Est:1994

NAAC Reaccredited: Grade 'B' (CGPA2.55)

Dnyansadhana Shikshan Prasarak Mandal, Nivade Sanchalit

M. H. Shinde Mahavidyalaya, Tisangi

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MHST/2020-21/ Date:

3.2.1 Number of papers published per teacher in the Journals notified on UGC website during the last five years (5)

Title of paper	Name of the author/s	Department of the teacher	Name of the journal	Year of publication	ISSN Number	Link to the recognition in UGC enlistment of the Journal	Status
Adivashi sahitya wa stri chitran	Dr.N. K. Mole	Marathi	Aayushi interdisciplinary International Research Journal	2015	2349-638X	Nil	UGC Approved
Vigyapano ka masoda lekhan	Assit. Prof. Smt. V. U. Jadhav	Hindi	Vigyapan: swarup prakar avum masoda lekhan	2015	978-81-92704-4-6	Nil	Others
Adhunik hindi kavita shalaka vaktitva	Assit. Prof. Smt. V. U. Jadhav	Hindi	Prarup publication	2015	978-81-927211-0-5	Nil	Others
Re- engineering in the libraries	Dr.B. S. Padwal	Library Science	Renaissance	2015	2277-764	Nil	UGC Approved
Re- engineering of libraries resources	Dr.B. S. Padwal	Library Science	The knowledge and research review	2015	2320-1487	Nil	UGC Approved
Jagtikikaran ani marathi kavita	Dr.V. R. Kamble	Marathi	Ramai Masic	2015	2314735-8	Nil	Others
Phytochemical screeing and antifuungal activity of Plambago zeylanica	Dr.S. K. Mengane	Botany	Pharmaceutical Research and Development	2015	2694-5614	Nil	UGC Approved

PRINCIPAL

Literature and Hindi Film: A perspective in Adaptation	Dr. N. K. Shinde	English	Latest Trends in English Studies and Research 21th	2015	Nil	Nil	Others
Half Girlfriend: A Torchbearer to waning Royal family	Dr. N. K. Shinde	English	Vidyawarta	2015	2319-9318	Nil	UGC Approved
Half Girlfriend: Dangling between Relationship and friendship	Dr. N. K. Shinde	English	Resurrection	2015	2278-0319	Nil	UGC Approved
Chetan Bhagat : Eperimental Nonelist	Dr. N. K. Shinde	English	Printing Area	2015	2394-5303	Nil	UGC Approved
Discourse Analysis: Some steps	Dr. N. K. Shinde	English	International Journal of Multydisciplinary	2015	2277-9302	Nil	UGC Approved
The feeling of Alienation and loss of Identity in Rough passage	Dr. N. K. Shinde	English	Vidyawarta	2015	2319-9318	Nil	UGC Approved
Tagore Treatment of Mundane Love in the Gardener	Dr. N. K. Shinde	English	LangLit	2015	2349-5189	Nil	UGC Approved
Culture in Arun Koltkars Jejuri Poems	Dr. N. K. Shinde	English	Critical Space	2015	2319-3689	Nil	UGC Approved
Initial permeability of Zn–Ni–Co ferrite	Dr.R. P. Patil	Chemistry	Journal of Magnetism and magnatic	2015	03044-8853	https://doi.org/10.1016/j.jmmm.2014.11.041	SCOPUS
Room temperature H2S gas sensing application of polyol route synthesised nanosized Alickel ferrite	Dr.R. P. Patil	Chemistry	Sensors Letter	2015	1546-198X	https://doi.org/10.1166/sl.2015.3436	SCOPUS
Structural magnetic and gas sensing application of novel polyol route synthesied cobalt ferrite	Dr.R. P. Patil	Chemistry	Sensors Letter	2015	1546-198X	https://doi.org/10.1166/sl.2015.3522	SCOPUS
Br madhil sanghrshchitran	Dr.N. K. Mole	Marathi	Aayushi interdisciplinary International	2015	2349-638X	Nil	UGC Approved
Br madhil Adivashi samajamadhil rajkiya jeevanchitran	Dr.N. K. Mole	Marathi	Sanshodhan Patrika	2015	2319-6025	[illegible]	Others
Historical resources in the polytical thoughts of freedom movement in primerlly state Kolhapur	Dr.S.A More	History	Prarup publication	2015	978-81-927211-0-5	Nil	Others

Economic Development	Dr. D. B. Ingawale	Economic	Shivai University, Distance Education	2015	9878184866228-5	Nil	Others
Introduction Economic planning	Dr. D. B. Ingawale	Economic	Shivai University, Distance Education	2015	9878184866228-5	Nil	Others
SISRY Powerly Alleviation programme with a case of Kolhhapur city	Dr. D. B. Ingawale	Econommic	Indian Streams Research journal International	2015	2231-5063	Nil	UGC Approved
Adhunik Vyvasthapanache tantra	Dr. B. S. Padwal	Library Science	Research Journal of Rejuvenile in intelectual Discipline	2015	2278-0300	Nil	UGC Approved
Re Engineering of Library practices in accademic libraries	Dr. B. S. Padwal	Library Science	Research Hub	2015	2349-7637	www.rhimrj.com	UGC Approved
Relevence of TQM in library automation	Dr. B. S. Padwal	Library Science	Research Hub	2015	2349-7637	www.rhimrj.com	UGC Approved
Ramaimadhil Bhaskar Kamble yanchya kkaviteche weglepan	Dr.V. R. Kamble	Marathi	Ramai Masic	2015	2314735-8	Nil	Others
Jagtikikaran ani marathi kavita	Dr.V. R. Kamble	Marathi	Ramai Masic	2015	2314735-8	Nil	Others
Jagtikikaranath Marathi bhasha	Dr.V. R. Kamble	Marathi	Shabddkusum Diwali Aunk	2015	798-9381549-93-3	Nil	Others
Wachu anande	Dr.V. R. Kamble	Marathi	Sakal Diwali aank	2015	Nil	Nil	Others
Kala sanskrutichya kaksha rundavenare sahitya samelun	Dr.V. R. Kamble	Marathi	Damsa Patrica	2015	Nil	Nil	Others
Antifungal activvity of crude extracts of Colocasia esculenta leaves in invitro on plant pathogenic fungi	Dr.S. K. Mengane	Botany	International research journalof Pharmacy	2015	2230-8407	Nil	UGC Approved
Stuctural and magnetic properties of co- substituted Lio5Fe2So4	Dr.R. P. Patil	Chemistry	Magnetism and magnetic materials	2015	0304-8853	https://doi.org/10.1016/j.jmmm.2015.10.06[illegible]	SCOPUS
Structural, electrical and magnetic study of nanocrystaline Ti substituted-2n min Ferrospinels	Dr.R. P. Patil	Chemistry	Magnetism and magnetic materials	2015	0304-8853	https://doi.org/10.1016/j.jmmm.2015.11.088	SCOPUS

Cation and magnetic study of Cr substituted Lithium Ferrites	Dr.R. P. Patil	Chemistry	Material Science: Materials in Electrons	2016	957-4522	://link.springer.com/article/10.1007/s10854-015-39	SCOPUS
Magneto-structural studies of Sol-gel synthsized nanocrystaline mangenese sustitued Nickel Ferritets	Dr.R. P. Patil	Chemistry	Magnetism and magnetic materials	2016	304-8853	http://dx.doi.org/10.1016/j.jmmm.2016.04.090	SCOPUS
Investigation of strutural, magnetic and photocatalytic properties of Al substtituted Cobalt Ferrite	Dr.R. P. Patil	Chemistry	Material Focus	2015	2169-429X	https://doi.org/10.1166/mat.2016.1293	UGC Approved
LPG gas Sensing application of Lithium Ferrite	Dr.R. P. Patil	Chemistry	Material Focus	2015	2169-429X	https://doi.org/10.1166/mat.2016.1290	UGC Approved
Synthesis , characterization and catalytic application of Magnetically seprable Zn-Cr Ferrite	Dr.R. P. Patil	Chemistry	Nanoenginenering and nano manufacturing	2015	2157-9326	https://doi.org/10.1166/jnan.2016.1258	UGC Approved
Review: Cr sustitued Zn-Mn Ferrospinels	Dr.R. P. Patil	Chemistry	Material Focus	2016	2169-429X	https://doi.org/10.1166/mat.2016.1293	UGC Approved
Catalytic activity of nano crystaline Cr substituted Zn- Mn Ferrospinels	Dr.R. P. Patil	Chemistry	Material Focus	2016	2169-429X	https://doi.org/10.1166/jnan.2016.1258	UGC Approved
Cation disribution and magnetic study of Cr. Substituted Lithium Ferrite	A. D. Pinjarkar	Chemistry	Material Science: Materials in Electrons	2016	957-4522	://link.springer.com/article/10.1007/s10854-015-39	SCOPUS
Catalytic activity of nano crystaline Cr substituted Zn- Mn Ferrospinels	A. D. Pinjarkar	Chemistry	Material Focus	2016	2169-429X	https://doi.org/10.1166/jnan.2016.1258	UGC Approved
Catalytic activity of nano crystaline Cr substituted Zn- Mn Ferrospinels	A. C. Bhosale	Chemistry	Material Focus	2016	2169-429X	https://doi.org/10.1166/jnan.2016.1258	UGC Approved
Banking Reforms in India	D. B. Ingawale	Economic	International journal of multifaceted and	2016	2394207X	Nil	UGC Approved
Employment and income generation in Gokul milk Fedration	P.K.Powar	Economic	International journal of multifaceted and	2016	2394207X	Nil	UGC Approved
Development and growth of milk and milk product	P.K. Powar	Economic	Research Review International Journal of Multi	2017	2455-3085	Nil	UGC Approved
Digital library concepts, defination importance and advantages	Dr. B. S. Padwal	Library Science	Reseach Hub (Online)	2017	23497637	Nil	UGC Approved

Ekakantyanchya manaktyanchi prerak ani sutrabad mandani	Dr. V. R. Kamble	Marathi	Sakshym Samikkshya	2016	2231-4377	Nil	Others
Leekhangarbh, atmanishtha japnara Viay Chormare	Dr. V. R. Kamble	Marathi	Sahitya Smarnika	2016	Nil	Nil	Others
Phytochemical analysis of Adiantum lanulatum	Dr. S. K. Mengane	Botany	Current Microbiology and applied science	2016	2319-7692	Nil	UGC Approved
Green synthesis of Silver nano particles form Clerodendrum serratum and antimicrobial activity against human pathogen	Dr. S. K. Mengane	Botany	Bionanoscience	2016	2191-1630	Nil	SCOPUS
Zinc ferrite as efficient H2S gas sensor	Dr.R. P. Patil	Chemistry	Applied Physics	2017	0021-8979	Nil	UGC Approved
Structural electrical and thermoelectric power mesurement studies of polyol route synthsized Li$_{0.5}$Fe$_{2.5}$O$_4$	Dr.R. P. Patil	Chemistry	Material Focus	2017	2169-429X	Nil	UGC Approved
Electric permittivity and impendance study for Tio2 supported zinc ferrite	Dr.R. P. Patil	Chemistry	Nanoenginenering and nano manufacturing	2017	2157-9326	Nil	UGC Approved
DC resistivity and thermoelectric power mesurement study of Cr substituted Lithium ferrite	Dr.R. P. Patil	Chemistry	Material Focus	2017	2169-429X	Nil	UGC Approved
DC resistivity and thermoelectric power mesurement study of Cr substituted Lithium ferrite	A. D. Pinjarkar	Chemistry	Material Focus	2017	2169-429X	Nil	UGC Approved
Rashtra nirman me mahatma gandhi ke vicharo ka yogdan	Assit. Prof. Smt. V. U. Jadhav	Hindi	Aayushi interdisciplinary International Research Journal	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/1523168932Tisangi%20Seminar2018.pdf	UGC Approved
The aspects of old tulim and new gym	Assit Prof. B. D. Patil	Physical Education	Aayushi interdisciplinary International Research Journal	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/1523168932Tisangi%20Seminar2018.pdf	UGC Approved
Economic growth and labour price in India	Dr. D. B. Ingawale	Economics	Aayushi interdisciplinary International Research Journal	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/1523168932Tisangi%20Seminar2018.pdf	UGC Approved
Intellectual conflict and Mahatama Phule	Dr. N. K. Mole	Marathi	Aayushi interdisciplinary International Research Journal	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/1523168932Tisangi%20Seminar2018.pdf	UGC Approved
Adunbik paramparic kutumb sunsthetil sunskruti sunbghrsh wa rashtra ubharnitil nbal prapt karun dengre dharan	Assit. Prof. Smt. M. B. Sawant	Sociology	Aayushi interdisciplinary International Research Journal	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/152	UGC Approved

