto a spinning substrate in order to produce a thin film of solid material, such as a polymer. Spin coating generally involves the application of a thin film (a few nm to a few um) evenly across the surface of a substrate by coating (casting) a solution of the desired material in a solvent (an "ink") while it is rotating. Put simply, a liquid solution is deposited onto a spinning substrate in order to produce a thin film of solid material, such as a polymer. The rotation of the substrate at high speed (usually >10 rotations per second = 600 rpm) means that the centripetal force combined with the surface tension of the solution pulls the liquid coating into an even covering. During this time the solvent then evaporates to leave the desired material on the substrate in an even covering.

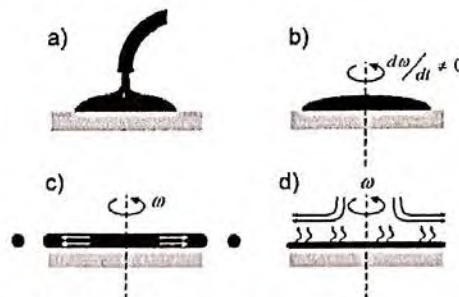


Fig.14. Example of spin coating a small molecule in solution using a static dispense. (a) First the substrate is coated in the ink containing the molecules dissolved in a solvent. (b) Then the substrate is rotated at high speed and the majority of the ink is flung off the side. (c) Airflow then dries the majority of the solvent, leaving a plasticised film. (d) before the film fully dries to just leave the molecules on the surface.

This process can be broadly divided into 4 main steps:

- a) Deposition
- b) Spin up.
- c) Spin off
- d) Evaporation

In the initial step, the solution is cast onto the substrate, typically using a pipette. Whether the substrate is already spinning (dynamic spin coating) or is spun after deposition (static spin coating), the centrifugal motion will spread the solution across the substrate. The substrate then reaches the desired rotation speed, either immediately or following a lower-speed spreading step. At this stage, most of the solution is expelled from the substrate. Initially, the fluid may be spinning at a different rate than the substrate, but eventually the rotation speeds will match up when drag balances rotational accelerations leading to the fluid becoming level. The fluid now begins to thin, as it is dominated by viscous forces. As the fluid is flung off, often the film will change colour due to interference effects. When the colour stops changing, this will indicate that the film is mostly dry. Edge effects are sometimes seen because the fluid must form droplets at the edge to be thrown off. Finally, fluid outflow stops and thinning is dominated by evaporation of the solvent. The rate of solvent evaporation will depend the solvent volatility, vapour pressure, and ambient conditions. Non-uniformities in evaporation rate, such as at the edge of a substrate, will cause corresponding non-uniformities in the film [35-38].

4) Chemical Bath Deposition (CBD)

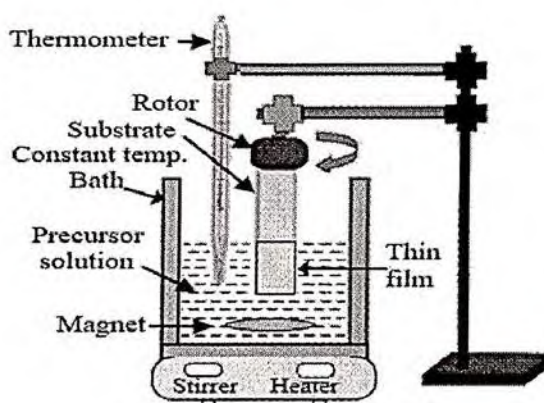


Fig.15. Schematic diagram of CBD

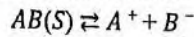
Chemical bath deposition (CBD) has been used as synthesis method for over 140 years.

Films can be grown on either metallic or non-metallic substrates by dipping them in appropriate solutions of metal salts without the application of any electric field. Deposition may occur by homogeneous chemical reactions usually reduction of metal ions in solution by a reducing agent. If this occurs on a catalytic surface, it is called an electro less deposition. The chemical methods are economical and easier than that of the physical methods. But there is no ideal method to prepare thin films, which will satisfy all possible requirements. Among the chemical methods, the chemical bath deposition (CBD) method is the most popular today because large number of conducting and semiconducting thin films can be prepared by this technique. It is also popular due to its simplicity and low cost. In this technique, the thin films can be deposited on different substrates like glass, ceramic, metallic etc. Many studies have been conducted over about three decades on chemical bath deposition (CBD) method for the preparation of thin films. Thereafter, due to good productivity of this technique on a large scale and simplicity of the apparatus, it offered most attractive way for the formation of thin films of metal oxides, metallic spinel type oxides, binary chalcogenides, ternary chalcogenides, superconducting oxides etc. It is simple and low-cost technique and has capability to produce large area of high-quality adherent films of uniform thickness [39-46].

The basic working principle behind the CBD process is similar to those for all precipitation reactions and it is based on relative solubility of the product. At a given temperature when the ionic product (IP) of reactants exceeds the solubility product (KSP), precipitation occurs. Whereas if the ionic product is less than the solubility product, then the solid phase produced will dissolve back to the solution resulting in no net precipitation [47].



A central concept necessary to understanding the mechanisms of CBD is that of the solubility product (K_{sp}). The solubility product gives the solubility of a sparingly soluble ionic salt (this includes salts normally termed "insoluble"). Sparingly soluble salt, $A(S)$, when placed in water, a saturated solution containing A^+ and B^- ions in contact with undissolved solid AB is obtained and equilibrium is established between the solid phase and ions in the solution as:



Applying the law of mass action,

$$K = \frac{[A^+][B^-]}{[AB]}$$

where K is stability constant, $[A^+]$, $[B^-]$ and $[AB]$ are concentrations of A^+ , B^- and AB in the solution, respectively.

The concentration of pure solid is a constant number, i. e. $C_{AB}(S) = \text{constant} = K^*$

$$K = \frac{[A^+][B^-]}{K^*}$$

$$KK^* = [A^+][B^-]$$

Since K and K^* are constants, the product of KK^* is also a constant, say K_{sp} , [48]. Therefore, above equation becomes

$$K_{sp} = [A^+][B^-]$$

The constant, K_{sp} , is called solubility product (SP) and $[A^+][B^-]$ is called the ionic product (IP). When the solution is saturated, the ionic product is equal to the solubility product. But when the ionic product exceeds the solubility product ($IP/SP = S > 1$), the solution is supersaturated (where S is degree of supersaturation), precipitation occurs and ions combine on the substrate and in the solution to form nuclei.

- 5) *Spray Pyrolysis Technique*: The spray pyrolysis technique has lately attracted increasing attention due to some appealing features such as their low production cost, flexibility in the substrate choice, possibility of large area deployment.

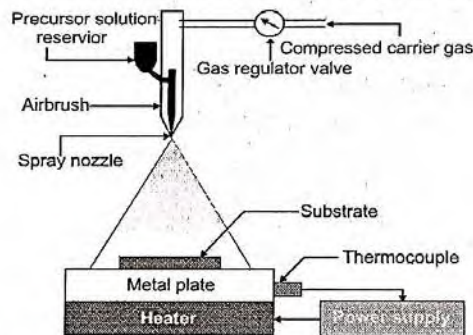


Fig.16. Schematic diagram of spray pyrolysis system

Numerous materials have been prepared in the form of thin film because of their potential technical value and scientific curiosity in their properties. A number of techniques have been examined in the search for the most reliable and cheapest method of producing thin films. Spray pyrolysis (SP) technique was initially suggested by Chamberlin and Skarman [49] in 1966 to prepare CdS thin films on glass substrates. Spray pyrolysis involves spraying of an aqueous solution containing soluble salts of the constituent atoms of the desired compounds to the heated substrates. The liquid droplets vaporize before reaching the substrate or react on it after splashing. Doped and mixed films can be prepared very easily, simply by adding to the spray solution a soluble salt of the desired dopants or impurity.

a) *Aerosol Transport*

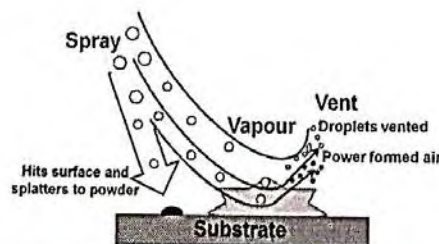




Fig.17.Schematics of aerosol transports

In the SP method, the metal salt precursor solution is atomized through a spray nozzle. Using pressurized air nozzle forms small droplets from the solution known as aerosols. These aerosols made fall on to the preheated substrates. The thermal decomposition takes place of the aerosols according to substrate temperature. The desired formation of film with specific properties can be done at optimum substrate temperature. It was observed that the film growth take place from the vapors droplets which are passing very close to the preheated substrate chemical vapor deposition as shown in Fig. 16. The solution droplets which fall on the substrate form a powdery deposit. This is suggested that instead of forcing solution droplets closer to the substrate but avoiding direct contact would improve the efficiency of film growth.

b) *Advantages of spray Pyrolysis Technique compared to other methods*

Spray pyrolysis technique has a number of advantages as depicted in the following points-

- It offers an extremely easy way to dope films with virtually any element in any proportion by merely adding it in some form to the spray solution.
- Unlike closed vapor deposition method, SP does not require high quality targets and/or substrates, and it does not require vacuum at any stage, which is a great advantage if the technique is to be scaled up for industrial applications.
- The deposition rate and the thickness of the film can be easily controlled over a wide range by changing the spray parameters, thus eliminating the major drawbacks of chemical methods such as sol-gel method which produces films of limited thickness.
- Operating at moderate temperatures (100 – 500°C), SP method can produce films on less robust material.
- Unlike high – power methods such as radio frequency magnetron sputtering (RFMS), it does not cause local over – heating that can be detrimental (harmful) for materials to be deposited.
- By changing composition of the spray solution during the spray process, it can be used to make layered film and films having composition gradients throughout the thickness.
- It is believed that reliable fundamental kinetic data are more likely to be obtained on particularly well characterized film surface, provided the film are quite compact, uniform and that no side effects from the substrate occur. SP offers such an opportunity.
- Low cost comparing with other methods which require complex devices and instruments with high cost.

6) *Successive-ionic Layer Adsorption and Reaction (SILAR)*: The SILAR method is another promising technique which was first employed by Nicolau in 1984 to deposit CdS and ZnS thin films on different substrate at room temperature. This process involves the alternate immersion of substrate into separate solution of anion and cation of the material to be deposited. Further, rinsing with high purity distilled water is carried out after every successive immersion [50]. The several advantages of this method are as

- a) it is a simple and versatile method.
- b) This method provides direct growth and simultaneous deposition of doped and multi-layered compounds.
- c) It is reproducible and relatively short duration process.
- d) It avoids wastage of material after reaction as there is no formation of precipitate.
- e) It can deposit film on less robust materials [51-53].

VI. CONCLUSION

Over the last 200 years, there is increase in the processes of depositing thin films materials have been considerably developing. Here we discussed some of them. In order to optimize the desired film thickness and characteristics, good understanding of the various deposition methods and processes is necessary. In this paper, several important aspects and techniques about thin film deposition process have been presented such as a brief overview of PVD and CVD processes. The brief overview of gas phase and liquid phase processes like Spin and Dip coating, CBD, SILLAR, Sol-Gel that are significant technique of CVD. The advantages and disadvantages of these techniques are discussed and found Spray Pyrolysis is feasible for us consequently, in our study, the process of spray pyrolysis (SP) was proposed which is based on the principle of CVD. Unlike closed vapor deposition method, SP does not require high quality targets and/or substrates, and it does not require vacuum at any stage, which is a great advantage if the technique is to be scaled up for industrial applications. It is low cost comparing with other and it doesn't require complex devices and instruments which are high cost.



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REFERENCES

- [1] D. A. Jameel, Thin Film Deposition Processes, International Journal of Modern Physics and Applications Vol. 1, No. 4, pp. 193-199, 2015.
- [2] J. Thirumalai, Introductory Chapter: The Prominence of Thin Film Science in Technological Scale, <http://dx.doi.org/10.5772/67201>.
- [3] A. Baptista, F. Silva, J. Porteiro, J. Míguez and G. Pinto, Sputtering Physical Vapour Deposition (PVD) Coatings: A Critical Review on Process Improvement and Market Trend Demands, *Coatings*, 8, 402; doi:10.3390/coatings8110402, 2018.
- [4] M. Urbina et al.; The theologies and strategies for the development of novel material systems and coatings for applications in extreme environments: a critical review' *Manufacturing Rev.* 5, 9 (2018).
- [5] Mattox, Donald M. "The Foundations of Vacuum Coating Technology" Noyes Publications (2003).
- [6] Mattox, Donald M. and Vivivienne, Harwood Mattox (editors) "50 Years Of Vacuum Coating Technology and the Growth of the Society of Vacuum Coaters", Society of Vacuum Coaters (2007).
- [7] H. Soonmin, S. A. Vanalakar, Ahmed Galal and Vidya Nand Singh, A review of nanostructured thin films for gas sensing and corrosion protection, *Mediterranean Journal of Chemistry*, 7(6), 433-451, 2019.
- [8] P. A. Savale, Physical Vapor Deposition (PVD) Methods for Synthesis of Thin Films: A Comparative Study, *Archives of Applied Science Research*, 8 (5):1-8, 2016
- [9] M.C. Lovell, A.J. Avery and M.W. Vernon, *Physical Properties of Materials*, Van Nostrand Reinhold, England, (1976).
- [10] MELLES GRIOT technical manual. (www.mellesgriot.com).
- [11] Westwood, William D. "Sputter Deposition", AVS Education Committee Book Series, AVS Vol. 2 (2003).
- [12] Markus Back, Investigation of the properties of thin films grown via sputtering and resistive thermal evaporation, Uppsala University, [2015]
- [13] M. Lorenz, R. MSR. 25 years of pulsed laser deposition. *J. Phys. D. Appl. Phys.*; 47:030301-030303. DOI: 10.1088/0022-3727/47/3/030301, 2014.
- [14] D. Lowndes, D. Geoghegan, P.AA Rouleau CM. Synthesis of novel thin film materials by pulsed laser deposition. *Science*; 273(5277):898-903. DOI: 10.1126/science.273.5277.898, 1996.
- [15] M.NR Ashfold, F. Claeysens, GM Fuge, SJ Henley. Pulsed laser ablation and deposition of thin films. *Chem. Soc. Rev*;33(1):23-31. DOI: 10.1039/B207644F, 2004.
- [16] L. Lynds, B.R. Weinberger, DM Potrepka, GG. Peterson, MP Lindsay. High temperature superconducting thin films: The physics of pulsed laser ablation. *Physica C*;159(1- 2):61-69. DOI: 10.1016/0921-4534(89)90104-4 *Advance Deposition Techniques for Thin Film and Coating* doi.org/10.5772/65702 147, 1989.
- [17] RE. Russo, X Mao, JJ Gonzalez, V Zorba, J. Yoo. Laser ablation in analytical chemistry. *Anal. Chem.*;85(13):6162-6177. DOI: 10.1021/ac4005327, 2013.
- [18] Geyer TJ, Weimer WA. Parametric effects on plasma emission produced during excimer laser ablation of YBa2Cu3O7-x. *Appl. Spectros.*;44(10):1659-1664. DOI: 10.1366/0003702904417454, 1990.
- [19] W. A. Bryant, *J. Mater. Sci.* 12, 1285, 1977.
- [20] R. N. Ghoshtagore, *J. Electrochem. Soc.* 125, 110, 1978.
- [21] T. Suntola, *Thin Solid Films* 216, 84, 1992.
- [22] R. R. Chamberlin and J. S. Skarman, *J. Electrochem. Soc.* 113, 86, 1966.
- [23] C. J. Brinker, A. J. Hurd, G. C. Frye, K. J. Ward and CS. Ashley, *J. Non-Cryst. Solids* 121, 294, 1990.
- [24] C. C. Chen, M. M. Nasrallah and H. U. Anderson, *J. Electrochem. Soc.* 140, 3555, 1993.
- [25] C. J. Brinker, G. C. Frye, AJ. Hurd and CS. Ashley, *Thin Solid Films* 201, 97, 1991.
- [26] Olayinka Oluwatosin Abegunde, Esther Titilayo Akinlabi, Oluseyi Philip Oladijo, Stephen Akinlabi and Albert Uchenna Ude ; Overview of thin film deposition techniques; *AIMS Materials Science*, 6(2): 174-199.
- [27] Olayinka Oluwatosin Abegunde, Overview of thin film deposition techniques, *AIMS Materials Science*, 6(2): 174-199.
- [28] Muñoz-Rojas D, MacManus-Driscoll J. Spatial atmospheric atomic layer deposition: a new laboratory and industrial tool for low-cost photovoltaics. *Mater Horiz.*; 1:314-320, 2014.
- [29] Pardon Nyamukamba, Omobola Okoh, Henry Mungondori, Raymond Taziwa and Simcelile Zinya; *Synthetic Methods for Titanium Dioxide Nanoparticles: A Review*; doi 10.5772/intechopen.75425 (2018).
- [30] Livage J, Ganguli D. Sol-gel electrochromic coatings and devices: A review. *Sol. Ener. Mater. Sol. Cells.* 2001;68:365-381. DOI: 10.1016/S0927-0248(00)00369-X
- [31] Tjong SC, Chen H. Nanocrystalline materials and coatings. *Mater. Sci. Eng. R.* 2004;45(1-2):1-88. DOI: 10.1016/j.mser.2004.07.001
- [32] Brinker CJ, Scherer GW. *Sol-Gel Science*. San Diego: Academic Press; 1990.
- [33] Review Article: Withdrawing a solid from a bath: how much liquid is coated? E. Rio, & F. Boulogne.
- [34] Mitzi, D.B., Kosbar, L.L., Murray, C.E., Copel, M. and Atzali, A., "High mobility ultrathin semiconducting films prepared by spin coating", *Nature*, 428, 299-303, 2004.
- [35] Flow of a Viscous Liquid on a Rotating Disk, E. G. Alfred et al., *J. Appl. Phys.* (29), 858-862 (1958).
- [36] Characteristics of resist films produced by spinning, D. Meyerhofer, *J. Appl. Phys.* (49), 3993-3997 (1978).
- [37] An Investigation of the Thickness Variation of Spun-on Thin Films Commonly Associated with the Semiconductor Industry, J. W. Daughton, *J. Electrochem. Soc.* (129), 173-179 (1982).
- [38] Dynamics of polymer film formation during spin coating, Y. Mouhamad, *J. Appl. Phys.* (116), 123513 (2014).
- [39] Yagi, K. Kakizawa, K. Murakami and S. Kaneko, *J. Ceram. Soc. Jap.*, 102 (1994)
- [40] A. I. Y. Tok , F.Y. C. Boey, X. L Zhao, *Journal of Materials Processing Technology* 178, 270, 2006.
- [41] A. Aoki and G. Nogami, *J. Electrochem. Soc.*, 143, 191. C. S. Huang, C. S. Tao and C. H. Lee, *J. Electrochem. Soc.*, 144 (1997) 3556, 1996.