Agriculture develoopment of Maharashtra during reform period 1991 to 2004	Dr. P. K. Powar	Economics	Aayushi interdisciplinary International	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/1523168932Tisangi%20Seminar2018.pdf	UGC Approved
Overview on infrastructure in Nation development	Dr. P. K. Powar	Economics	Aayushi interdisciplinary International	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/1523168932Tisangi%20Seminar2018.pdf	UGC Approved
New form of library collections: E-publishing	Dr. B. S. Padwal	Library Science	Aayushi interdisciplinary International	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/1523168932Tisangi%20Seminar2018.pdf	UGC Approved
Model for Re-engineering of Academic Libraries	Dr. B. S. Padwal	Library Science	Aayushi interdisciplinary International	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/1523168932Tisangi%20Seminar2018.pdf	UGC Approved
Adunik vavasthapneche tuntra: six sigma	Dr. B. S. Padwal	Library Science	Printing area	2018	2349-303	Nil	Others
Best practices in Academic Library	Dr. B. S. Padwal	Library Science	Aayushi interdisciplinary International	2018	2277-8808	https://www.aiirjournal.com/uploads/Articles/1523168932Tisangi%20Seminar2018.pdf	UGC Approved
Re-engineering of library acquisition	Dr. B. S. Padwal	Library Science	Electronic interdisciplinary Research journal (EIIRJ)	2018	2277-8808	Nil	UGC Approved
Mayanmarmadhil rohingya nirwasitancha prashn	Assit Prof. A. B. Mohite	Political Science	Aayushi interdisciplinary International	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/1523168932Tisangi%20Seminar2018.pdf	UGC Approved
Maharaja Sayajirao gayakwad: Sushashit rajyakarbharacha adarsh	Assit Prof. A. B. Mohite	Political Science	Aayushi interdisciplinary International	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/1523168932Tisangi%20Seminar2018.pdf	UGC Approved
Adunik paramparic kutumb sunsthetil sunskruti sunbghrsh wa rashtra ubharnitil nbal prapt karun dusse dhere	Assit. Prof. Smt. M. B. Sawant	Sociology	Aayushi interdisciplinary International	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/1523168932Tisangi%20Seminar2018.pdf	UGC Approved
Biosynthesis of Silver nanoparticals from Tridex procumnbens and its antioxident potential: A novel biological approach	Dr. S. K. Mengane	Botany	Journal of Bionanoscience	2017	442-445	Nil	SCOPUS
Green synthesis of Silver nanoparticals from Lantana camera	Dr. S. K. Mengane	Botany	Aarhat Multidisiplinary International	2018	2278-5655	http://www.aarhat.com/amierj/wp-content/uploads/2018/08/VOL-VII-Special-Issues-IX.pdf	UGC Approved
Phytochemical constitute and antioxident potential of Lantana camera	Dr. S. K. Mengane	Botany	Multidisiplinary International	2018	2278-5655	http://www.aarhat.com/amierj/wp-content/uploads/2018/08/VOL-VII-Special-Issues-IX.pdf	UGC Approved
Biopotential of Trichoderma sp against Fusarium oxysporium sp. dianthica causing wilt of Carnation in the presence of micronutrients	Dr. S. K. Mengane	Botany	Aarhat Multidisiplinary International	2018	2278-5655	http://www.aarhat.com/amierj/wp-content/uploads/2018/08/VOL-VII-Special-Issues-IX.pdf	UGC Approved

Qualitative analysis of secondary metabolites from some phytofungicidal plant	Dr. S. K. Mengane	Botany	Aarhat Multidisiplinary International Educational	2018	2278-5655	http://www.aarhat.com/amierj/wp-content/uploads/2018/08/VOL-VII-Special-Issues-IX.pdf	UGC Approved
Zinc ferrite as efficient H2S gas sensor	Dr. R. P. Patil	Chemistry	Aarhat Multidisiplinary International Educational	2018	2278-5655	http://www.aarhat.com/amierj/wp-content/uploads/2018/08/VOL-VII-Special-Issues-IX.pdf	UGC Approved
Manganese doped Co-Zn Ferrite Nanoparticle synthesis and characterization: Effects of annealing temperature on the size of	Dr. R. P. Patil	Chemistry	Aarhat Multidisiplinary International Educational	2018	2278-5655	http://www.aarhat.com/amierj/wp-content/uploads/2018/08/VOL-VII-Special-Issues-IX.pdf	UGC Approved
Synthesis characterizations and gas sensing study of Cd-Mn ferrite	Dr. R. P. Patil	Chemistry	Aarhat Multidisiplinary International Educational	2018	2278-5655	http://www.aarhat.com/amierj/wp-content/uploads/2018/08/VOL-VII-Special-Issues-IX.pdf	UGC Approved
Investigation of structural and magnetic properties of Tio2 supported Zinc ferrite	Dr. R. P. Patil	Chemistry	Aarhat Multidisiplinary International Educational	2018	2278-5655	http://www.aarhat.com/amierj/wp-content/uploads/2018/08/VOL-VII-Special-Issues-IX.pdf	UGC Approved
Synthesis and characterization of Znb-Cr ferrite	Dr. R. P. Patil	Chemistry	Educational Research Journal	2018		Nil	UGC Approved
Synthesis and characterization and catalytic application of Cr substituted Zinc Manganese ferrite	Dr. R. P. Patil	Chemistry	Aarhat Multidisiplinary International Educational	2018	2278-5655	http://www.aarhat.com/amierj/wp-content/uploads/2018/08/VOL-VII-Special-Issues-IX.pdf	UGC Approved
Zinc ferrite as efficient H2S gas sensor	Assit. Prof. A. D. Pinjarkar	Chemistry	Aarhat Multidisiplinary International Educational	2018	2278-5655	http://www.aarhat.com/amierj/wp-content/uploads/2018/08/VOL-VII-Special-Issues-IX.pdf	UGC Approved
Ecofriendly solvent free synthesis of Dihydropyrimidine derivatives by biginelli reaction	Assit. Prof. A. C. Bhosale	Chemistry	Aarhat Multidisiplinary International Educational	2018	2278-5655	http://www.aarhat.com/amierj/wp-content/uploads/2018/08/VOL-VII-Special-Issues-IX.pdf	UGC Approved
Lingbhav samantecha prashna	Assit. Prof. Smt. M. B. Sawant	Sociology	Aayushi interdisciplinary International Research Journal	2019	2349-638X	Nil	UGC Approved
Vachansahitya sangrah vikas	Dr. B. S. Padwal	Library Science	Research Journey	2019	2346-7143	Nil	UGC Approved
Best practices in academic libraries with reference to M. H. Shinde Mahavidyalaya Tisangi	Dr. B. S. Padwal	Library Science	Aayushi interdisciplinary International Research Journal	2019	2349-638X	Nil	UGC Approved
Re-engineering of human resource management in academic libraries	Dr. B. S. Padwal	Library Science	Electronic interdisciplinary Research journal (EIRJ)	2019	2277-8808	Nil	UGC Approved
Pradhanmantri Indira Gandhi ani bankache rashtrikaran	Assit. Prof. A. B. Mohite	Political Science	Aayushi interdisciplinary International Research Journal	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/153168932Tisangi%20Seminar2018.pdf	UGC Approved

Educational condition of Gaganbavada Jahagir	Assit. Prof. J. S. Jadhav	History	Aayushi interdisciplinary International Research Journal	2018	2349-638X	https://www.aiirjournal.com/uploads/Articles/1523168932Tisangi%20Seminar2018.pdf	UGC Approved
Green synthesis of Silver nanoparticals from Eclipta alba and their characterization	Dr.S. K. Mengane	Botany	Review of Research	2018	2249-894X	Nil	UGC Approved
Photocatalytic degradation of methyl red using CeO2, TiO2 and CeO2 - TiO2 nanocomposite	Dr. R. P. Patil	Chemistry	International Journal of applied engineering	2018	0973-4562	ps://www.ripublication.com/ijaer18/ijaerv13n19_44	SCOPUS
Substitution effects of Cr^{3+} on the magnetostructural and semiconducting properties of the Lithium ferrite	Dr. R. P. Patil	Chemistry	International Journal of research and analytical reviews	2018	2348-1269	http://www.ijrar.org/papers/IJRAR1904724.pdf	UGC Approved
Photocatalytic degradation of methyl oranbge usinbg ceria, cassiterite and ceria- cassiterite nanocomposite	Dr. R. P. Patil	Chemistry	Journal of engineering technology and science	2019	2349-5162	http://www.ijrar.org/papers/IJRAR1904724.pdf	UGC Approved
Synthesis and characterization of Zinc cobalt Ferrite (Zn0.5Co0.5Fe204) nanoparticle	Dr. R. P. Patil	Chemistry	Research Journal for	2018	2278-8808	w.srjis.com/pages/pdfFiles/1529150727VOL%204%	UGC Approved
Photocatalytic Activity of Zn-Co Ferrite Nanoparticle Synthesized using Lemon as Green Binding agent	Dr. R. P. Patil	Chemistry	Indo American Journal of Pharmaceutical	2018	2349-5162	ww.iajps.com/pdf/january2018supply/19.IAJPS1901	UGC Approved
Substitution effects of Cr^{3+} on the magnetostructural and semiconducting properties of the Lithium ferrite	Assit Prof. A. D. Pinjarkar	Chemistry	Journal of Emerginbg Technologies and Innovative	2018	2349-5162	http://www.ijrar.org/papers/IJRAR1904724.pdf	UGC Approved
Green synthesis of silver nanoparticles using Eclipta alba extract and their characterization	Dr. R. M. Waghmare	Botany	Review of Research	2018	2249-894X	Nil	UGC Approved
Efficacy of plant extracts against the leaf rust of jowar under field conditions	Dr. D. S. Pawar	Botany	International Journal of research and analytical reviews	2019	23349-5138/ E- 2348-1269	http://ijar.com	UGC Approved
Electromagnetic shielding, magnetic and microwave absorbing properties polypyrrole/Ba0.6Sr0.4Fe12O19 composite synthesized in situ	Dr. N. D. Patil	Physics	Journal of Alloys and Compounds	2019	0925-8388	Nil	UGC Approved
Structural, electrical and microwave properties of conducting polypyrrole thin films: Effect of oxidant	Dr. N. D. Patil	Physics	Materials Research Express	2018	116505	Nil	UGC Approved
Inclusive growth in Indian economy	Dr. D. B. Ingawale	Economics	An International Multidisciplinary Quarterly Research Journal	2019	2277-5730	Nil	UGC Approved
Historical importance of Gaganbavada taluka in view of local history	Assit. Prof. J. S. Jadhav	History	Studies in Indian Place Names International Interdisciplinary	2020	2394-3114	Nil	

Synthesis and Characterization of Mn Substituted Magnesium Cobaltite	Dr. R. P. Patil	Chemistry	Journal of Emerging Technologies and	2019	2349-5162	http://www.jetir.org/papers/JETIR1811548.pdf	UGC Approved
Structural and magnetic study of nanocrystalline TiO2 supported Ni-ferrite	Dr. R. P. Patil	Chemistry	Journal of Emerging Technologies and	2019	2349-5162	http://www.jetir.org/papers/JETIR1811548.pdf	UGC Approved
Effect of Nickel Substitution on Structural and Magnetic Properties of Novel Polyol route Synthesized Cobalt Ferrite	Dr. R. P. Patil	Chemistry	Research Journal of Chemistry and Environment	2020	9720626	Nil	UGC Approved
Green synthesis of silver nanoparticles using Eclipta alba leaf of extracts and their characterization	Dr. S. K. Mengane	Botany	Review of Research peer Reviewed	2019	2249-894X	Nil	UGC Approved
Antagonistic capability of UV and chemical mutant Trichoderma harzianum against Fusarium	Dr. R. M. Waghmare	Botany	Review of Research peer Reviewed	2019	2249-894X	Nil	UGC Approved
Evaluation of antifungal activities of some plant extracts against the brown leaf rust of wheat under field conditions	Dr. D. S. Pawar	Botany	Studies in Indian Place Names International	2020	2394-3114	Nil	UGC Care
21 wya shatkatil strijeevan	Dr. N. K. Mole	Marathi	Studies in Indian Place Names International	2020	2394-3114	Nil	UGC Care

PRINCIPAL
M. H. Shinde Mahavidyalaya, Tisangi
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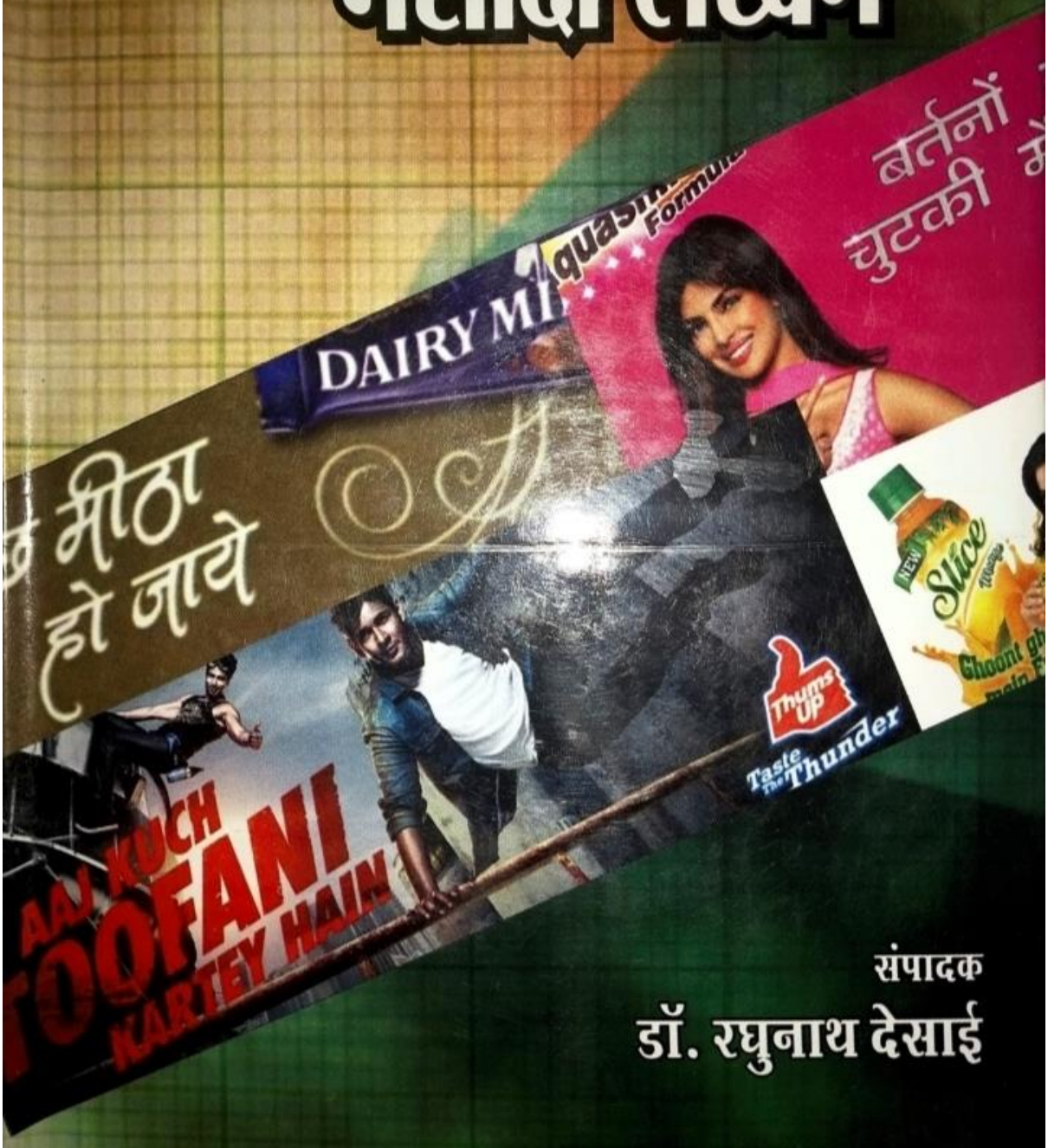
विज्ञापनों का मसौदा लेखन



संपादक
डॉ. रघुनाथ देसाई

करता है। आज के उपभोक्तावादी परिवेश में विज्ञापन जीवन के हर क्षेत्र को प्रभावित कर रहा है। विश्व की समस्त सामाजिक व्यवस्था में एक शक्तिमान हथियार के रूप में विज्ञापन का प्रयोग किया जा रहा है। इसलिए ऐसा कहा जाता है – निर्माता या विक्रेता वस्तु नहीं बेचते, वरन् एक तृप्ति या संतुष्टि बेचते हैं। इस प्रकार आज के युग में विज्ञापन को नकारकर हम जी नहीं सकते।

प्रा. वसुंधरा जाधव
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1

विज्ञापन : स्वरूप, प्रकार एवं मसौदा लेखन

प्रस्तावना

आज के आधुनिक युग में सुबह हमारी नींद खुलने पर किसी आदमी की आवाज से पहले विज्ञापन की आवाज आती है। नींद खुलने पर हमारे कानों पर टेलीविजन या रेडियो पर लगा विज्ञापन पड़ता है। सुबह अखबार खोलों तो उसमें भी विज्ञापन दिखाई देता है। सुबह से रात तक विज्ञापन के युग में हम जीवन जी रहे हैं। उदाहरण के तौर पर हम देख सकते हैं कि सुबह कौन–सी टूथपेस्ट लगानी है, टूथब्रश कौन–सी कंपनी का होना चाहिए, चाय की बाँण्ड कौन–सी चाहिए। इस प्रकार विज्ञापन का सिलसिला शुरू होता है तो रात सोते समय जीवदया नेत्रप्रभा आँखों में डालने से चैन की नींद आ जाएगी। याने सुबह से रात तक विज्ञापन हम पर छा सा गया है।

आधुनिक युग में विज्ञापन का विशेष महत्त्व है। प्रमुखतः विज्ञापन वाणिज्य और संचार का माध्यम है। आधुनिक युग में सामाजिक, सांस्कृतिक, राजनैतिक और व्यक्तिगत जीवन में भीं विज्ञापन की आवश्यकता है। आज की उपभोक्तावादी संस्कृति में हर क्षेत्र को विज्ञापन प्रभावित करता है।

विज्ञापन शब्द संस्कृत से आया है जिसका अर्थ है– शिष्ट उक्ति या संवाद, प्रार्थना और अनुरोध। विज्ञापन शब्द अंग्रेजी की advertising शब्द का रूपान्तरण भी माना जाता है। अंग्रेजी में इसका तात्पर्य (to turn) अर्थात् किसी तरफ मुड़ने से होता है।

विज्ञापन के विस्तृत अर्थ को देखें तो विज्ञापन औद्योगिक क्षेत्रों या अन्य किसी भी संघटन द्वारा किया गया वह प्रयोग है जिसके माध्यम से लोगों का ध्यान अपनी ओर आकृष्ट किया जाता है। तात्पर्य विज्ञापन याने विशेष ज्ञान, जानकारी तथा संदेश द्वारा लोगों का ध्यान अपनी ओर आकर्षित करना।

विज्ञापन की परिभाषा

विज्ञापन का उद्देश्य और संरचना को ध्यान में रखते हुए विद्वानों ने विज्ञापन की परिभाषा प्रस्तुत करने का प्रयत्न किया है। जैसे–

"विज्ञापन विक्रय कला के समान ही लोगों के विचारों और मनोदशा को प्रभावित [redacted] है।"

– जॉन बी डब्ल्यू

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आधुनिक हिंदी कविता के शलाका व्यक्तित्व...

श्री शहाजी छत्रपति महाविद्यालय,
कोल्हापुर

ISBN - 978-81-927211-0-5

आधुनिक हिंदी कविता का शलाका व्यक्तित्व : हरिवंशराय बच्चन

प्रा. वसुंधरा उदयसिंह जाधव
(हिंदी विभाग प्रमुख) ॲसिस्टंट प्रोफेसर
म.ह. शिंदे महाविद्यालय, तिसंगी.

प्रस्तावना :

आधुनिक युग का प्रारंभ सन् १८५० से माना जाता है। आधुनिक युग का प्रथम चरण भारतेंदु हरिश्चंद्र से संबंधित रहा है। इस युग के प्रवर्तक भारतेंदु रहे हैं इसलिए उन्ही के नाम से इस युग का नामकरण हुआ। आधुनिक हिंदी कविता का यह प्रारंभिक युग है। आधुनिक हिंदी कविता का विकास कई चरणों में हुआ - १) भारतेंदु युग २) द्विवेदी युग ३) छायावादी युग ४) हालावादी युग ५) प्रगतिवादी युग ६) प्रयोगवादी युग ७) नई कविता ८) समकालीन कविता ९) नवगीत।

हालावादी युग – हालावाद सन १९३३ से लेकर १९३६ तक केवल चार वर्ष का जीवन व्यतीत कर समाप्त हो गया था। आधुनिक काव्य की यह अल्पजीवी काव्यधारा रही। हिंदी में हरिवंशराय बच्चन हालावाद के प्रवर्तक माने जाते है। हालावाद की उत्पत्ति, विकास और समाप्ति की कहानी बच्चन की तीन पुस्तकों में ही सीमित होकर रह गई। ये तीन पुस्तके है मधुशाला, मधुबाला मधुकलश। इनका प्रकाशन एक-एक वर्ष के अंतराल से हुआ था। सूफी काव्य का यह आधुनिक अवतार था। इसमें हाला (शराब) सुराही, साकी, प्याला मीना (बोतल) को प्रतीत रूप में चित्रित किया जाता है। आडंबर-विरोध, दुःख का रोदन, जीवन की सवियता प्रेम, सौंदर्य के प्रति आकर्षण, कल्पना की उडान और प्रणय की गुँज हालावादी कविता में पाई जाती है।

हिंदी साहित्य में हालावाद का समावेश अंग्रेजी के माध्यम द्वारा हुआ सन १९२७-२८ के लगभग 'सरस्वती' पत्रिका में उमर खय्याम की मादकतापूर्ण रूबाईयों का अनुवाद किया गया। सन् १९३० से ३५ तक का समय निराशा और असफलता का काल है। द्वितीय महायुद्ध के बाद ब्रिटिश शासकों के शोषण और अत्याचार क्रांतिकारियों का दमन, महाभयंकर रोग आदि के कारण निराश जनता किसी प्रकार की क्षणिक शांति चाहती थी। इसकारण दुःख से पीडित भारतीय जनता ने हालावादी मादक साहित्य का स्वागत किया।

हरिवंशराय का परिचय

हरिवंशराय बच्चन का जन्म २७ नवंबर १९०७ को इलाहाबाद के नजदीक प्रतापगढ जिला में एक छोटे से गांव पट्टी में एक कायस्थ परिवार में हुआ था। प्रारंभिक शिक्षा म्युनिसिपल स्कूल तथा कायस्थ पाठशाला में हुई। सन् १९४० में प्रयाग विश्वविद्यालय से उन्होंने अंग्रेजी में एम.ए. किया और वही अंग्रेजी विभाग में प्राध्यापक हो गए और कैम्ब्रिज विश्वविद्यालय से डब्ल्यू पी. जी. ईटस पर शोधकार्य कर पीएच.डी. की उपाधि प्राप्त की। कुछ दिन तक वे संसद में राष्ट्रपति द्वारा मनोनीत राज्यसभा के सदस्य थे।

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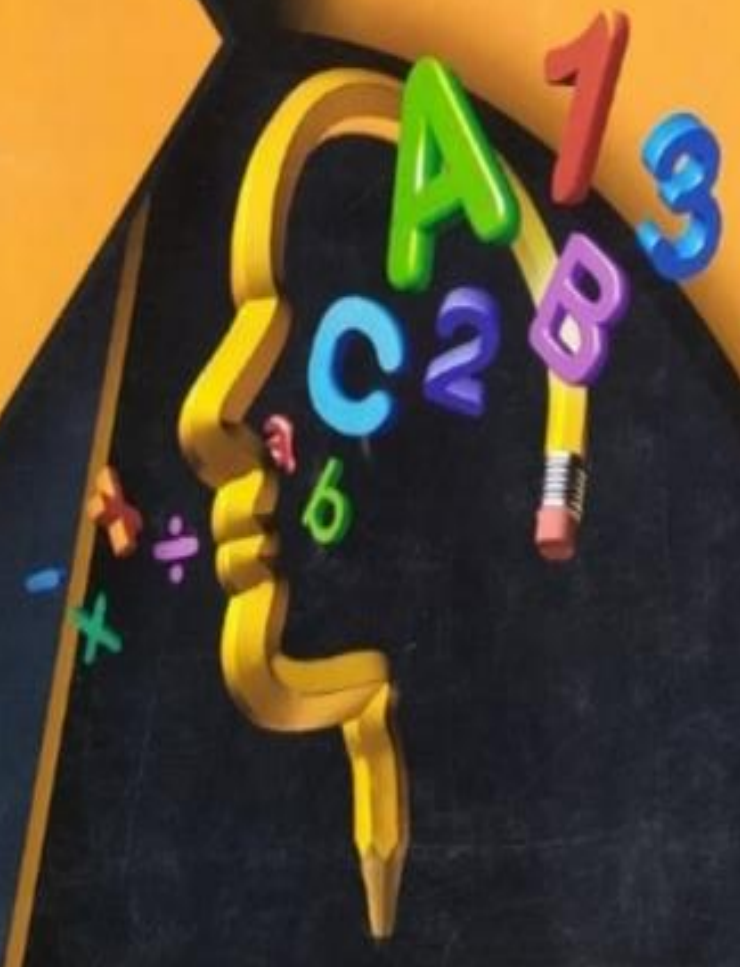