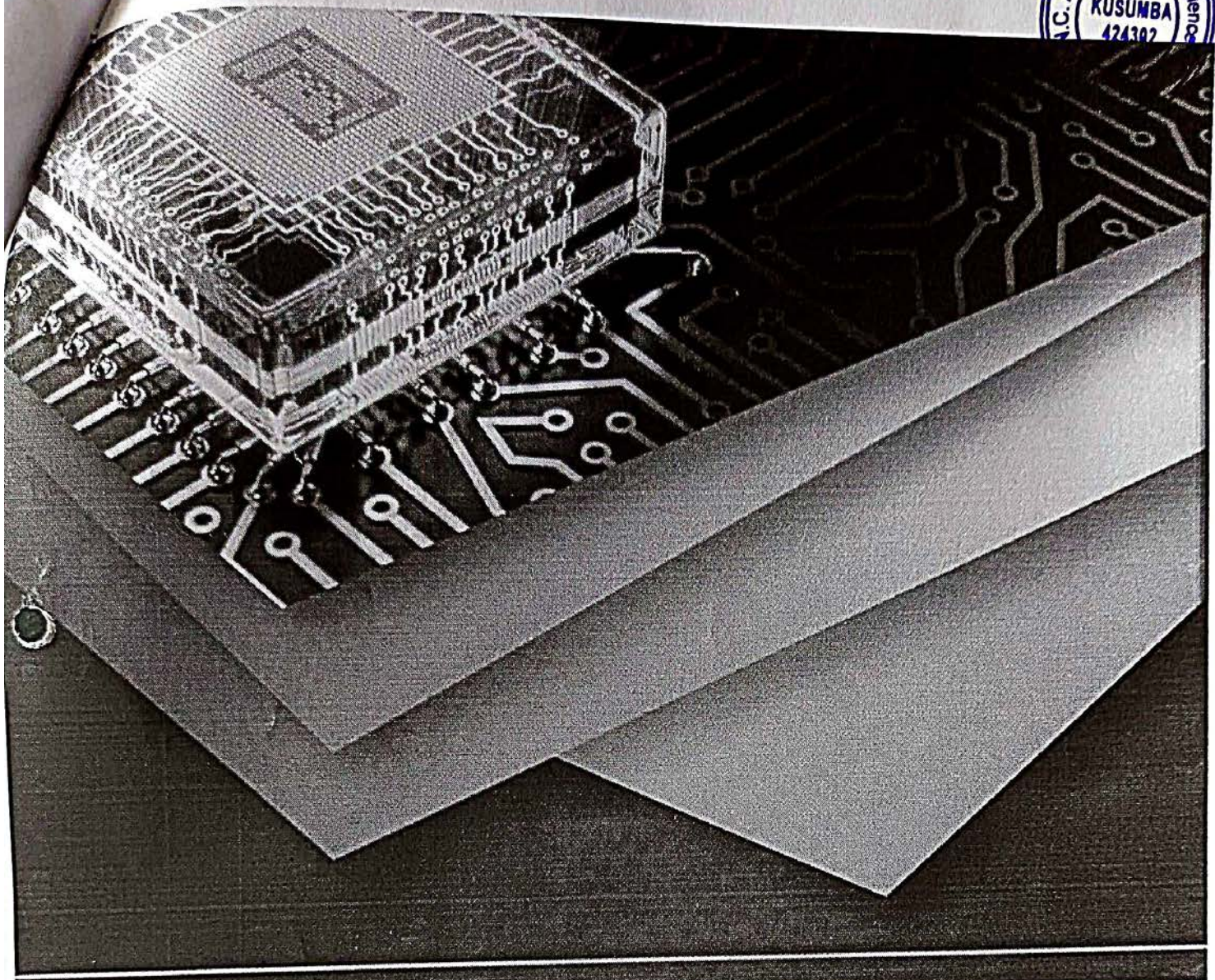


- [42] Hyun-Suk Kim, Chang Sool Kim, Sun-Geon Kim, J. of Non- Crystalline Solids 352, 2204, 2006.
- [43] P. S. Patil, E. A. Ennaoui, C. D. Lokhande, M. Müller, M. Giersig, K. Diesner and H. Tributsch, Thin Solid Films, 310, 57, 1997.
- [44] C. H. Chem., A. A. J. Buysman, E. M. Kelder and J. Schoonman, Solid State Ionics, 80, 1, 1995.
- [45] R. N. Singh, J. F. Koenig, G. Poillerat and P. Chartier, J. Electroanal. Chem., 314, 214, 1991.
- [46] A. G. Valyomana, S. Mathew, K. P. Vijaykumar and C. Purushottam, Bull. Mater. Sci., 16, 55, 1993.
- [47] S. R. Das, K. L. Chopra, Thin film Solar Cells, in, Plenum Press, New York, 1998.
- [48] R. S. Mane, C.D. Lokhande, Chemical deposition method for metal chalcogenide thin films, Mater Chem Phys., 65, 1-31, 2000.
- [49] R. R. Chamberlin and J. S. Skarman; Chemical Spray Deposition Process for Inorganic Films, J. of electrochemical society, 113, 1, 86-89 (1966)
- [50] Y.F. Nicolau, Solution deposition of thin solid compound films by a successive ionic-layer adsorption and reaction process, Appl. Surf. Sci. 23, 1061-1074, 1985.
- [51] B.R. Sankapal, R.S. Mane, C.D. Lokhande, Successive ionic layer adsorption and reaction (SILAR) method for the deposition of large area (j 10 cm 2) tin disulfide (SnS 2), Thin Films 35, 2027-2035, 2000.
- [52] N. Sya, M. Mustakim, C.A. Ubani, S. Sepeai, N.A. Ludin, M. Asri, M. Teridi, M.A. Ibrahim, Quantum Dots Processed by SILAR for Solar Cell Applications vol. 163, pp. 256-270, <https://doi.org/10.1016/j.solener.2018.02.003>, 2018.
- [53] H.M. Pathan, C.D. Lokhande, Deposition of metal chalcogenide thin films by successive ionic layer adsorption and reaction, SILAR) method 27 (2004) 85-111. [34] A.B. Djuricic, Y.Y. Xi, Y.F. Hsu, W.K. Chan, Hydrothermal Synthesis of Nanostructures, pp. 121-128, 2007.

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Advance Synthetic Methods for Succinimides

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ABSTRACT:-The present review informs about the advance synthetic methods for the important succinimide pharmacophores as drug candidate including the applications. A brief information about the chemical reaction for succinimides has also been discussed herein. However, the radical study is not involved.

Keywords: - Succinimides, cyclic imides, Biological activities.

INTRODUCTION:-Cyclic imide derivatives of phthalimide group has been synthesized and reported by Total et al using following methods. They synthesized using iso-indolinedione moieties as a pharmacophore. Isoindole moiety exhibit various bioactive properties such as hypnotic and sedative properties. Isoindoline 1,3-dione (phthalimide) is one of the compound within cyclic imides group consisting of two carbonyl groups bounded to an amine. Isoindoline moiety is one of the precursor pharma moieties. Total et al used all and catalytic reagents for the synthesis purpose and TLC used for purification with silicagel and UV light of 254 nm.

CYCLIC IMIDES: METHODS FOR SYNTHESIS

General process- Total et al (2015)

Synthesis of phthalimide derivatives: - 0.013 mol. of phthalic anhydride and amine volume 0.14 mol. Was taken in a round bottom flask and acetic acid (glacial) was gradually added to the reaction mixture (volume-15ml). The temperature was kept 110°C for a time period of 10 minute. After completion of reaction the reaction mixture was transferred into cooled water for the solidification precipitate was filtered washed well using water and collected crystalline was performed by help of Et-OH. Synthesis: N-Amino phthalimide

A quantity of 14.7 gm (0.1mol) was mixed well in Et-OH (100gm) and reaction mixture was ice cooled at a temperature of 5°C with continuous stirring. After than a 3.6ml of hydrazine (0.11) ml was gradually added to it along with continuous stirring of mixture about 02 hours. Reaction mixture were ice cooled and crystallisation was done using Et-OH. C. Synthesis of imine derivative For N- Amino phthalimide Aldehyde with concentration of 0.0063 ml and N- amino phthalimide (0.0062) ml was placed in to a sand bottom flask fitted with reflux condensation and magnetic stirrer. Then a 50 ml volume of methyl alcohol and H₂SO₄ (1 drop) pushed into the reaction mixture. The reaction mixture was further refluxed for 35 min. now the mixture was cooled down for solidification with cold water and crystallization was performed using Me-OH. The method reported by total et al(2015). For a newer series of phthalimides which are joined to various bioactive heterocyclic compounds. It is a multistep synthesis. In which firstly phthalimide and hydrazine are refluxed to form N-amino phthalimide. In the next step of synthesis this compound reacts with aldehyde compound or acid chloride using greener microwave approach and reflux process. The reaction leads to the production of a Schiff base and amide derivative. Results of the process were analysed and confirmed using various spectral as well as physical techniques. Compounds were found to be good antimicrobial agents is tested for the same activity as for standard methods author specially marked the antifungal and antibacterial activities for

special species.

Synthesis of cyclic imides derivatives- Total et al (2015) Method 1 0.013g zinc dust with N amino phthalimide (0.01mol) acid taken in a flask and 0.019 mol acid chlorides was added to it. The mixture was stirred well for four minutes at room temperature. The extraction for products was performed using a 25 ml volume of chloroform. The layer of chloroform was washed twice with a 10ml saturated solution of sodium bicarbonate. After then extracted compound was washed well with water. Now this washed products was further concentrated and crystallization was done using Me-OH.

Method (II) Total et al (2015)

A small reaction glass vial was placed in to a microwave oven containing N-amino phthalimide (0.003/mol). Reaction was performed at 450 watt for 4 min and the obtained product was crystallised by means of methyl alcohol. Above methods is originally separated by Langale et al. (2011).

Number of N-Phthalimides were prepared and reported well by means of reflux reaction using phthalic anhydride and amine. Sulphonic acid was used as reaction catalyze in this work. Products were confirmed with a good yield. Similarly another work marks for the synthesis of N-isophthalate imides by lighter et al (2007) by reacting the N-phthalimise (in Me-OH) With Hydrazine AT 05^oC. In above reported method different aldehyde molecules were reacted with N-amino phthalimide and acid halide in a similar way. Results were found to be excellent in respect of yield and crystallinity as reported by author. Author performed the amide derivative synthesis here in with two different methods as described earlier method 1 and method 2. Method 2 seems to have an advantage being one pot microwave assisted and solvent free process.

Method 1 has a bigger workup as compared with method -ii as first one requires for Zinc purification procedure in respect to obtain pure product in a good yield.

Method -ii results with a good yield as compared with method 1 as this involve crystallization of product with a pure state in reaction vessel there in. author reported antimicrobial activities of synthesized compounds. For MRSA strain s. Aureus and methellin resistant; ELBS producing species E.Coli as well as S. Pyogens. Ampitin and carbomocillin (100 microgram/disc) was used as antibiotic standard whereas nystonin for the antifungal activity against C.albicans.