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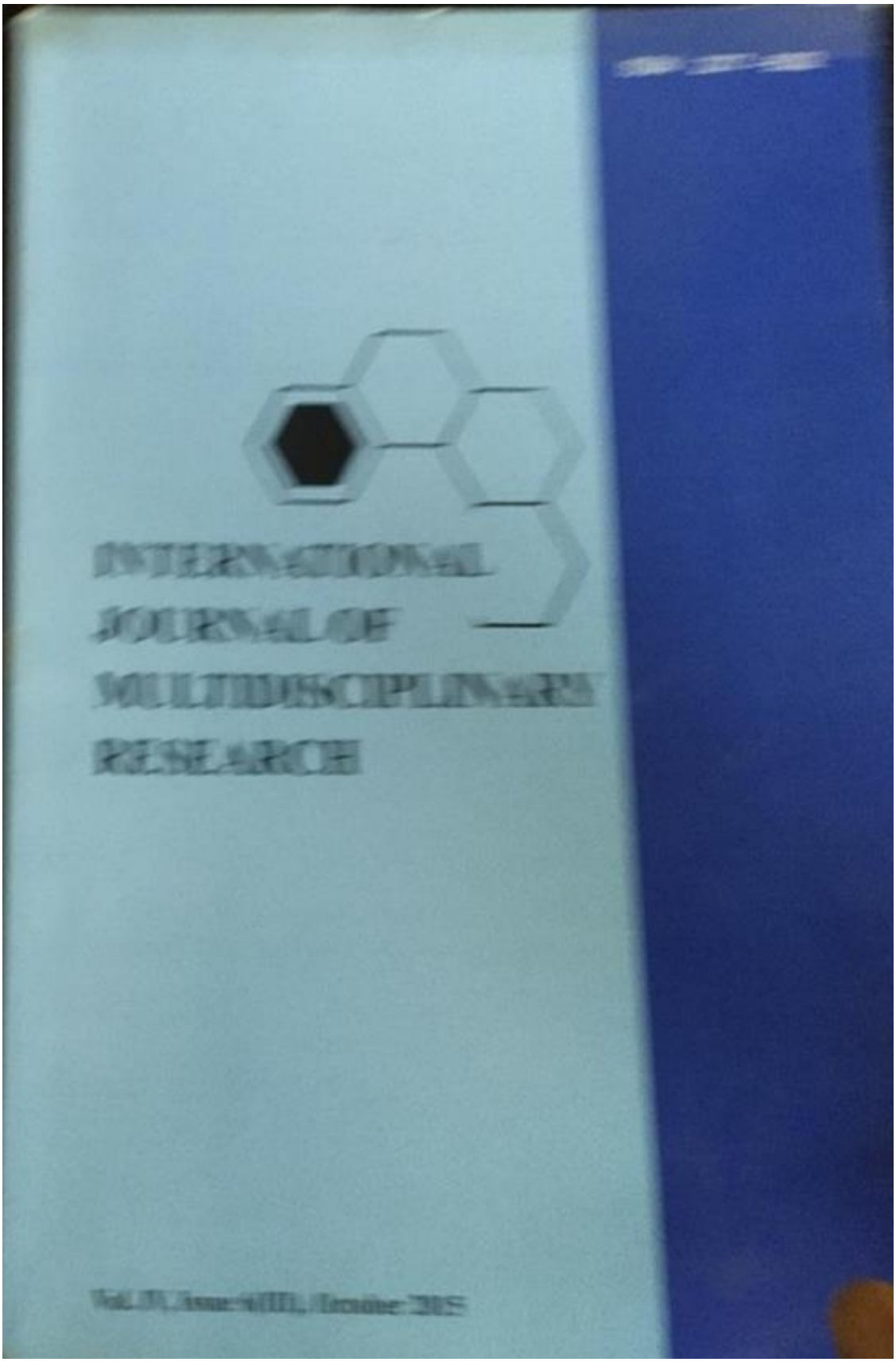
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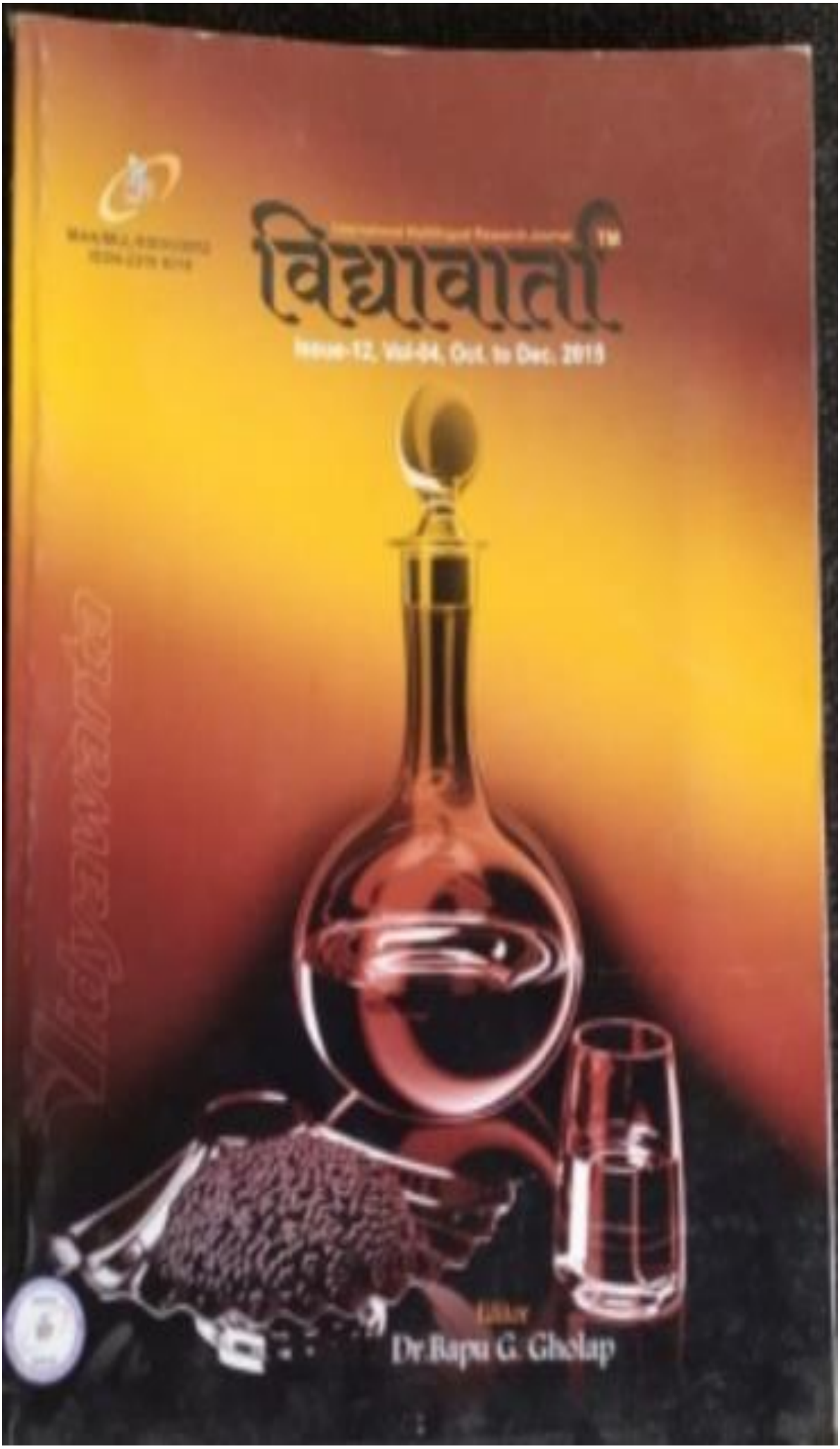
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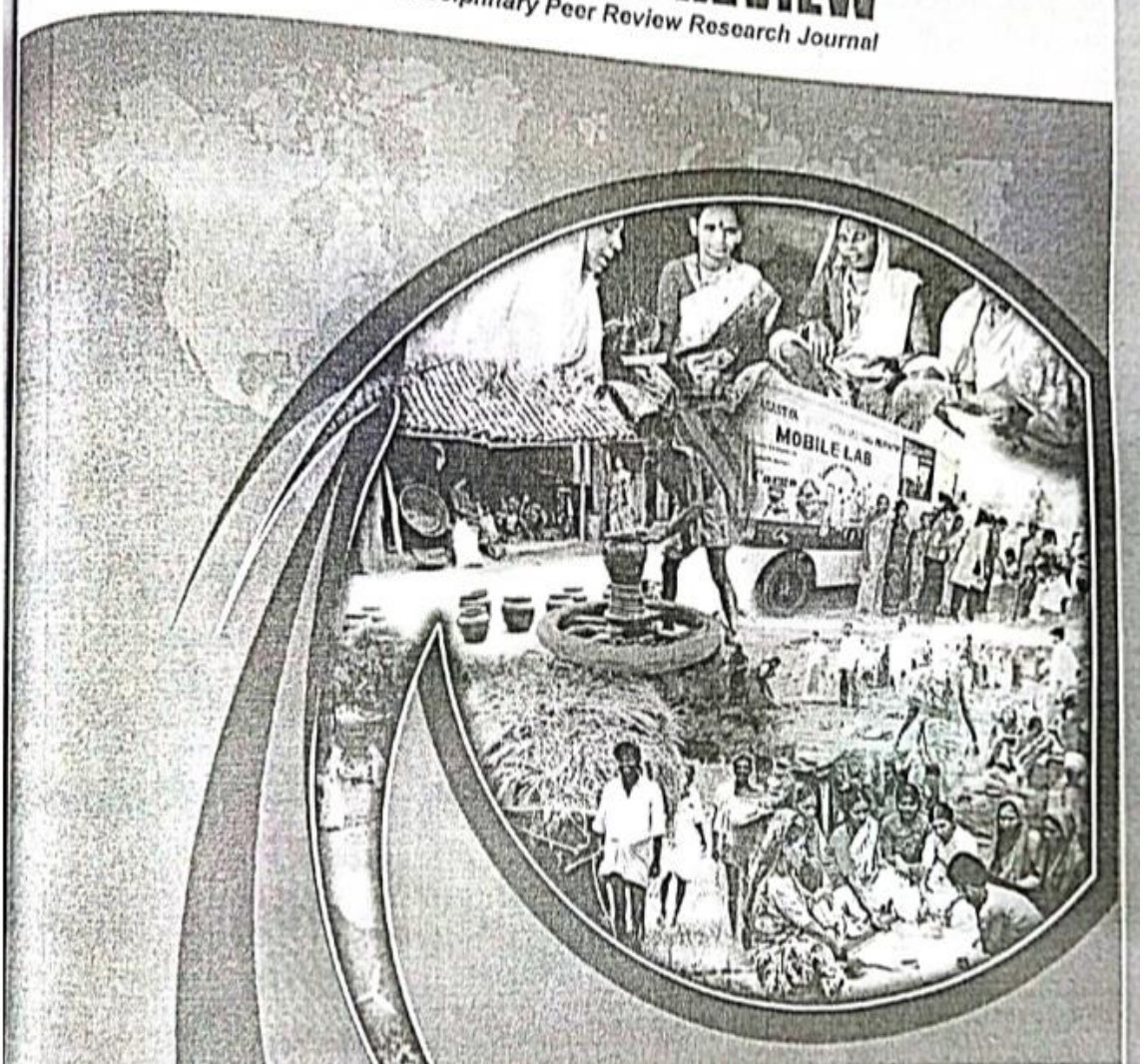

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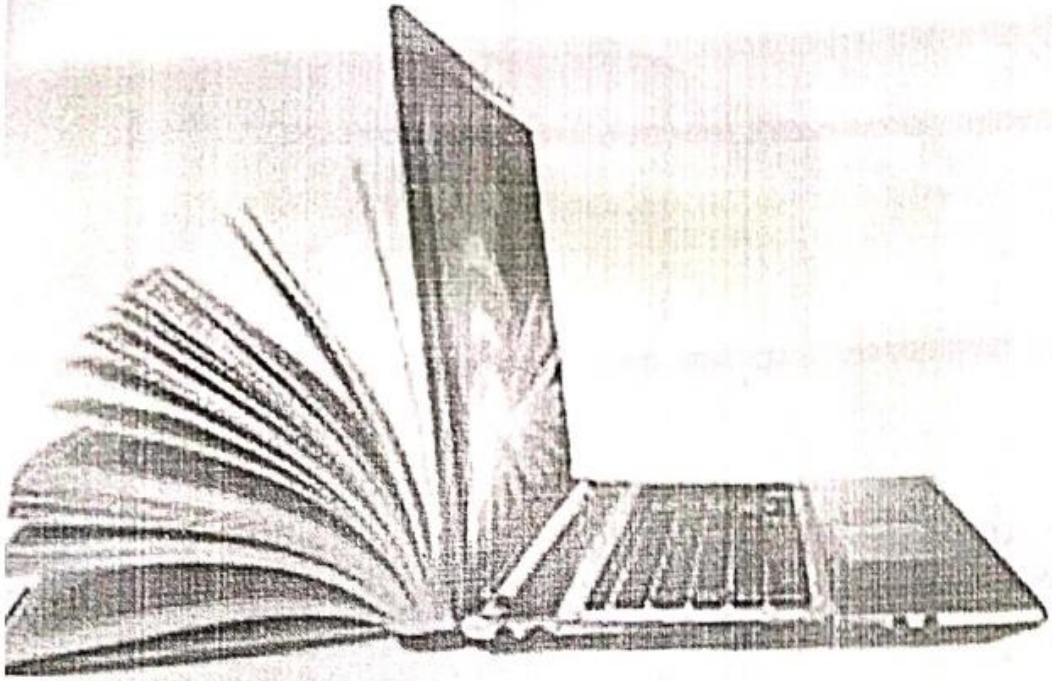

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Digital Library: Concepts, Definitions, Importance and Advantages

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Librarian,
M.H. ShindeMahavidyalaya, Tisangi,
Tq. Gaganbavda Dist. Kohalpur (India)

bstract: The development of computer and communication technology has led to development of electronic devices and has hanged the traditional libraries to digital libraries. This paper discusses the concept and definition of digital libraries. portance of digital library and advances of digital library.

eywords: Digital Library, Electronic Devices, Networks, Communication Technology.

I. INTRODUCTION

The term digital library has a variety of meanings ranging from a digital collection of material that one strength find in a aditional library to the collection of all digital information along with the services that make that information useful to all ssible users. Digital libraries have changed as a result of fast technological development in order to provide to the needs of dividuals with varying interests in various fields. Although the term digital library has increased popularity in recent years, such braries they have changed along the technological ladder for the past 30 years. There is lot of interest in digital libraries today.

In spite of the excess of literature it is not clear what we mean by the term "Digital Library". The term is rarely defined, or even aracterized. It has been applied to an extraordinary range of applications from digital collaborators to collection of electronic urnals, software agents that support inquiry based education, collection of e-mail and similar objects, electronic version of a blic library, personal library collection and the entire internet among others. It is not easy to see what these have in common cept for their digitization. A digital library contains digital representation of the object found in it.

Most understanding of "digital library" probably also assumes that it will be accessible via the internet, though not necessarily everyone. But the idea of digitization is perhaps the only characteristic of a digital library on which there is universal agreement. gital library is popularly viewed as an electronic version of a library. The term digital library evokes a different impression in rious groups. To some it simply means computerization of traditional libraries. But to others who have studied library science, it fficates carrying out the function of libraries in a new way, encompassing new types of information resources, new approaches to quisition, new methods of storage and preservation, more reliance on electronic systems and networks. But to a computer fessional, a digital library is simply a distributed text-based information system, a collection of distributed information service, . A digital library is a library of digital documents, artifacts and records. The advantages of having library material in digital m are:

(i) The content occupies less space and can be replicated and used electronically,
(ii) The content can be made available on networks,
(iii) The search for content can be automated.

II. CONCEPTS

he working group of the US Government's Information Infrastructure Technology and Applications defined the digital library ystem' providing user with a coherent access to a very large organized depository of information and knowledge. R. R.

arson defined digital library as a global virtual library – the libraries of thousands of "networked electronic libraries". The al library need not be networked. A digital library is a library which has all the information in electronic form and having ronic devices to have access to the digitized information. Thus digital library is a library which has number of machine- for remote access to several databases.

Libraries are organizations interpret,

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म.ह.शिंदे महाविद्यालय तिसंगी, ता. गगनबावडा, जि. कोल्हापूर

सार

वाचनसाहित्य संग्रह विकसित करताना वाचनसाहित्य मनमानी पध्दतीने न निवडता विचारपूर्वक निवडने आवश्यक आहे. संग्रहीत वाचनसाहित्याचे नियमितपणे मूल्यमापन करून जुने, अनावश्यक, असंबंधीत वाचनसाहित्य संग्रहातून काढून टाकने आवश्यक आहे. वाचकांच्या गरजा विचारात घेऊ नच वाचनसाहित्य संग्रहामध्ये नवीन वाचनसाहित्याची भर घातली पाहिजे व अनावश्यक वाचनसाहित्य संग्रहातून काढून टाकने आवश्यक आहे.

१. प्रास्ताविक

ग्रंथालयाने आपल्या प्रत्यक्ष व संभाव्य वाचकांच्या गरजा विचारात घेऊ न वाचनसाहित्य संग्रह विकसित केला पाहिजे. आपण संकलित करत असलेल्या वाचनसाहित्यातील माहिती आपल्या वाचकांची गरज पूर्ण करणारी आहे, तसेच ती माहिती अद्ययावत आणी अधिकृत आहे का याची ग्रंथपालाने खाजी केली पाहिजे.

वाचनसाहित्य उपार्जित करून, त्याबरून योग्य त्या ग्रथालयीन प्रक्रिया करून ते वाचकांना उपलब्ध करणे हा ग्रंथालयाचा प्रमुख हेतू आहे. वाचनसाहित्य संग्रह विकसित करताना ग्रथपालास आपल्या पालक संस्थेची ध्येय धोरणे विचारात घ्यावी लागतात. तसेच आर्थिक साधनांची उपलब्धताही विचारात घ्यावी लागतात. ग्रथालयातील काही वाचनसाहित्याची उपयुक्तता कालांतराने संपुष्टात येते तर काही वाचनसाहित्य फाटते व त्यामुळेते वापरण्यायोग्य राहत नाही. असे वाचनसाहित्य ग्रथालयातून काढून टाकवे लागते. रद्दबातल करावे लागते. वाचनसाहित्य रद्दबातल करण्यासाठी योग्य धोरणांची आवश्यकता असते.

२. वाचनसाहित्य संग्रह विकास म्हणजे काय ?

ग्रंथालयाकडे असलेल्या वाचनसाहित्यामध्ये योग्य अशा नवीन वाचनसाहित्याची भर घालणे आणि ग्रंथालयातील अनावश्यक वाचनसाहीत्य काढून टाकने म्हणजेच वाचनसाहित्य संग्रह विकास करणे होय.

पूर्वीच्याकाळी ग्रंथालयाचे मुल्यमापन करताना ग्रंथालयातील वाचनसाहित्य संग्रह वाचकांना किती उपयुक्त आहे, यपेक्षा ग्रंथालयामध्ये किती ग्रंथ आहेत त्यांची संख्या याला जास्त महत्व दिले जात असे. थोडक्यात, वाचनसाहीत्य संग्रहाचे मूल्यमापन करताना वाचनसाहीत्याची गुणवत्ता विचारात न घेता संख्या विचारात घेतली जात असे. अलीकडच्या काळामध्ये या दृष्टिकोनात बदल झालेला दिसतो. आता वाचकांच्या गरजाना अधिक महत्व दिले जाते. केवळ जास्त ग्रंथ असण्यापेक्षा वाचकांच्या गरजांची पूर्तता करणारा ग्रंथसंग्रह असावा असा विचार आता दृढ झाला आहे. या विचारातून वाचनसाहित्य संग्रह विकासाची संकल्पना पुढे आली आहे. वाचकांच्या गरजांची पूर्तता करण्यासाठीच ग्रथपालांनी वाचनसाहित्य संग्रह विकासाची तत्वे विकसित केली आहेत. ही तत्वे वाचनसाहित्य संग्रहाचे कार्यक्षमपणे व्यवस्थापन करण्यामध्ये भूमिका बजावतात.

३. वाचनसाहित्य संग्रह विकासाचे हेतू

वाचनसाहित्य संग्रह विकास प्रक्रियेमध्ये वाचनसाहित्याची निवड आणि उपार्जन तसेच संग्रहातील वाचनसाहित्याचे उपयुक्ततेच्या दृष्टीकोनातून मूल्यमापन करणे या कार्याचा समावेश होतो. वाचनसाहित्य संग्रह विकसित करताना वाचनसाहित्य मनमानी पध्दतीने न निवडता विचारपूर्वक निवडले जाते. तसेच संग्रहातील वाचनसाहित्याचे नियमितपणे मूल्यमापन करून जूने, अनावश्यक, असंबधित वाचनसाहित्य संग्रहातून काढून टाकले जाते. वाचकांच्या गरजा विचारात घेउनच वाचनसाहित्य संग्रहामध्ये नवीन वाचनसाहित्याची भर घातली जाते व अनावश्यक वाचनसाहित्य काढून टाकले जाते. वाचनसाहित्य संग्रह विकासाचे हेतू पुढील प्रमाणे आहेत.

१. वाचकांना उपयुक्त असे वाचनसाहित्य निवडणे आणि उपार्जित करणे. २.उपलब्ध आर्थिक साधनांचा योग्य वापर करणे. ३.जुने, अनावश्यक वाचनसाहीत्य संग्रहातून काढून टाकण्यासाठी वाचनसाहीत्य संग्रहाचे नियमितपणे मूल्यमापन करणे. ४. वाचनसाहीत्य संग्रह अद्ययावत ठेवणे.

४. वाचनसाहित्य संग्रहाचा विकास करताना विचारात घ्यावयाच्या प्राथमिक बाबी

मर्यादित आर्थिक साधने आणि वाचकांच्या अमर्यादित गरजा यांची सांगड घालण्यासाठी वाचनसाहित्य संग्रह विकासाची अवश्यकता आहे. यासाठी वाचनसाहीत्याचे उपार्जन, मूल्यमापन आणि रद्दबातल याबाबतचे सुस्पष्ट धोरण ठरविणे आवश्यक असते.

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जागतिकीकरण आणि मराठी कविता

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प्रास्तविक

1960 नंतर मराठी साहित्यविश्वामध्ये पारंपरिकेची साहित्यविषयीची बंधने झुगारुन दिली आणि प्रत्येक प्रवाहाने स्वताचे स्वतंत्र अस्तित्त्व सिध्द करण्याचा प्रयत्न केला. म्हणूनच दलित, ग्रामीण, स्त्रीवादी, जनवादी, विज्ञानवादी, इत्यादी साहित्यप्रवाहांची निर्मिती झाली. यानंतर मराठी साहित्यामध्ये 1970 व 1980 या दशकामध्ये प्रमुख बदल झाले. त्याचाच एक भाग म्हणून जागतिकीकरणाचा प्रारंभ नानाध्यास हवा. 1983 मध्ये राजीव गांधी यांनी जागतिकीकरणाच्या दृष्टिकोनातून काढलेला एक उद्‌गार महत्त्वाचा ठरतो तो असा, "आता आपल्याला 21 व्या शतकाकडे जायचे आहे." [1] साधारणत: सतरा वर्षापूर्वी 21 व्या शतकात जाण्याची आणि प्रगती करण्याची स्वप्ने त्यांनी दाखविली होती. यानंतर विविध कारणांनी आपण 21 व्या शतकाकडे वाटचाल करत राहिलो. यातच 1991 साली गॅट करारावरील सहीने आपला भारत देश जागतिक बाजारपेठेत सामील झाला. माहिती तंत्रज्ञानाच्या सर्वच क्षेत्रात आर्थिक प्रगती असणारे अनेक लोक यामध्ये नोदया ताकदीने उतरले. यातच जागतिक सौंदर्य स्पर्धाचे निकाल भारताच्या बाजूने लागल्याने एका रात्रीत जगातील सर्वात सुंदर स्त्री म्हणून इथल्या स्त्रीला 'मिसवर्ल्ड' सारखा किताब मिळाला. आणि सौंदर्य प्रसाधन साधनांचा मोर्चा भारताकडे वळला. यामुळे खुल्या जागतिक बाजारपेठेत मुक्त अर्थव्यवस्थेत भारताने आपले स्थान पक्के केले.

या जागतिकीकरणाला एका बाजूने विकासाचा नवा चेहरा देण्याचा प्रयत्न काहींनी केला तर दुसरीकडे या व्यवस्थेमुळे इथला सामान्य माणूस कसा होरपळून निघत आहे व याकडे लक्ष वेधले गेले. भारतासारख्या विविधतेने नटलेल्या देशात माणसांपेक्षा यंत्राला, तंत्रज्ञानाला खूप मोठी किंमत आली. त्यामुळे बेकारी, भ्रष्टाचार, गरीबी, यासारखी संकटे सनोर आली. भांडवलदारांनी अनेक क्षेत्रे काबीज केली. त्यामुळे सामान्य माणसांची कुचंबणा होणे अपरिहार्य होऊन बसले. इथल्या परंपरा, संस्कृती, मूल्ये यांच्याकडे माहिती तंत्रज्ञानाच्या युगात मानवी भावनेकडे जाणीवपूर्वक दुर्लक्ष केले गेले. या जागतिकीकरणाचे प्रतिबिंब साहित्यावर पडणे अपरिहार्य आहे. कारण साहित्य म्हणजे समाजाचे प्रतिबिंब असते आणि या प्रतिबिंबातून मानवी तपस्येच्या ठेव्याचे वर्णन केले जाते. अनेक लेखक कवींनी जागतिकीकरणाबद्दल आपली मते विविध प्रकारे नोंदविली आहेत. 84 व्या अखिल भातीय मराठी साहित्य संमेलनाचे अध्यक्ष, संपादक आणि लेखक उत्तम कांबळे यांनी 'जागतिकीकरणात मराठी कविता' हा कविता संग्रह संपादित केलेला आहे. यामध्ये महाराष्ट्रातील निवडक कवींच्या जागतिकीकरणासंबंधीच्या कविता प्रसिध्द केल्या आहेत. त्या कवितांचा विचार इथे नोंदवणे महत्त्वाचे ठरते.