Di-methyl sulphonated (3%) solutions was used s control medium. Incubate period was fixed as 24 hrs and 72 hrs at 37^oc for antibacterial and antifungal activities respectively. Significant antifungal activity for C.Albicans is separated with N-Hydroxy naphthalene sulphonic acid phthalimide and and thiophenene phthalimide derivatives compounds synthesized are separated by author have a more pronounced antifungal and antibacterial activities as compared with other antibiotic drugs used here in assay.

Dhivare and Yadav R et al (2016) separated the synthesis of N-substituted phenyl succinimide derivatives. They performed synthesis using reaction between 1^o aromatic amines and succinic anhydrides in the presence of acetyl chloride and benzene.

N-Phenyl succinimide (Dhivare.c , R.yadav et al 2016).

A significant volume of succinic anhydride taken in reaction vessel(1 mol) and benzene was added to it gradually. After then mixture was under processed for reflux condensation for 20 minutes along with continuous stirring. As the reaction mixture turns into a clear solution. A mixture of anilines substituted (1mol) with benzene (10ml) was gradually mixed into reaction vessel and reaction was allowed for a time period of 20 min with continuous stirring. As a result a homogeneous reaction product is obtained. Now benzene is evaporated and a white creamy powder (3-N-Ph-propanoic acid was obtained. The next closure of ring



was accomplished with acetyl chloride in next step of synthesis the synthesized 3-N Phenyl propanoic acid was refluxed up to evolution of hydrogen chloride and subsequent N-phenyl succinimide formation for 20 min. similarly the 4-(ph-carbonyl)-butanoic acid was refluxed for 20 min with acetyl chloride for the complete HCl gas evolution and subsequent formation of N-Phenyl glutarimides. Author explored formation of some newer phenyl succinimide derivatives by means of ring opening process for acid which was formed as an intermediate. They achieve good yield with this method or say using the acetyl chloride ring closure process. They also tested the synthesized compounds for their antimicrobial actions against *A.niger* and *C.Albicans* using solvent DMSO.

Amphotericin was used as leprose drug for the antifungal assay. Furthermore author remarked the significant key role for the newly synthesized compounds in their work which establishes the method of synthesis is excellent one. succinimide derivatives are reported will for their antifungal activities specifically against *A.niger* and *C.Albicans*. However other derivatives in their work were found to be not active for antifungal activity. The method adopted herein may be allowed for future similar drug synthesis as references.

Patil M. (2016) et al reported their Work for the Synthesis of some novel di- azo compounds of cyclic Imides. Author Performed his work by names of Diazo Coupling reaction They synthesis a new series of azo coupled complexes of N- substituted cyclic imides. Compounds were tested for anti microbial activities and found to be good in action in an enhanced way.

Along with above authors also proposed the uses of newer Synthesize, compounds for dyeing purpose to silk cotton, polyester, fabrics.

Author noticed the importance of halo vinyl. Aldehyde, azo and cyclic imide as a pharmacophore. They made an immense effort to commute these moieties say halo vinyl aldehyde, azo compounds and cyclic imides as a single molecule structure.

This work scheme can be described as following:

(1) Synthesis of 2,5- diazido-1- substituted phenyl-1-H pyrrol -3,4- di carbaldehyde.

Solution- 2,5- diazido-1- substituted phenyl-1-H pyrrol -3,4- di carbaldehyde was mixed (0.01 mole) with Et-OH (10ml) and 0.02 mole P-toluene sulphuric acid along with. 0.03 mole sodium azide was mixed in addition.

Reaction mixture was refluxed for 4-6 Hrs time period and then poured in twice cooled water for the precipitation of compounds. The Crude Product were washed with water and crystallized by the help of Ethyl alcohol.

2.Synthesis: 2,5-di amino-1- substituted phenyl 1-H- Pyrrol — 3,4- dicarbaldehyde. The compounds. Obtained from (I) (0.026 mole) were added with 12 ml volume of Me-OH and. 0.05 mole sodium dithionite and reflux for the period of 5 Hrs. at oil bath. After the Process refluxed product was filtered off and washed with Me-OH. Now excess solvent was distilled off and mixture was transferred over the ice for solidification. The Crude Product obtained filtered and washed with water. Recrystallisation was performed using the solvent Et-OH.

Synthesis of 2,5- bis (E)-(2-hydroxy naphthalene-1-yl) diazenyl)-1- substituted ph – 1- H-pyrrol-3,4- di carbaldehyde.

The compounds obtained (A) from step (II) were mixed with HCl(Con.) 6 ml and 6 ml H₂O. The reaction mixture was cooled at a temperature of 5° C in ice. Now 0.02 mol of NaNO₂ were mixed in 20ml water at temperature of 5°C in respect to obtain mixture (B).

Now solution (A) and (B) were mixed gradually and drop wise with continuous stirring. This solution is then mixed with solution of 0.02 mole 2-naphthol dissolved in to 40ml. NaOH (10%) at a temperature of 5°C. Ice bath was used for the chilling of Reaction mixture for 10 minutes along with continuous stirring. After the 10 minutes, precipitated was obtained then filtered, as washed well. Recrystallisation was performed with glacial acetic acid and finally product was dried for 12 hour at a temperature of 70° C in an electric oven. The initial Compounds for vinyl aldehyde were synthesized by the treatment of 2,5- diazido-1- substituted phenyl- 1H- Pyrrol-3,4 dicarbaldehyde and sodium dithionate. After than diazonium Reaction was performed over 2, 5- diamino -1- substituted phenyl 1-H- Pyrrol-3, 4- dicarbaldehyde which was underwent a coupling reaction with 2- naphthol in respect to obtain the product. The product yield was found to be satisfactory and products structures were confirmed by means of spectral, techniques. Researcher performed anti microbial test for synthesized compounds using agar diffusion method. Mueller Hinton agar (Hi-media) was used for in vitro anti microbial activities. In respect of prepare Muller plates a volume of 15 ml media in to sterile Petri dish after than plates were solidified for 5 minutes in time period following the swabbing of 0.01% in column suspension in a uniform way. Now these inoculums were allowed to be dried for a time period of 5 min and a fix concentration were transferred to the disks. The disk was now put over the medium surface and the compounds were allowed to get diffuse in to for 5 minutes followed by the incubation for 24 Hrs at the temperature of 38° C. Inhibition zones were obtained after the completion of incubation which were measured and recorded. Both gram positive as well as gram negative bacterial strain were used for assay with solvent DMF. Standard was used as Ampicillin, Antifungal assay was performed using PDA (potato Dextrose Agar) nutrient Medium, A. Nizer and C. albicans in Dimethyl sulphoxide solvent Amphotericin – B used as standard reference drug for antifungal screening.

Author reported, the Synthesis of a new series of compounds in a facile way along with good product yield. They claimed for the potent anti bacterial anti fungal activities of compounds synthesized (Azoviny derivatives containing a cyclic imides scaffold) along with their use as dye for silk, cotton and polyester fibres.

Author also emphasized, here in the development of newer strategies in continuation as cyclic imides as key scaffold as a pharmacophore. Comprehensive methods in synthesis of succinimides scaffold as a pharmacophore:- Patil m.m et al (2014) described in his review the widely used synthesis method for succinimide scaffold as a pharmacophore moiety. It Inform about key method and related anti microbial properties and their related derivatives-

(A) By means of Succinic acid and SOCl₂ (Rajput A.P 2007) - synthesis for the 1-substituted phenyl pyrrolidine-2,5-dione is reported (Rajput A. P 2007) by means of condensation Reaction of Succinic acid and 1° aromatic Amine with SOCl₂. The reaction is proceed under reflux conditions.

Succinic acid + 1° Aromatic amine SOCl₂/ reflux → 1- Substituted Ph- Pyrrolidine-2,5 – dione

(II) By means of cyclic Anhydride and Lewis acid (catalyst) (Raddy py 1997)

In this method a direct synthetic approach is used to obtain substituted succinimides. In this order Succinic anhydride reacts with 1° Amine along with Zn Br₂ (Lewis acid), Reaction time reported for 1-2 hours in benzene solvent and then followed to obtain substituted succinimides

(III) By means of acetic Anhydride and sodium acetate (anhydrous) in Acetone (Dry) Shetgin NP 2005)

Author reports a condensation reaction in mild conditions for aromatize amine and succinic anhydride in presence of dry acetone leading to amic acid intermediate



which further undergoes in a cyclization process by means of acetic anhydride and anhydrous sodium acetate at a temperature of 100° C resulting in to N- Phenyl Succinimide scaffold.

- (IV) By means of cyclic anhydride and amine with Ac – Cl, (Martin SF 1997) This method involves treatment of succinic anhydride with primary amine in the presence of Benzene Solvent : Acetyl chloride is used as a dehydrating agent in this reaction obtaining succinimides scaffold.
- (v) With cyclic anhydride and SOCl₂ (Zentz F. et al – 2005).

Reaction of succinic anhydride with primary amine leads to the amic acid intermediate. In the presence of SOCl₂ the intermediate amic acid furnishes cyclisation leading to the Product dithin-di-imide and di-imides. Here- N- Substituted Cyclic Imides (succinimide) is not formed in this Reaction.

- (vi) Without any solvent method (Chandra sekhar s. 1997)

Author reports synthesis of cyclic imide (Succinimide) by means of succinic anhydride (cyclic anhydride) in TaCl₅- silica gel reaction conditions. TaCl₅ being a Lewis acid act as a reaction Catalyst.

- (v) Solid phase Method using SBBC (Red Mogadam; 2005)

A solid phase reaction approach is used in this method to obtain N- Aryl-Succinimide. SBBC or Silica Bound Benzoyl chloride was used as a dehydrating agent in this reaction. The key feature of method is the solvent free approach and the recyclability of silica bound Benzoyl chloride

- (vi) Modified Mitsunobu Reaction (Walker M.A et al 1995)

Author used a modified version of Mitsunobu reaction to synthesis N- substituted succinimides they used this reaction between alcohol and succinimides in presence of triphenyl phosphine as well DIAD (DI-O-ISO propyl- azodicarboxylate

- (vii) Green approach: microwave assisted method (Upadhyay S.K 2015) Author reports a microwave assisted synthesis method for N- substituted succinimides.

Reaction process involves primary amine and succinic anhydride reaction in DMF solvent, water or acetic anhydride. The key Feature of microwave assisted method is reported as its excellent high yield.

Using Sub Critical Water-S.F. Alpman(2003)-

Author reports synthesis approach for the synthesis of succinimide derivatives by means of sub-critical water. In This Method Aniline is reacted with succinic acid at 280° temperature with water for a time period of 30 min. Process results a comparative and noticeable high yield of Product

In Form Ionic Liquids – (Dabiri M. Et al 2007) in this method Alkyl or aryl amine treated with cyclic imides leading to the synthesis of N- Aryl or N- Alkyl- Amides in the presence of Ionic liquid and mild reaction situation.

This method is significant and has advantage of easy operation, Simplicity, good yield; shorter time duration and more green approach as it avoids toxic solvents or catalysts.

Using choline chloride (Lewis Acid) Process involves (Xie Y et al 2009) reaction of Aniline) and alkyl amine and succinic anhydride by means of ionic liquid choline chloride (Lewis- ACID). 2ZnCl₂, leading to N- ph-Succinimide. Process occurs under mild conditions with good yield at a temperature of 60 degree centigrade.

By tri fluoro acetic acid SB at all 2011

Author reports synthesis of N substituted phenyl succinimide by the reactions of chiral amine and anhydride. Synthesis proceeds in a pestle manner with good yield.



One pot Synthesis

This is one pot method for the synthesis of and substituted succinimide in various forms. Action of succinic anhydride and amines aryl or alkyl with sulphuric acid 10% as a catalyst results into the synthesis of N-substituted succinimide. One pot character of this method is the advantage of this along with good yield.

By acetyl chloride and substituted Succinic acid: (Kumar et al. 2008.) Author reported synthesis of final succinimide by means of the reaction with hydroxyphenyl succinimide and acetyl chloride.

Kotigobbe et al.1998: This method reports about the synthesis of chiral succinimide. Reaction starts with (R)-2 succinimide make acid and auto ISO butyl aniline using EDC

3-(Di-methylamino-propyl):Carbonyl diamide. By means of succinimide and aryl halides:- It is hard direct synthetic method synthesis of N-substituted succinimide reaction involves the treatment of succinimide with coumarin halide and azo coumarin resulting into the desired product. Reaction proceeds under the presence of carbonate in acetone. (Maarula Siddharth et al.2012).

By carboxylic acids Bhrama et al.2008: Pirating into 3 dicarboxylic acid is reported with acetic anhydride. By 2 amino 5 chloral and progeny and hydrate (Banneman et al. 2008) Author reported about the synthesis of substituted succinimide in a good yield by means of a reaction of progeny and hydride and 2 amino chloral pirating. Process also claims for a good yield.

The chemical reactivity of substituted Succinimide:

Chloroformylation halo Vinyl derivative is obtained on the dichloro, di or mono substituted succinimide. Reaction proceeds under the presence of phosphorus oxychloride and dimethylformamide.

Chloroformylation and succinimide Shoot At All 1965 and final succinimides. Chloroformylation and succinimide images- Kvitko et al 1973.

Alkyl and substituted succinimides reaction proceeds dichloro diphenyl myelination leading to the dichloro diformyl pyrroles by means of ring aromatisation through intermediate species.

Reaction occurs in the presence of phosphorus oxychloride and dimethyl formamide. This product substituted dichloro formal pyrrole is used as a precursor for the synthesis of various derivatives. Ring opening of succinimides of N-substituted succinimide shows nucleophilic ring opening reactions in both intra as well as intermolecular.

Ring opening reaction of succinimide can be designated as per the nucleophile species like oxygen nitrogen, carbon or any hybrid.

Ring opening reaction of N-substituted succinimides can be classified as intra and intermolecular.

N-linked nucleophiles : carbonyl group present succinimide ring scaffold enables it to react with amine molecules. Reaction has been reported with a means of diamine and hydrogen as a nucleophilic species. N hydroxyl succinimide molecules reacts with amine leading to with good yield.

CONCLUSION:- Succinimides are very high reactive compounds due to methylene as well as carbonyl group in its structure, leading to the various important scaffolds for different pharmaceutical purpose. Reaction and synthetic methods are summarised in this contemporary review.

REFERENCES

- Aeberli P, Gogerty JH, Houlihan WJ, Iorio LC. Synthesis and central nervous system depressant activity of some bicyclic amides. J Med Chem 1976;19(3):436-8.
- Alpman SF, Koldas S, Giray ES. Clean and efficient synthesis of N-aryl and N-alkyl succinimides in sub-critical water. Eur J Med Chem 2003;60(3):8099-104.
- Bennamane N, Kaoua R, Hammal L, Nedjar-Kolli B. Synthesis of new amino-1,5-



benzodiazepine

and benzotriazole derivatives from dimedone. *Org Commun* 2008;1(3):62-8.

- Brahma S, Ray JK. Halovinyl aldehydes: useful tools in organic synthesis. *Tetrahedron* 2008;64(13):2883-96.
- Bryant LRB, Coyle JD. Photochemical hydrogen abstraction and cyclisation in maleimide derivatives. *Tetrahedron Lett* 1983;24(17):1841-4.
- Chandrasekhar S, Thakhi M, Uma G. Solvent free N-alkyl and N- arylimides preparation from anhydrides catalyzed by TaCl₅ - Silica gel. *Tetrahedron Lett* 1997;38(46):8089-92.
- Collado MI, Lete E, Sotomayor N, Villa MJ. Synthesis of 5- arylpyrrolo[2,1-a]isoquinolin-3(2H)- ones from N- phenethylsuccinimides and organolithium reagents. *Tetrahedron* 1995;51(16):4701-10.
- Correa R, Filho VC, Rosa PW, Pereira CI, Schlemper V, Nunes RJ. Synthesis of new succinimides and sulphonated derivatives with analgesic action in mice. *Pharm Pharmacol Comm* 1997;3(2):67- 71.
- Crider AM, Kolczynski TM, Yates KM. Synthesis and anticancer activity of nitrosourea derivatives of phensuximide. *J Med Chem* 1980;23(3):324-6.
- Dabiri M, Salehi P, Baghbanzadeh M, Shakouri M, Otiokhesh S, Ekrami T, et al. Efficient and eco-friendly synthesis of dihydropyrimidinones, bis(indolyl)methanes, and N-alkyl and N- arylimides in ionic liquids. *J Iran Chem Soc* 2007;4(4):393-401.
- El-Saied AA, Mohamed AA, Atif AE. A convenient synthesis of some Pyrazolinone and Pyrazole derivatives. *J Chin Chem Soc* 2004;51(5A):983-90.
- Filho VC, Nunes RJ, Calixto JB, Yunes RA. Inhibition of Guinea- pig ileum contraction by phyllanthimide analogues: Structure-activity relationships. *Pharm Pharmacol Comm* 1995;1(8):399-401.
- Guzman A, Romero M, Muchowski JM. Vilsmeier-Haack reaction with succinamidals: a convenient synthesis of 5- chloropyrrole-2-carboxaldehydes and 5-chloropyrrole-2,4- dicarboxaldehydes. *Can J Chem* 1990;68(5):791-4.
- Hall IH, Wong OT, Scovill JP. The cytotoxicity of N-pyridinyl and N-quinolinyl substituted derivatives of phthalimide and succinimide. *Biomed Pharmacother* 1995;49(5):251-8.
- Hargreaves MK, Pritchard JG, Dave HR. Cyclic carboxylic monoimides. *Chem Rev* 1970;70(4):439-69.
- Hazra BG, Pore VS, Day SK, Datta S, Darokar MP, Saikia D, et al. Bile acid amides derived from chiral amino alcohols: novel antimicrobials and antifungals. *Bioorg Med Chem Lett* 2004;14(3):773-7.
- Isaka M, Prathumpai W, Wongsap P, Tanticharoen M. Hirsutellone F, a dimer of antitubercular alkaloids from the seed fungus *Trichoderma* species BCC 7579. *Org Lett* 2006;8(13):2815-7.
- Johnston TP, Piper JR, Stringfellow CR. Terminal dicarboximido analogs of S-2- omega.- aminoalkylamino) ethyl dihydrogen phosphorothioates and related compounds as potential antiradiation agents. 2. Succinimides, glutarimides, and cis-1,2- cyclohexanedicarboximides. *J Med Chem* 1971;14(4):350-4.
- Kaczorowski GJ, McManus OB, Priest BT, Garcia ML. Ion channels as drug targets: The next GPCRs. *J Gen Physiol* 2008;131(5):399-405.
- Katigawa O, Izawa H, Sato K, Dobashi A, Taguchi T. Optically active axially chiral anilide and maleimide derivatives as new chiral reagents: synthesis and application to asymmetric Diels-Alder reaction. *J Org Chem* 1998;63(8):2634-40.