उत्तम कांबळे यांची तशी ओळख लेखक, संपादक, कवी, कथाकार, कादंबरीकार या प्रकारात केली जाते. देशभर आणि परदेशी फिरस्ती करुन त्यांनी आपल्या मराठी भाषेतील महाराष्ट्रातील निवडक कवींचा 'जागतिकीकरणात मराठी कविता' हा संग्रह 1999 साली प्रकाशित केला आहे. साहित्याचा माणसांच्या भावविश्वावर कसा परिणाम होतो. याचे भेदक आणि वास्तववादी चित्रण त्यांनी या संग्रहात केले आहे. जागतिकीकरण ही एक गुंतागुंतीची प्रक्रिया आहे. ही गुंतागुंत अत्यंत निस्सीमपणे सोडवून सांगण्याचा आटोकाट प्रयत्न उत्तम कांबळे यांनी केला आहे. " इतर साहित्य प्रकारापेक्षा कविता हा तसा लोकप्रिय साहित्यप्रकार असल्यामुळे त्याची निवड केली आहे. असे ते आपल्या प्रस्तावनेत म्हणतात" [2] कारण इतर साहित्य प्रकारापेक्षा कविता हे माध्यम कमी शब्दात अनेक अर्थ देण्यात यशस्वी झाले आहे. जागतिकीकरणाची प्रक्रिया आता जगभर वैश्विक खेडे, तंत्रज्ञान माहितीचे युग, हव्या त्यावेळी हव्या त्या निक्रणा–या वस्तू, खाजगीकरण, उदारीकरण, औद्योगिकीकरण अशी विविध पध्दतीने तिची व्याख्या केली जात आहे. पण चिमटीत पकडता येऊ नये इतकी ती लवचिक वाटते.

मराठी कवितेतील 1990 नंतरचे जागतिकीकरण

मराठी साठोत्तरी साहित्य प्रवाहात दलित, ग्रामीण, स्त्रीवादी इ. साहित्य प्रकारांनी मोलाची भर घातली आहे. यातील दलित साहित्य हे घळवळीतून आलेले साहित्य असल्याने त्याने मराठी साहित्यावर आपला वेगळा ठसा उमटविला. तीन दशकात या प्रवाहांनी विविध वाङ्मय प्रकारात लेखन केलेले आपणास पहावयास मिळते. 1990 नंतरच्या साहित्यामध्ये जात, धर्म, पंथ यांच्यापलिकेडे जाऊन साहित्य मांडणी करत असल्याचे दिसून येईल. कारण औद्योगिकीकरण, खाजगीकरण, तंत्रज्ञान यामुळे माणसाच्या मुलभूत जगण्यावर जे परिणाम झाले त्याची मांडणी होऊ लागलेली दिसूल येते. या पृथ्वीवर अनेक प्रकारची संकटे या अगोदरही आलेली आहेत. पण जागतिकीकरण हे पृथ्वीला पडलेलं कोडं आहे या विश्वात आपलं स्थान काय आहे? असा प्रश्न सामान्य माणसाला पडतो. म्हणून अरुण काळे लिहितात,

"हे महाजाल
ही प्रचंड गती
हया समस्त भिका–यांनी
नामशेष व्हावं काय?" (पृ.37)

या जागतिकीकरणाच्या महाजालात आता आपण पडलोच आहोत जगण्याचा प्रचंड संघर्ष इथे आहे. इथल्या बाजारु व्यवस्थेत भिका–यांनी आपण नामशेष होण्याची भिती व्यक्त केली आहे. कारण हया विश्वात आपल्या भीक मागणा–या कटो–याला काही किंमत आहे की नाही असा प्रश्न भिका–यांसमोर उभा राहिला आहे.

सकाळ दिवाळी विशेषांक

अंतरंग

सकाळ

दिवाळी विशेषांक -२०१५

सकाळ पेपर्स प्रा. लिमिटेडचे प्रकाशन

■ वर्ष १ ■ अंक १ ■ नोव्हेंबर २०१५
■ पाने ३८८ ■ किंमत १०० रुपये

मुख्य संपादक
श्रीराम जयसिंगराव पवार

कार्यकारी संपादक
मनोज साळुंखे

संपादकीय सहाय्य
सुजित पाटील

मुखपृष्ठ : प्राची लाळगे
छायाचित्र : वी. डी. चेचर
रंगभूषा : अनुराधा पित्रे
सहाय्य : रोहित कांबळे, पवन माने
रेखाचित्रे : दीपक संकपाळ

मांडणी व सजावट
नेताजी खाडे

* हा दिवाळी अंक सकाळ पेपर्स प्रा. लिमिटेडकरिता मुद्रक आणि प्रकाशक **श्रीराम जयसिंगराव पवार** यांनी **सकाळ पेपर्स प्रा. लिमिटेडसाठी** सकाळ प्रिंटिंग प्रेस, डी-४, एम.आय.डी.सी., शिरोली, कोल्हापूर ४१६ १२२ येथे मुद्रित केला व तेथेच प्रकाशित केला.
(* पी.आर.बी. कायद्यानुसार जबाबदारी)

पत्रव्यवहारासाठी पत्ता : सकाळ पेपर्स प्रा. लिमिटेड, १२४३/८२/ए, ई वॉर्ड, पार्वती मल्टिप्लेक्सजवळ, शिवाजी उद्यमनगर, कोल्हापूर - ४१६ ००८.

विचार

वाचू आनंदे!

- प्रा. डॉ. विनोद कांबळे

माणसाला जशी विचारांची आवश्यकता आहे तशीच विचार आत्मसात करण्यासाठी वाचनाचीही आवश्यकता आहे. वाचनाची आवड निर्माण होण्यासाठी हाती पडेल ते वाचावे. त्यानंतर आपोआप काय वाचावे हे कळते. वाचनाची आवड निर्माण झाली, की दुसऱ्या कशाचेच भान राहत नाही. वाचनामुळे मनाला उभारी मिळते. महत्त्वाचे म्हणजे 'माणूस' घडविण्यासाठी वाचन उपयोगी पडते.

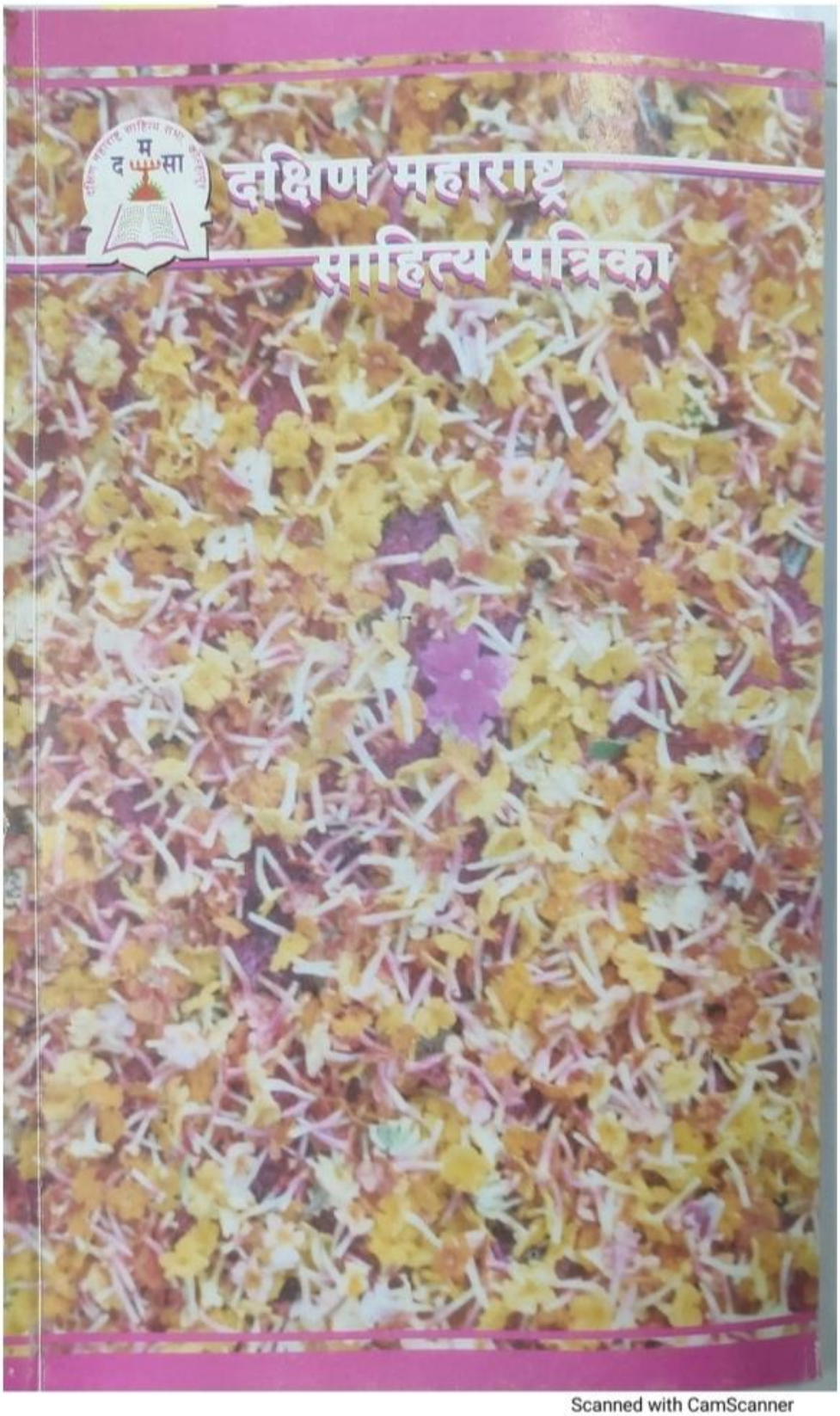
प्रारंभी कशाचे वाचन करावे, या प्रश्नाचे उत्तर 'कशासाठी वाचावे' याच्याशी जोडावे लागेल. वाचनाचे प्रयोजन स्पष्ट केले तर काय वाचावे हे ठरविणे शक्य होते. मराठी वाचकांचा प्रारंभीचा कल हा ऐतिहासिक, पौराणिक किंवा रंजनप्रधान वाचनाकडे होता; मात्र वाचन वाढते तशी विचार करण्याची प्रक्रिया निर्माण होऊन काय वाचावे हे समजते. चांगली पुस्तके मिळवून वाचणं ही गरज बनली पाहिजे. चांगला वाचक हाच उद्याचा चांगला सर्जक असतो, हे लक्षात घ्यायला हवे.

साधारणतः ज्याला पुस्तकाची पारख नसते त्याला सामान्य वाचक म्हणता येईल. काही जेमतेम शिकलेल्या वाचकांवर पुस्तकांचा प्रभाव पडतो. पुस्तक हे फक्त वाचताना प्रभाव पाडत नाही तर वाचनातच त्याच्या मनाच्या तळाशी बुडे तरी जाता मिळवते. पुढे आयुष्यात त्याला एखादा अनुभव येतो त्या वेळी वाचकाला त्या पुस्तकाची आठवण होते. खरे तर चांगल्या पुस्तकाची याहून वेगळी ओळख ती कोणती? जी चांगली पुस्तकं असतात ती कधीही रुबाब दाखवत नाहीत, तर ती तुमच्यासोबत जगतात आणि तुम्हाला जगण्याची प्रेरणा देतात.

पुस्तकांच्या संस्कारांचे महत्त्व महापुरुषांनीही मान्य केलेले आहे. चांगल्या पुस्तकाच्या वाचनामुळे माणूस आतून हादरतो. तो विचार करू लागतो आणि स्वतःला बदलून घेतो. डॉ. बाबासाहेब आंबेडकर हे प्रचंड ग्रंथप्रेमी होते. त्यांनी साहित्यिकांना उदारा जीवनमूल्ये आणि सांस्कृतिक मूल्ये स्वीकारून लिहा, असा संदेश दिला. त्याचबरोबर पुस्तकांच्या सहवासात नम्रतेनं शिरावं. तिथं अहंभाव व्यर्थ ठरतो, असेही त्यांनी सांगितले. आपले शरीर सुदृढ राहण्यासाठी जेवण शरीराचे पोषण करते; परंतु वाचन हे मनाचे पोषण करते. त्यातूनच पुस्तकाशिवाय माणसाचं अस्तित्व शक्य नाही हेही जाणवते. पुस्तके वाचकांशी संवाद साधातात. तो काही वेळा प्राथमिक किंवा प्रासंगिक असतो.

आता मराठीच्या बरोबरीने इंग्रजी, अनुवादित पुस्तकांची मागणी वाढली आहे. स्वप्नाळू वा रंजनात्मक पुस्तके बाजूला पडून व्यवस्थापन, व्यक्तिमत्त्व विकासाकडे ओघ वाढला आहे. याबरोबरच पी. बुकचा (प्रिंटेड पुस्तक) जमाना जाऊन ई. बुकचा (इलेक्ट्रॉनिक बुक) जमाना आला आहे. ई. वाचन, ई. लेखनाच्या जमान्यात फेसबुक, ट्विटर, व्हॉटस् ॲप याद्वारे लेखनाला लगेच प्रतिक्रिया देण्याची व्यवस्था आहे. लाइक, शेअर, कमेंट याद्वारे तुमचे लेखन सर्वदूर पोहचू शकते; मात्र मूळ पुस्तकासारखा हा सारा मजकूर दीर्घकाळ तुमच्यासोबत असेलच याची खात्री देता येत नाही. कारण हे तंत्रज्ञान आहे, तर पुस्तके ही सहवास आहेत.

पुस्तके हातात घेऊन वाचण्याचा आनंद काही वेगळाच आहे. पुस्तकांचे अस्तित्व हे माणसाच्या रंग, रूप, स्पर्श, गंध या सगळ्या संवेदना जागे करते आणि त्या संवेदनांचे अननुभूत समाधानही देऊन जाते. नव्या पुस्तकांना एक छान वास येतो. ते हातात आल्यानंतर त्याची पानं उलटण्याची मजा काही औरच असते. वाचन ही नुसती क्रिया नाही तर ती एक प्रक्रिया आहे. यात तुम्ही आणि तुमच्याशी पुस्तकातील पात्रे, प्रसंग, घटना बोलत असतात. या प्रक्रियेला रुजून घेतलं तर येणाऱ्या परिस्थितीला प्रतिक्रिया देता येऊ शकते. त्यामुळे वाचन प्रक्रिया वाढविण्यासाठी आपण वाचकांच्या मनातील आवडी शोधल्या पाहिजेत.



दक्षिण महाराष्ट्र साहित्य पत्रिका

(मराठी त्रैमासिक)

जानेवारी– फेब्रुवारी– मार्च २०१६

वर्ष : ३३ / अंक ४ था

संपादक : चंद्रकुमार नलगे

- महाराष्ट्र राज्य साहित्य आणि संस्कृती मंडळाने या नियतकालिकास अनुदान दिले असले, तरी या नियतकालिकातील लेखकांच्या विचारांशी मंडळ, राज्य शासन सहमत असेलच असे नाही.
- या अंकाला महाराष्ट्र राज्य साहित्य आणि संस्कृती मंडळाचे अनुदान प्राप्त.

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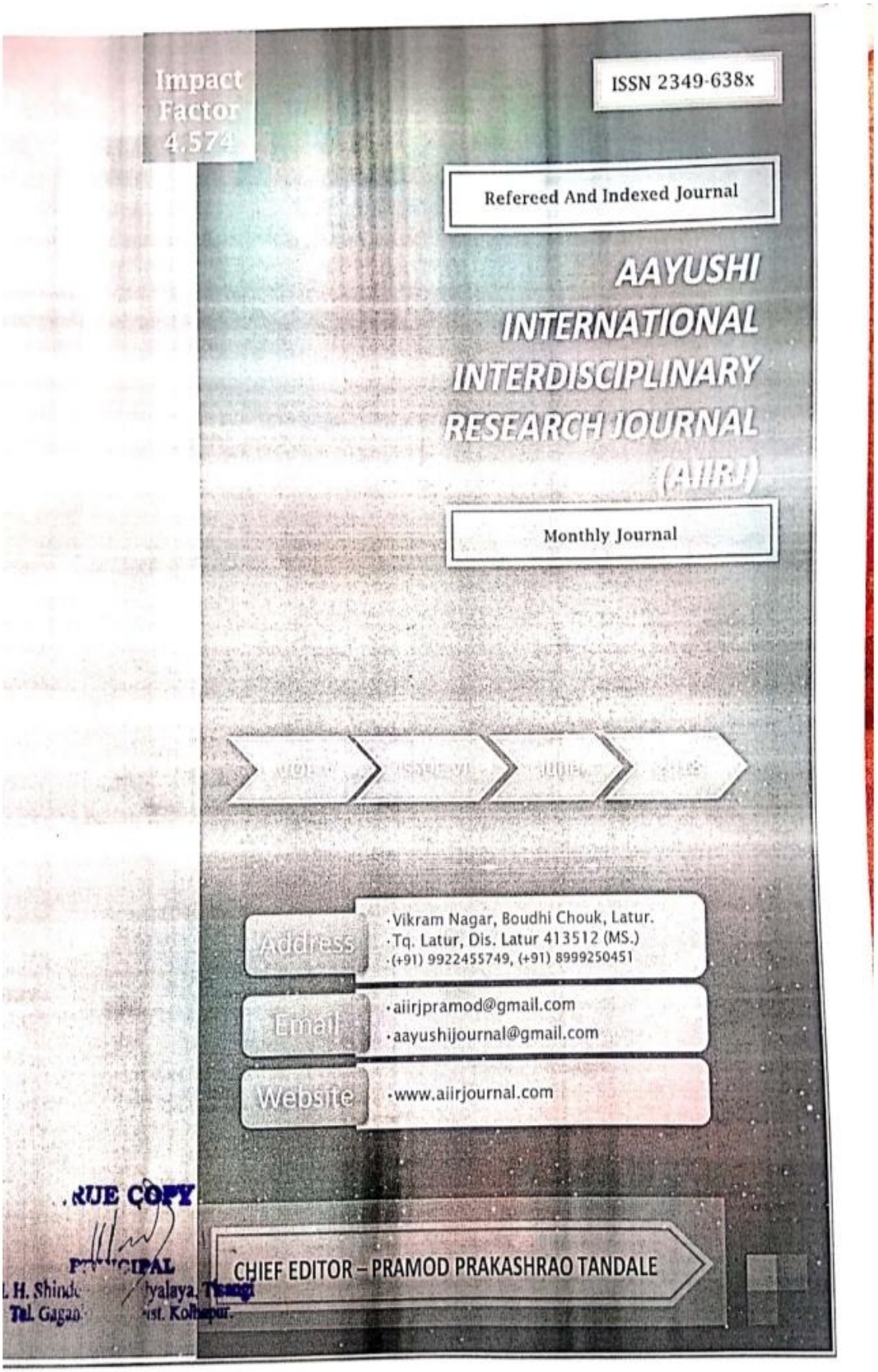

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महात्मा जोतीराव फुले यांच्या शेतीविषय विचारांचे महत्व

प्रा. डॉ. नामदेव कृष्णा मोळे
विभाग प्रमुख -मराठी
म.ह. शिंदे महविद्यालय, तिसंगी,
ता. गगनबावडा, जि. कोल्हापूर.

प्रास्ताविकः

१९ व्या शतकातील सामाजिक सुधारणेचे प्ररणेते म्हणून महात्मा जोतीराव फुले यांचे नाव घ्यावे लागते. जोतीरावांनी लिहिलेल्या विविध ग्रंथामधून सामाजिक, सांस्कृतिक, धार्मिक शेती व शेतकरी यांच्या प्रश्नांची जाणीव होते. अहोरात्र कष्ट उपसणारा, शेतात राबराब, राबणारा शेतकरी हा प्रतिष्ठित मानला गेला पाहिजे. अशी विचारसरणी महात्मा फुले यांची होती. भारत हा कृषिप्रधान देश असून ग्रामीण भागात राहणाऱ्या शेतकरी व शेतमजूर यांची संख्या अधिक आहे. त्यांच्या दुःखांना वाचा फोडण्याचे महत्त्वाचे कार्य केले आहे. महात्मा फुले यांच्या समाजपरिवर्तनाचा समाज क्रांतीचा दृष्टिकोन किती विशाल होता याची साक्ष त्यांच्या सामाजिक चिंतनात, विचारात व प्रत्यक्ष कार्यात आढळते यामध्ये समाजातील सर्वच उपेक्षित घटकांचा समावेश झालेला आहे. महात्मा फुले यांच्या काळात शेतकरी व शेती यासारख्या प्रश्नांवर अन्य कोणी लिहिलेले फारसे आढळत नाही. महात्मा फुले यांनी मात्र प्रथम आपले विचार अत्यंत तळमळीने मांडलेले आहेत. आजच्या माहिती व तंत्रज्ञानाच्या काळात जोतीरावांच्या विचारांची आवश्यकता पुन्हा निर्माण होत आहे. त्यांनी सांगितलेल्या विविध विचारांचे महत्व आजही पुन्हा नव्याने स्वीकारण्याची गरज आहे. त्यामुळे जोतीराव फुले यांच्या शेतकरी व शेतीविषक विचारांचा वेध प्रस्तुत निबंधात घेण्याचा प्रयत्न केलेला आहे.

शेती व शेतकरी विषयक विचार :

शेती व शेतकरी हाच गावच्या अर्थव्यवस्थेचा कणा होता. कारण स्वयंपूर्ण ग्रामीण अर्थव्यवस्था शेती व्यवसायाभोवतीच केंद्रित झालेली होती. उत्तर पेशवाईत महसूल वसुलीसाठी खेड्याचे विभाजन झालेले दिसते. इनाम खेडी, मोकासा खेडी इत्यादी पेशवाईत हा मसहूल अनेक निकष लावून ठरविलेला असे. उदा. जमिनीची प्रत, पिकाचा प्रकार, खरीप रब्बी पीक, बागायती, जिरायती पिके इत्यादी. साधारणत: एकूण उत्पन्नाच्या एकतृतीयांश महसूल सरकारकडून आकारला जात असे. हा महसूल रोख किंवा वस्तूंच्या स्वरूपात स्वीकारला जाई. गावात शेतकऱ्यांत वतनदार, मिरासदार, उपरी असे काही वर्ग होते. शेतकरी सर्वांचा पोषणकर्ता होता. पण त्यांची स्थिती अत्यंत वाईट होती. कारण महाराष्ट्रातील नैसर्गिक परिस्थिती, येथील लहरी पाऊस, कधी कधी अतिवृष्टी तर कधी दुष्काळ, रोगराई, टोळधाड, लष्कराने पिकाचे केलेले नुकसान इत्यादींमुळे शेतपिकाचे व शेतकऱ्यांचे प्रचंड नुकसान होई. त्यातून आलेल्या पीक उत्पन्नातून बलुते द्यावे लागते. महसूल द्यावा लागे. शासकीय विविध कर द्यावे लागत. लग्न, दुष्काळ अडी-अडचणींसाठी सावकारांच्याकडून कर्ज घेतलेले असे. सावकारांचा व्याजाचा दर प्रचंड होता. कर्ज फिटले नाही तर सावकार जमिनी ताब्यात घेई. कर्ज व करवसुलीसाठी शेतकऱ्यांचा अमानुष पद्धतीने, क्रूर पद्धतीने छळ केला जात असे. त्यामुळे या काळात शेतकरी, शेतमजूर यांची अवस्था दयनीय होती. त्यातच शेतमालाची चोरी, लुटालूट, जाळपोळ इत्यादींमुळे शेतकऱ्यांचे नुकसान होई. महाराष्ट्रातील सर्व शेती जिरायती होती. पेशव्यांनी शेती पिकासाठी खास प्रयत्न केल्याचे फारसे दिसत नाही. कायमस्वरूपी आर्थिक स्थैर्य निर्माण करण्याचे प्रयत्न या काळातील राज्यकर्त्यांकडून झालेले दिसत नाहीत. अशाप्रकारे घरातील सर्व लोकांच्यासह शेतावर रात्रंदिवस राबूनसुद्धा शेतकऱ्याला सुखाने जगता येत नव्हते. दारिद्र्य तर त्यांच्या पाचवीलाच पूजलेले होते. उत्तर पेशवाईत तर या बाबींचा कळस झाला. चैन, विलास, दानधर्म, भोजनावळीसाठी रयतेकडून जास्त पैसा वसूल केला जाईल. शेतकरी व रयत यांना कोणी वाली उरला नाही. शेतसारा व करवसुलीसाठी शेतकऱ्यांस फार छळत. मिरचीची धुरी देत. ओणवे करून पाठीवर मोठे दगड ठेवत. तापल्या तव्यावर उभे करत इत्यादी कौर्याची परिसीमा गाठली जाई. वरील सर्व परिस्थितीचा आढावा घेतल्यानंतर शेती, शेतकरी व शेतमजूर यांची परिस्थिती कशी होती याचे चित्र आपल्यासमोर उभे राहते.

'शेतकऱ्यांचा आसूड' या ग्रंथाच्या उपोद्घातातच महात्मा फुले यांनी शेतकऱ्यांच्या जातीवर ओझरता प्रकाश टाकला आहे. शुद्ध शेतकरी म्हणजे केवळ शेती करणारा कुणबी, माळी, धनगर हे होत. त्यांचा मूळ व्यवसाय शेती हाच होता. त्याचे उदरनिर्वाहाचे साधन शेती हेच होते. पण आता या तीन वेगवेगळ्या जाती झाल्या आहेत. असे महात्मा फुले नमूद करतात. कुणबी माळी आणि धनगर यांच्या सद्य:स्थितीचेही वर्णन महात्मा फुले यांनी उपद्घोषात केले आहे. जगातील एकंदर सर्व देशाचे इतिहास एकमेकांशी ताडून पाहता, हिंदुस्थानातील अज्ञानी व देवभोळ्या शुद्र शेतकऱ्यांची स्थिती मात्र इतर देशातील शेतकऱ्यांपेक्षा फार वाईट होती.