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- Kivitko IY, Panfilova EA. Chloroformylation of N-succinimide and synthesis of enamines- pyrrolone derivative, *Khim Geterotsikl Soedin* 1973;4:507-10.
- Kornet MJ, Crider AM, Magarian EO. Potential long-acting anticonvulsants. *J Med Chem* 1977;20(3):405-9.
- Kumar R, Jain S, Jain N, Singh M. Synthesis and biological evaluation of some novel analogue of p-Hydroxyaniline. *Acta Pharm Sci* 2008;50:183-8.
- Kutto K. Synthesis of N-Vinylsuccinamides. *Bull Chem Soc Jap* 1962;35(10):1736-7.
- Langade MM. Efficient one pot synthesis of N-alkyl and N-aryl imides. *Der Pharm Chem* 2011;3(2):283-6.
- Martin SF, Limberakis C. Diprotection of primary amines as N- substituted-2,5-bis[(triisopropylsilyloxy)pyrroles (BIPSOP). *Tetrahedron Lett* 1997;38(15):2617-20.
- Marulashiddaiah R, Kalkhambar RG, Kulkarni MV. Synthesis and biological evaluation of cyclic imides with coumarins and azacoumarins. *Open J Med Chem* 2012;2(3):89-97.
- Musso DL, Cochran FR, Kelley JL, McLean EW, Selph JL, Rigdon GC, et al. Design and synthesis of (E)-2-(4,6-Difluoro-1- indanylidene)acetamide, a potent, centrally acting muscle relaxant with antiinflammatory and analgesic activity. *J Med Chem* 2003;46(3):399-408.
- Pearson RG, Songstad J. Application of the principle of hard and soft acids and bases to organic chemistry. *J Am Chem Soc* 1967;89(8):1827-36.
- Pennington FC, Guercio PA, Solomons I A. The antihypertensive effect of a selective central muscarinic cholinergic antagonist: N-(4-diethylamino-2-butynyl)-succinimide. *J Am Chem Soc* 1953;75(9):2261-1.
- Raddy PY, Kondu S, Toru T, Ueno Y. Lewis Acid and Hexamethyldisilazane promoted efficient synthesis of N- alkyl-and N-arylimide derivatives. *J Org Chem* 1997;62(8):2652-4.
- Rajput AP, Rajput SS. Preparation and antimicrobial activity of 2,5-dichloro-3,4-diformyl-(N-substituted phenyl)Pyroles. *Asian J Chem* 2007;19(6):4939-41.
- Rajput SS. Synthesis and characterization of bis-heterocyclic derivatives of 1-(3-Chlorophenyl)- Pyrrolidine-2, 5-Dione. *IJAPBC* 2012;1(2):242-6.
- Ranadive VB, Samant SD. Reactions of amines with N-hydroxy-, N-(2,3-epoxypropoxy) succinimide and -naphthalimide. *Indian J Chem B Org* 1995;34B(2):102-6.
- Red-Moghadam K, Kheyrkhan L. Solid-phase synthesis of N-aryl succinimides. *Synthetic Comm* 2009;39(12):2108-15.
- Rich DH, Gardner JH. Synthesis of the cytostatic cyclic tetrapeptide, chlamydocin. *Tetrahedron Lett* 1983;24(48):5305-8.
- Rocco VP, Danishefsky SJ. Substrate specificity in enzymatically mediated trans acetylation reactions of calicheamicinone intermediates. *Tetrahedron Lett* 1991;32(46):6671-4.
- Schulte KE, Reisch J, Stoess U. Chloroformylation of α - Pyrrolones. *Angew Chem Int Ed* 1965;4(12):1081-2.
- Sekhiya M, Terao Y, Zasshi Y. Reactions of potassium pthalimide with Grignard reagents. *Chem Pharm Bull* 1968;88(8):1085-9.
- Sekhiya M, Terao Y. Reactions of N-(N', N'-Dialkylaminomethyl) amides with Grignard Reagents. *Chem Pharm Bull* 1970;18(5):947-56.
- Shetgiri NP, Nayak BK. Synthesis and antimicrobial activity of some succinimides. *Indian J Chem B Org* 2005;44B:1933-6.
- Shinde SB, Tekale SU, Kauthale SS, Deshamukh SU, Marathe RP, Nawale RB, et al. A facile and efficient synthesis of N- aryl imides using trifluoroacetic acid.



Advance Heterocyclic Molecules Of Medicinal Interest

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ABSTRACT:-The application of heterocycles provides a useful tool for modification of solubility, lipophilicity, polarity, and hydrogen bonding capacity of biologically active agents, which results in the optimization of the properties of drugs or drug candidates. The increasing presence of various heterocycles in drugs is related to advances in synthetic methodologies, such as metal-catalyzed cross-coupling and hetero-coupling reactions, that allow rapid access to a wide variety of functionalized heterocycles. On the other hand, many heterocyclic lead compounds were isolated from natural resources, and their structures were subsequently simplified and modified by medicinal chemists.

HETEROCYCLES

The heterocyclic compounds such as succinimides etc are synthesized by help of various types of components and some metals are acts as catalysts among them. The coupling synthesis which is modified like sonogashira can be easily applied for acid chlorides and also in case of alkynes. Various heterocyclic compounds are also formed by help of processes such as cyclo addition cyclo condensation and also by help of multicomponent synthesis.

Most of the pharmaceuticals are based on heterocycles. An inspection of the structures of the top selling brand name drugs in 2007³¹ reveals that 8 of the top 10 and 71 of the top 100 drugs contain heterocycles. This is not surprising as heterocycles have dominated medicinal chemistry from the beginning. Consistent with their importance, many U.S. patents by pharmaceutical companies involve heterocyclic compounds. For example, a search of the patent literature from 1976 to September 2008 revealed that 1729 patents issued to Pfizer, as a representative company, contain the word "pyridine." Merck has 3504 U.S. patents containing the word pyridine. This is not peculiar to pyridine, other heterocycles in medicine; include examples of indoles, quinolines, azepines, and pyrimidine in many pharmaceutically active ingredients. Selection of these five groups is arbitrary and ignores several other types of heterocycles, but it is meant to give examples of the use of heterocycles in medicine. This classification is also an oversimplification. Many pharmaceutical compounds contain more than onetype of ring system. For example, the exemplified pyridine compounds used as proton pump inhibitors also contain a benzimidazole structure. Dimebon is discussed in the section on pyridines, but it also contains the indole ring. This, too, is arbitrary and not meant to imply that the pyridine structure is more important for Alzheimer's treatment than the indole structure. The United States Adopted Names Council serves health professionals by selecting non proprietary names for new drugs based on pharmacological and/or chemical relationships. One monograph³² organizes these new drugs by chemical structure, and much of the text involves heterocycles. There are 5- membered heterocycles, 6-membered heterocycles, 5-membered heterocycles fused to one benzene ring, 6-membered heterocycles fused to one benzene ring, bicyclic-fused heterocycles, and polycyclic-fused heterocycles.

CYCLIC IMIDES

An advance research review antimicrobial finding has also been reported for 7 member heterocomplexes Danolaur et.al. also documented information about some antimicrobial activities. anticonvoulasent, anti-beccricial with such complexes containing- N(R) - (Co) -

These complexes also show water reparing hydrophobic, non ionising properties inclusive of phthalamide, maleimide, N-succinimide, Gluterimide derivatives some more complexes syntheside the N aril dialken succinimide and piperimides, morpholines, dyethyl amine has also been documented for the same activities by Danolaur et.al.

Guavara – salazer J.A et al also found that acetyl cholinestearase (ACHE) work like a big part among natural substrate hydrolysis. The ACHE also works as a neurotransmitter of the fundamental which is along with peripheral nervous system. The nine synthesized N-aryl substituted succinimide derivatives also show schematically. These also examine an electronic effects of various active sites foe ACHE inhibition. Some dates like setup of protein and also by setup of ligands and also by automatic docking simulation along with algorithm like conducting the tests. These experiments were also done by help of Hammett equation, the electron withdrawing groups also show resistive activity and among ACHE test 4-nitro phenyl succinimides also show good resistive action in comparison with anticidine and derivatives of hydrogen.

Mederski W. W.K.R et al also synthesizes the Para-nitro –Para- Phenyl succinimide, maleimide and also glutarimide uses the poly-phosphoric acidic compound by help of reducrive method for aniline by reaction of cyclic aditions. The best methods which are very simple are develpoed forone step synthesis of 4- nitro aryl substituted cyclic imides .

Baabu, sharma and N Maeluran also give their report and according to these scientists the pyrrolidine derivatives are also synthesized by help of benzocaines, anhydride of succinic acid among benzoic acid derrivative and also benzamide by using anhydrides of acitic acid, tetrahydrofuran, pyrrolidine, acetates of sodium and also ethanolic solvent. All the derivative which are synthesized these are shortlisted against activities of antimicrobial against the strain of Aspergillus N and Aspergillus F. hinda S.B et al also get ready by help of various - aryl imide derivative by using tri-fluoro acetic acid. The mixture of succinic anhydride/Phthalic anhydride/ maleic anhydride and the substituted anilines were also condensed in the presence of trifluoro acetic acid at 65-700c during a particular time and also cyclic imides are also seen in the reaction. Scheme 05 ajjawji A.N and Hussain S.A. also pressured citraconimides with 4-steps process and these are connecting with benzothiazoles and sulphonamado group which are provided and selected as scheme 06. The N-Ph- citraconimic acid moliculed is prepaid using anhydride of citraconamic acid and also with its amine derivative. Then ph-citraconimide ph-sulphonyl chlorides is also differently benzothiazole substituted species were obtained. These prepare final compounds are also shortlisted for different bectrial strains not only for gram negative strains but laso for gram positive strains along with the some fungal strains, such as candida albican. According to a new scientist Wang Y.S et al also found that the glutarimide complexes also show various cyclic imides. Many types of 4,5 disubstituted -3-sulphonyl glutrimides also ethyl α,β disubstituted acrylate esters by step wise superficial (3+3) Annulations which are probably categorized .the compound pyridine- 2-one was also used as an intermediate and this compound is used for synthesizing the products. An another compound peixoto at al also reported that a small tree that is croton pullei whose distribution was also got in Guyana, French Guyana. These are also consumed for making important oils among these oils the mostly terpenoides and phenylpropanoides. These glutarimides alkaloids are separated by Julocrotine and crotonimide A&B. the glutarimide alkaloidis is volatile compound and this compound show antifungous and antibectirical activities the important oil linalaol is also collected by the help of leaves and stem and this oil have terpenes 23.99 to 38.71%.The phthalimide analogues also show the better activities of therapeutics which are against immune modulators. Among these are newly formed phthalimide derivatives which are like N- alkyl phthalimide and also shown by reactions which are found good activities against



rheumatoid arthritis and ulcerative colitis, psoriasis allergic, cancer and asthma and Crohn's health problems were treated by help of tumour necrosis factor α .

Michaliska D. et al also give ideas that the glutarimides rings also show Bigger number of pharma and biological activities. Among these the cycloheximide also acts as inhibitors for protein formation and some reactions are also stopped. Some amino glutarimide also stops the steroid genesis at various locations of aromatic complexes those were really consumed in treatment of cancer of breast. The alkaloid which is extracted and collected from the holes of *S. Drummondii* and *S. Punicea* and these also show the non believable cytotoxicity against keratin which make the tumour cells as hela and these also show resistive actions against cells of leukemia in PZZ mouse in vivo. The derivatives of glutarimides also acts as gifted agent against therapy for immunity was also very useful and some treatments are done which are preventive of GVHD among allogeneic bone marrow organ shifting and also various diseases like ulcer treatment was also done in case of mono-cytoid cell line the thalimide also stops the dormat HIV -I replication and also if reduces the necrosis of tumour- α (TNF- α) various derivatives of glutarimides also show the properties of partial antagonist among the central nervous system (CNS).

The relation among activity of structure and modeling of molecules also study among the series of imide groups and these groups were also under examination. These things which are biologically active and also show cytotoxic activities, these also show affinity for DNA these compounds are also studied in opposite to blood neurophills which is present inside periphery.

Marulasiddaiah R et al also synthesize the N substituted cyclic imides which is a series of coumarins and aza coumarines are also test the activities of antimicrobial. The series of coumarines also get ready with the help of pechmann cyclisation reaction by use of the series of phenols by help of Bromoethyl acetoacetate was also again undergo condensation with the help of potassium carbonate which is anhydrous and form cyclic imides as shown in scheme given below. According to Obniska J et al also synthesize the spiro succinimide series by help of aromatic rings and also by the help of some compounds which contain nitrogen. The activities like anti anticonvulsant for these series were also tested by help of electroshocks and also by help of screen of phenylene tetrazole. By this way of testing some toxic properties of neutral were also found by help of test of Rotocord (TOX) way. Among these series those compounds like N-(2-methoxy phenyl) and N-(4-chloro phenyl amino)-2-aza spiro [4:5] decane 1,3 dione also show the most active hindered attack at 100mg/kg dose and also can be excepted, the compounds which are remained also the anti maximal electroshocks and some dosages of subcutaneous pentalene tetrazole which is resistant for 300mg/kg dosages.

CHALCONES

Shibata. S formed more than fifty derivatives of chalcones and these also count stereochemical phototransformation by help of nuclear magnetic resonance, ultraviolet data and also shortlisted their antitumorigenic activities among vivo and vitro activities of inhibition which is in opposite to relation of phosphates with phospholipids by the use of TPA. Among this these tumors which are on skin of mouse are get started by the help of (DMBA Dimethyl benza anthracene). These derivatives were also found for antitumour promising effect of chalcones and these are started by help of a 150 microgram dose of DMBA which is applied on the shaved backs of 2 weeks and in these months the female ICR mice was also administered TPA for seventeen weeks. The tumour first time observed in around 7th week.

For the screening test the HeLa cells were also used for developing the antitumour agent for the screening test. Among we can say that out of these 3 and 4 dimethyl hydroxyl chalcones

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shows the maximum potency for the activities of tumourgenesis.

PYRIDINES

The pyridine ring is found in many current pharmaceuticals. It is present in some proton pump inhibitors used for reducing the amount of acid produced by the stomach. These drugs can be used to treat reflux disease, ulcers or heartburn. Omeprazole, lansoprazole, pantoprazole and rabeprazole are some of the examples.

Two thiazolidinedione compounds that contain the pyridine ring and are used for diabetes are pioglitazone and rosiglitazone. Pfizer Inc. and Medivation Inc. are co-developing dimebon, which contains both a pyridine ring and an indole ring. Dimebon is in Phase III clinical trials for Alzheimer's disease.³²

Indoles

Serotonin, which is an indole, occurs naturally in the body. In most cases of migraines and serotonin levels decrease. Many migraine medications are based on the indole structure. The indol-2-one is also present in ropinirole, which is a dopamine agonist used for Parkinson's disease.

Quinoline

One class of drugs containing the quinoline ring is the quinolone antibiotics, especially the fluoro quinolone antibiotics. The first quinolone antibacterial was discovered serendipitously in the early 1960s.⁵³ Chemists at the Sterling-Winthrop laboratories in Rensselaer, NY, isolated a by-product in their synthesis of chloroquine. The fluoro quinolones are second-generation antibacterials. Ciprofloxacin and moxifloxacin kill sensitive bacteria by stopping the production of essential proteins needed by the bacteria to survive. Moxifloxacin is used in a sterile ophthalmic solution. PF-2545920 is a quinoline-based compound that as of 2008, Pfizer had entered into phase II clinical trials for treatment of schizophrenia.^{44,45}

Azepines

Perhaps the most common drugs based on 7-membered rings are the benzodiazepines. Different benzodiazepines have been used for the treatment of seizures, insomnia, depression and anxiety.

Olanzapine is a psychotropic agent that belongs to the thienobenzodiazepine class. Olanzapine (ZYPREXA; Eli Lilly and Company) is approved by the U.S. Food and Drug Administration (FDA) for treating the symptoms of schizophrenia and acute mixed, manic episodes and maintenance treatment of bipolar disorder. Quetiapine a dibenzothiazepine is a mood-stabilizing medication approved by the FDA to treat both the highs and lows of bipolar disorder.

ASTELIN, (Meda Pharmaceuticals Inc.) is an antihistamine that is used as a nasal spray and provides relief for seasonal allergies.

Nucleic acid bases cytosine, thymine and uracil contain a pyrimidine ring while adenine and guanine have a purine ring. Because the five nucleic acid bases contain the pyrimidine/purine ring, perhaps it is surprising that pyrimidines are prominent in the pharmaceutically active ingredients used in a variety of therapies including antipsychotic, cholesterol reduction, cancer, erectile dysfunction, antivirals and human immunodeficiency virus (HIV).

Nanda Kumar these also show the formed derivatives of pyrimidine by help of guanidine nitrate by help of hydroxide of sodium and these undergo condensation at around 100°C for 5 hours and this procedure. The synthesized complexes also show better activities of antibacteria in opposite to E. Coli, Salmonella typhii and also aeromonas hydrophilla by help of diffusion method.



Sangeeta V and Rajendra Prasad K.J also prepare the derivatives of pyrimidines cyclohexanone and also tetracarbazole derivatives under Japp- Klingemann situation. The derivatives of cyclohexanone were also get ready by help of cyclisation process of cyclohexanone with the help of kart reagent among acedic medium. The derivatives of pyrimidines were also get ready with the help of tetracarbazole and guanidine nitrate among acetic acid .

Rathod B.G and Barot V.M also get ready some amino pyrimidine derivatives with the help of some normal refluxing method. Among this part or by help of experiment the chalcone compounds which have substitution reacts with sodium metoxide and guanidine nitrate in methanol solution and these undergo condensation and the mixture is condensed foraround 15hrs and those form amino pyrimidine . These compounds also show some antimicrobial activities and these also show some disc dissemination method.

Mehta. A and Patel A.A also develop the quinolinomine series through pyrimidines. The chalcone compounds were refluxed or condensed with the help of guanidine nitrate and these reactions were done among 50% sodium hydroxide solution in alcoholic conditions and these are shown some intermediate compounds by help of anhydrous K₂CO₃ catalyst and also in tetrahydrofuran .

Joshi V.D these also synthesize some new pyrimidine derivatives and also check their activities pharmaceutically. The chalcone compounds were also synthesize by help of acetophenones with carbaldehyde of furan groups by help of Claisen Schmidt Condensation. In this process the pyrimidine derivatives were formed when chalcones reacts with urea, thiourea and guanidine hydrochloride and here catalyst is NaoH 50% among alcoholic medium

PYRIMIDINES

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Imidazole

The substituted imidazole derivatives are valuable in treatment of many systemic fungal infections. Imidazoles belong to the class of azole antifungals, which includes ketoconazole, miconazole, voriconazole and fluconazole.⁴⁶

Benzoxazole and benzothiazole

Flunoxapofen, also known as priaxim, is a chiral non-steroidal anti- inflammatory drug. Riluzole is a drug used to treat amyotrophic lateral sclerosis.

Oxadiazole

Raltegravir is antiretroviral drug used to treat HIV infection. Butalamine is a vasodilator, Fasiplon is a nonbenzodiazepine anxiolytic drug from the imidazo pyrimidine family of drugs. "2-(oxadiazoly)- and 2-(thiazoly)imidazo[1,2-a] pyrimidines as agonists and inverse agonists at benzodiazepine receptors.⁵³

The heterocyclic nucleus is one of the most important integral features of a variety of natural products and medicinal agents. Heterocyclic nucleus is present as a core structural component in an array of drug categories such as antimicrobial, anti- inflammatory, analgesic, antiepileptic, antiviral, antineoplastic, and antihypertensive

antimalarial, local anaesthetic, antianxiety, antidepressant antihistaminic, antioxidant, antitubercular, anti Parkinson's, antidiabetic, antiobesity and immunomodulatory agents,etc.

According to Rahaman S.A et al the derivatives of good pyrimidine chalcone were prepared like starting material and then with the help of equal amount of chalcones and hydrochloride of guanidine the mixture in ethanol and this process is done upon water bath for around five hours and the pyrimidine derivatives which are required are formed and these are shown in scheme 38. The synthesized compounds were gone under examinations for some anti-histaminic activities. According to M. I et al also prove those ring systems of benzofuran are joined along with heterocyclic compounds and these give pharmacological, medicinal and biological activities. Various derivatives of pyrazole also acts as antitumour agents and these causes various diseases like cancer in lungs, breast and also in leukemia. According to this report the benzofuran derivatives which are synthesized by pyrazole and also by many pyrimidine complexes acts as frames of backbone and these are joined with many aromatic and rings of heterocycles and these also contain many derivatives of pyrazole, quinazoline, triazine, pyrrolidine and these acts as starting material.

Perales J.B et al also found that the synthesized groups which contain amino and diamino pyrimidine compounds contain various pathogens of Trypanosoma Bruceri. The urea which is substituted benzoyl substituted and also N-phenyl amino acid the amino pyrimidines which are carbonyl substituted were shortlisted against TBB. The compounds desaminopyrimidines were found very good permeability in opposite to TBB and non CNS and also against HAT models of mouse.

Hussain K.F et al these were also made various amino pyrimidine series. Here some chalcone compounds were taken like reference complex and these were mounted with the help of various acetophenones which are substituted in another way and other aldehydes which are aromatic. After that some guanidine nitrate was also reacted with chalcone compounds which are taken as reference among ethanolic alkaline medium that forms the pyrimidine derivatives.

Malononitriles

Bhuiyan who explored the synthesis of arylidene compounds with the help of aromatic aldehydes and in this the equivalent nitrile groups are used with the help of Knoevengal condensation reaction by the help of ammonium acetate by help of microwave reaction among solvent free state. The reaction operating situations are performed normally and these are environment loving processes by help of volatile solvents which give a better yield that was get with the help of conventional techniques. All the complexes which are attached as side group nitro, chloro, ether and amino groups which are taken among normal conditions of reactions. These complexes were examined for their biological activities and this process is done with the help of disc diffusion system.

Andreaw T.L et al also produce dicyanofulvene derivatives by the help of mono/dimeric cyclopentadienes and malononitrile which is catalyzed with the help of $TiCl_4$ and pyridine in dichloromethylene which is reacted at RT which is shown in scheme 50. The structure of crystals and cyclic voltage value for formed complexes were note down by using the calomel electrode which is taken as standard in opposite to electrode of platinum metal at around 100 mv/s rate.

Vaghasiya S.J et al also prepare some good pyrazole theino pyrimidine derivatives with the help of Gewald reaction. The activities of antimicrobial, antituberculosis of all final complexes were shortlisted against MT37rv.

According to Shaibana H and Saljoogi A.S both research scholars develop the solvents free synthesis of malononitrile and acetonitrile derivatives with the help of Knoevengal reaction. Some active methyl and malononitrile compounds were refluxed along with derivatives of aldehyde in the presence of a base (strong) like sodium or potassium hydroxide in ethanol at around $70^{\circ}C$ which form final derivatives. These derived compounds were purified and



undergo analysis of the data of spectra.

Lin Q. et al also form the good malononitrile derivatives also with the help of Knoevengal reaction. The chemosensor-L was made with the help of stirring the reaction mixture of malononitrile and naphthaldehyde among aqueous medium that forms the yellow product which is shown in the scheme 53. These chemosensor L was analysed with the help of UV spectra that good sensitivity of group among aqueous medium.

According to Jaber Z.K and Pooledin, who prepared the good amino pyran carbonitrile derivatives with the help of facile synthesis. The cycloalkane of bis arylidene also react with malononitrile catalyst with the help of K_2CO_3 among alcoholic situation that will form the carbonitrile which were shown in reaction. According to Elison M.N et al taken out the electrolysis of derivatives of malononitrile Wang G. and Cheng G. also prepare various substituted arylidene malononitrile among solvent less Knoevengal Condensation and these processes were taken out among microwave conditions also by simple condensing method. The aromatic ketone and malononitrile in the presence of a catalyst such as ammonium acetate in silica gel and these were irradiated among microwave by the help of boiling in oven at various time intervals at around 250 w power level and these appears in scheme 60. By the help of heating thermally both the reactant and also the catalyst by avoiding silica gel and these are condensed among aqueous solution and these get warmed in required time and at required temperature these gives the complexes which are derived finally. The reactions which are processed provides better yield and after that we can heat the compounds here many other catalysts are used like NH_4Cl , $NaOH$, Na_2CO_3 and K_2CO_3 and also the catalyst piperidine is also used under Knoevengal condensation reaction and here the ammonium acetate also provides better yield.

Shekar R.M et al also synthesize the good spiro fused pyran analogues with the help of microwave assisted solvent less facile synthesis. The derivatives of pyran are also formed with the help of these components like ninhydrin, malononitrile and also phenyl pyrazoline. 3, 3 dione which are heated among a vessel among neutral alumina catalyst for around 2 minutes and further cyclisation can be done of these pyran compounds and these are changed into the spiro pyran derivatives which are appeared in scheme 61. And the results were distinguished with the help of spectra like NMR and IR.

Shi-F et al also design the solvent free synthesis of amino, cyano pyridine compounds which are prepared by help of microwave oven for around 10 minutes that will synthesize the derivatives of pyridines such as 2 amino 3 cyano and this preparation can be seen among scheme 62. The process of green synthesis is very environment loving less time requiring and also less solvent required.

CONCLUSION:- Heterocyclic molecules are very important scaffold for the pharmaceutical and medicinal sector and newer molecules are being synthesized in a higher number continuously. However a less no of heterocyclic molecule remain successful in newer category. This specification of heterocycles make the research interest of researchers as well as scientists

References

1. Abrahart E. N., (1977), New York: Chem. Pub. Co., 27 – 29.
2. Ahmed A.E.I., Hay J.N., Bushell M.E., Wardell J.N., Cavalli G., (2008), Reactive and Functional Polymers, 68: 248.
3. Al-Azzawi M., Hamd A.S., Al-Anbar, (2011), Journal Veterinary Science, 4(2):152-164.
4. Anastas, P.T., Warner, J.C., (1998), Green Chemistry: Theory and Practice, Oxford University Press.
5. Armetso D., Horspool W.M., Martin N., Ramos A., Seane C.J., (1989), Org. Chem.,

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54:3069.

6. Bae J.S., Freeman H.S., El-Shafei A., (2003), *Dyes and Pigments*, **57**:121.
7. Banday A.H., Mir B.P., Lone I.H., Suri K.A., Kumar H.M.S., (2010), *Steroids*, **75**:805-9.
8. Burkinshaw S.M., David R.W., Geoffery H., (1994), *The Chemistry and Application of Dyes*, Plenum Press, New York and London, 326-331.
9. Cammarata A., Upadhyay S.K., Jursic B.S., Neumann D.M., (2001), *Bioorg Med Chem Lett*, **21**:7379-86.
10. Carey E.A., (2003), *Organic Chemistry*, New York, Prentice-Hall Inc., 462-465.
11. Clark J.H., (1999), *Green Chemistry: Challenges and Opportunities*. *Green Chem.*
12. Combellas C., Kanoufi F., Pinson H., Podyorica F., (2008), *Am. Chem. Soc.*, **34**:429.
13. Dabbagh H.A., Teimouri A., Chermahini A.N., (2007), *Dyes Pigments*, **73**:239.
14. David R.W., Geoffery H., (1994), *The Chemistry and Application of Dyes*, New York and London, Plenum Press, 115-231.
15. Ebenso E.E., Alemu H., Umoren S.A., Obot I. B., (2008), *J. Electro-chem. Sci.*, **3**:1325-1339.
16. Ellis P.G., E.C. Taylor, (1987), *The Chemistry of Heterocyclic Dyes*, Wiley Inter Science, Chichester, **47**:1-120.
17. Giles C.H., (1974), *A Laboratory Course in Dyeing*, Brad Ford Soc, Dyers and Colourists (SDC), 93-101.
18. Gong G., Gao X., Wang J., Zhao D., Freeman H.S., (2002), *Dyes Pigments*, **53**:10 Gregory P. D., Waring R., Hallas G., (1990), *Plenum Press London*, 8-20.
19. Hinks D., Freeman H. S., Nakpathom M., Sokolowska J., (2000), *Dyes Pigments*, **44**:199.
20. ISO, (1994), *Textile-test for colour fastness part CO6 colour fastness to washing. Part CO6 colour fastness to Domestic and Commercial Laundering*, **ISO: 105-C06**.
21. ISO, (2001), *Textile- test for colour fastness to rubbing part X12. Colour fastness to crocking (rubbing)*, **ISO: 105 -X12**.
22. Jain S., Pradeep K., Paliwal G., Neelaiyah B., Bhatewara A., (2014), *Journal of Saudi Chemical Society*, **18**:535-540.
23. James A.M., David I. D., Oscar R.R., (1982), *Experimental Methods in Organic Chemistry*, New York, Saunders Publications, 313-326.
24. John L.T., (2006), *Green Chemistry, a Pharmaceutical Perspective*, *Organic Process Research & Development*, **10**: 315-319.
26. Karci F., (2005), *Color Technol.*, **121(5)**: 237-290.
27. Katritzky A.R., Rees C.W., (1984), *Comprehensive Heterocyclic Chemistry*, Pergamon Press Oxford, **3**:51.
28. Kirkan B., Gup R., (2008), *Turk. J. Chem.*, **32**:9-17.



29. Klink S.I., Alink P.O., Grave L., Peters, F.G.A., Hofstraat J. W., Geurts F., Van Veggel F. C. J. M., (2001), J. Chem. Soc., Perkin Trans., 2:363.
 30. Lin Z., Zhang W., Wang L., Yu H., Wu C., (2003), Toxicology mechanism and methods, 13(4):241-245.
 31. Mittal A., Kurup L., Mittal J., (2007), Journal of Hazardous Materials, 146:243.
 32. Murray P. S., Ralph S. F., (2006), Electrochimica Acta, 51:2471.
 33. Nowakowska Z., (2007), Eur J Med Chem, 42:125-37.
 34. Ortega-Luoni P., Vera L., Astudillo C., Guzman M. and Ortega-Lepez, P., (2007), Jour. Chilean. Chem. Soc., 52:(1).
 35. Paula Y.B., (1995), Organic Chemistry, Prentice Hall Inc., New York, 658-659.
 36. Pielesz A., Baranowska I., Rybak A., Wlochowicz A., (2002), Ecotoxicology and environmental safety, 53:42.
 37. Pinson J., Podyorica F., (2005), Chem. Soc. Rev., 34:429.
- Robert T.M., Robert N.B., Bhattacharjee S.K., (2011), Organic Chemistry. 6th edition

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