महात्मा फुले यांचे सूक्ष्म निरीक्षण, चिंतन आणि शेतकऱ्यांची जी स्थिती पाहिली ती पुस्तकरूपाने मांडण्याची त्यांची तळमळ लक्षात घेता महात्मा फुले यांच्या व्यक्तित्वातील पैलूंचा प्रत्यय आल्याशिवाय राहत नाही. त्यांच्या व्यक्तित्वाची झेप, त्यांचे समाजचिंतन आणि मानवतेची व्यापकदृष्टी याची जाणीव त्यांच्या 'शेतकऱ्यांचा आसूड' आणि अन्य ग्रंथातूनही होते. 'शेतकऱ्यांचा आसूड' या ग्रंथात महात्मा फुले

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महाराजा सयाजीराव गायकवाड – सुशासित राज्यकारभाराचा आदर्श

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आधुनिक भारताच्या इतिहासात बडोदा संस्थान हे एक प्रगतिशील राज्य म्हणून ओळखले जाते. स्वातंत्र्यपूर्व काळात या राज्याने 'महाराजा सयाजीराव गायकवाड' यांच्या मार्गदर्शनाखाली कल्याणकारी राज्याचा आदर्श निर्माण केला. अशिक्षित शेतकरी कुटुंबातून आलेल्या सयाजीरावांनी आपल्या ६४ वर्षाच्या कारकिर्दीत सुधारणावादी राज्यव्यवस्था निर्माण करुन सुशासनाचा आदर्श निर्माण केला. ब्रिटिशांच्याकडून मिळालेल्या मर्यादीत अधिकारांचा वापर करुन शिक्षण, स्थानिक स्वराज्य, समाजसुधारणा, धर्म सुधारणाा, स्त्री शिक्षण, रस्ते, रेल्वे, पाटबंधारे, कृषी विकास, सहकार, बँक,उदयोगधंदे, प्रशासन व्यवस्था, ग्रंथालये, शिष्यवृत्ती, वर्तमानपत्रे, पुस्तक छपाई,न्याय व्यवस्था, प्रशासन व्यवस्था,आपत्ती निवारण, आरोग्य, स्वच्छता, कला, साहित्य, विज्ञान, संस्कृती इ. सर्व क्षेत्रात त्यांनी आपल्या कार्याचा ठसा उमटवला त्यांचे विचार व कार्य भारतीयांसाठी दिशादर्शक आहेत. विशेषतः प्रशासकीय सुधारणांच्याव्दारे सुशासन निर्माण करण्याचे कार्य भारतातील प्रशासकीय सेवकांना मार्गदर्शक स्वरुपाचे आहे. म्हणूनच त्यांच्या कार्य कर्तृत्वाचा अभ्यास करणे सद्यस्थितीत महत्वाचे ठरते.

प्रास्ताविक

बडोदा संस्थानचे अधिपती महाराजा सयाजीराव गायकवाड यांचा जन्म ११ मार्च १८६३ रोजी नाशिक जिल्हयातील कवळाणे या गावी झाला. वडील काशिराव गायकवाड यांना आनंदराव, गोपाळराव व संपतराव अशी तीन मुले होती. बडोदा संस्थानचे राजे खंडेराव गायकवाड यांचे १८७० साली निधन झाले. ब्रिटिश सरकारने खंडेरावांची पत्नी जमनाबाई यांना दत्तकपुत्र घेण्याची परवानगी दिली. जमनाबाईंनी १२ वर्षाच्या अशिक्षित गोपाळरावांची दत्तकपुत्र म्हणून निवड केली. २७ मे १८७५ रोजी दत्तकविधान झाले आणि गोपाळरावांचे नाव 'सयाजीराव तीसरे'असे ठेवण्यात आले.

बडोदा संस्थानचे दिवाण टी माधवराव हे कुशल प्रशासक होते. त्यांनी राज्यकारभाराची घडी बसवून सयाजीरावांच्या शिक्षणाची व्यवस्था केली. सयाजीरावांचा मराठी,गुजराती, उर्दू व इंग्रजी भाषांबरोबरच इतिहास, भूगोल व गणिताचा अभ्यास सुरु झाला. या अभ्यासानंतर टी माधवरावांनी सयाजीरावांना राज्यकारभाराचे शिक्षण देण्यासाठी तज्ज्ञांच्या व्याख्यानांचे आयोजन केले. राज्याची कर्तव्ये, सुनियंत्रित राज्यकारभार, कायदे व न्याय,जमिन महसूल व व्यवस्थापन, पोलीस,लष्कर इ. विषयांवर सुमारे १५० व्याख्यानांचे आयोजन केले. २८ डिसेंबर १८८१ रोजी सयाजीरावांनी समारंभपूर्वक अधिकार ग्रहण केले आणि दैनंदिन राज्यकारभारात लक्ष देण्यास सुरुवात केली. अल्पावधितच त्यांनी एक लोक कल्याणकारी सुशासित राज्यकारभाराचा आदर्श देशासमोर ठेवला. त्यांच्या प्रागतिक राज्यकारभाराचा आढावा प्रस्तुत शोध निबंधात घेण्याचा प्रयत्न केला आहे.

उद्दिष्टे - प्रस्तुत शोध निबंधासाठी पुढील उद्दिष्टे निश्चित करण्यात आली आहेत.

१) महाराजा सयाजीराव गायकवाड यांच्या लोकभिमुख राज्यकारभाराचा अभ्यास करणे.
२) बडोदा संस्थानातील प्रशासकीय सुधारणांचा अभ्यास करणे.
३) बडोदा संस्थानातील सुप्रशासनाच्या तत्वांचा अभ्यास करणे.

वरील उद्दिष्टांना अनुसरुन उपलब्ध साधनसामुग्रीच्या आधारे प्रस्तुत शोध निबंधाची मांडणी करण्यात आली आहे.

संशोधन पध्दती

प्रस्तुत शोध निबंधासाठी ऐतिहासिक आणि विश्लेषणात्मक संशोधन पध्दतीचा अवलंब करण्यात आला आहे. तसेच संशोधनासाठी प्राथमिक आणि दुय्यम साधनांचा वापर करण्यात आला आहे.

राज्यकारभाराचा उद्देश व राज्यकर्त्याचे कर्तव्य

महाराजा सयाजीरावांना २८ डिसेंबर१८८१ रोजी राज्याधिकार प्राप्त झाले. त्यानिमित्ताने पुण्याचा सार्वजनिक सभेने महाराजांचा मानपत्र देऊन सत्कार केला. त्या प्रसंगी सयाजीराव म्हणाले की, ''माझ्या प्रिय प्रजाननांच्या हिताचे संरक्षण व संवर्धन करणे हाच माझ्या जीवनाचा पहिला व प्रबळ असा उद्देश आहे.'' सयाजीरावांनी या उद्देशाला अनुसरुनच आपला राज्यकारभार सुरु

राष्ट्र उभारणीतील गोपाळ कृष्ण गोखले यांच्या भारत सेवक समाजाचे योगदान

डॉ. संभाजीराव आनंदा मोरे
इतिहास विभाग प्रमुख,
म.ह.शिंदे महाविद्यालय, तिसंगी,
ता.गगनबावडा, जि.कोल्हापूर.

महात्मा गांधीजीचे राजकीय गुरू, उत्तम अध्यापक, संसदपटू, नेमस्तवादी, राजकीय नेते, कष्टाळूपणा, नि:स्वार्थीपणा, देशप्रिती आणि सर्व्हंट्स ऑफ इंडिया सोसायटीचे संस्थापक अध्यक्ष ही गोपाळ कृष्ण गोखल्यांची कामगिरी होय. स्वातंत्र्य लढ्यात अग्रणी असणाऱ्या व्यक्तीमध्ये गोपाळ कृष्ण गोखल्यांचे नाव आदराने घेतले जाते. भारतीय राष्ट्रकार्यामध्ये अमूल्य व महत्वपूर्ण कार्य करणारा समाज म्हणजे 'भारत सेवक समाज' होय. देशसेवेच्या कोणत्याही शाखेमध्ये व भारताच्या प्रगतीसाठी देशसेवक उभा करणारा समाज म्हणजे 'भारत सेवक समाज' होय. भारत सेवक समाजाने देशसेवला साम्राज्यांतर्गत स्वराज्याला वाहून घेतले होते. देश बांधणीच्या कार्यात समर्पित वृत्तीने सहभागी होणाऱ्या कार्यकर्त्यांची, प्रशिक्षित व्यक्तींची गरज असते.म्हणून त्यांनी देशसेवेसाठी कार्यकर्ते निर्माण करणारी 'भारत सेवक समाज' ही संस्था स्थापन केली. सदर शोधनिबंधात भारत सेवक समाजाने राष्ट्रबांधणीमध्ये जे महत्वपूर्व योगदान दिले आहे.त्याचा थोडक्यात आढावा घेण्याचा प्रयत्न केला आहे.

प्रस्तुत शोधनिबंधात भारत सेवक समाजासाठी गोखलेंच्या योगदानाचा अभ्यास करणे, निधी संकलन करून इमारत व समृध्द ग्रंथालयाची उभारणी कशी केली, भारत सेवक समाज कसा नावारूपाला आणला, टिकाकारांच्याबाबत गोखल्यांची भूमिका काय होती आणि राष्ट्र बांधणीमध्ये भारत सेवक समाजाने कोणती भूमिका पार पाडली याचा आढावा संदर्भग्रंथाच्या माध्यमातून घेतला आहे.

गोपाळ कृष्ण गोखले यांचा जन्म ९ मे, १८६६ रोजी रत्नागिरी जिल्ह्यात कोतळूक येथे झाला. शिक्षण पूर्ण झाल्यानंतर त्यांनी न्यू इंग्लिश स्कूलमध्ये शिक्षकाची नोकरी स्वीकारली.[१] ते डेक्कन एज्युकेशन सोसायटीचे आजीव सदस्य, सुधारकचे संपादक, मुंबई विद्यापीठाचे फेलो, मुंबई प्रांतिक कायदे मंडळाचे सभासद व भारत सेवक समाजाचे संस्थापक होते.

देशापुढील विविध प्रश्नांचा अभ्यास होण्याची गरज होती. यासाठी सुशिक्षित तरूणांची संस्था स्थापन करावी आणि समाजशास्त्र, इतिहास, अर्थशास्त्र या सर्व अभ्यासाला जागतिक अभ्यासाची जोड घावी.[२] राष्ट्राच्या सेवेसाठी प्रामाणिक, निष्ठावंत आणि त्यागी भावनेने कार्य करणारे सामाजिक व राजकीय कार्यकर्ते तयार करणे.[३] आपला समाज स्वायत्तेचा उपभोग घेण्यासाठी लायक बनवायचा तर नि:स्वार्थी अशा समाज सेवकांची एक संस्था निर्माण केली पाहिजे असे गोखल्यांना वाटत होते. आणि याच हेतूसाठी त्यांनी भारत सेवक समाजाची स्थापना केली होती. स्वत:चे सुखी जीवन सोडून व नोकरीचा त्याग करून देशसेवेचा एक मार्ग त्यांनी आपल्यासमोर घालून दिला. हे त्यांचे देशसेवेसाठी केलेले योगदान विसरता येणार नाही.[४] दुष्काळ निवारण, दलितांची सेवा व उद्धार, शिक्षण प्रसार व हिंदू मुस्लीम ऐक्य यासारख्या उद्दिष्टांना डोळ्यासमोर ठेवून भारत सेवक समाजाची त्यांनी स्थापना केली.[५]

भारत सेवक समाज सदस्यांची शपथ :

१.माझ्या डोळ्यापुढे सदैव देशाच्याच कल्याणाची गोष्ट प्रथम राहील. माझ्याकडे जे काही उत्कृष्ट आहे, ते ते सर्व मी आपल्या देशाच्या सेवेत अर्पण करीन.

२.देशसेवा करताना माझ्या मनाला स्वार्थाचा लवलेशही होऊ देणार नाही.

३.सर्व हिंदी लोकांना मी भाऊ असे समजेन व सर्वांच्या उन्नतीसाठी पंथ व जात बाजूस ठेवीन.

४.माझ्या कुटुंबासाठी 'भारत समाज सेवक' जे काही देईल त्यातच मी आनंद मानीन.

५.मी माझे खाजगी आचरण पवित्र ठेवीन.

६.मी कोणाबरोबरही खाजगी व्यक्तीगत भांडणे करणार नाही.

७.भारत सेवक समाजाचे ध्येय मी सतत डोळ्यासमोर ठेवीन.[६]

प्रत्येक नवीन सभासदाला भारत सेवक समाजामध्ये सहभागी झाल्यानंतर पुढीलप्रमाणे प्रतिज्ञा घ्यावी लागे. 'देशभक्ती, नि:स्वार्थीपणा सर्व भारतीयांबद्दल प्रेमभाव, समाज देऊ शकेल तेवढ्यावरच स्वत:ची व कुटुंबाची गुजराण, परस्पर मैत्रीभाव, शुध्द आचरण, व्यक्तीगत भांडण, तंटे बंद ही भारत सेवक समाजाची सर्व उद्दिष्टे मनात ठेवून वर्तन करणे.'[७]

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भारतीय स्वातंत्र्य आंदोलनातील यशवंतराव चव्हाणांचे योगदान

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प्रस्तावना :

महाराष्ट्राच्याच नव्हे तर, देशाच्या राजकरणामध्ये ज्यांनी आपल्या कार्य-कर्तुत्वाचा ठसा उमटवला व आधुनिक भारताची जडण-घडण करण्यामध्ये महत्वाची भूमिका निभावली असे महाराष्ट्राचे लाडके व्यक्तिमत्व म्हणजे यशवंतराव चव्हाण होय. एका सर्वसामान्य कुटूंबात जन्माला येऊन ज्यांनी आधुनिक भारताच्या इतिहासावर स्वत:ची छाप सोडली ते यशवंतराव चव्हाण एक लोकप्रिय नेतृत्व होते. यशवंतराव चव्हाणांच्या जीवनाचा आपल्याला वेगवेग्ळ्या दृष्टीकोणातून विचार करावा लागतो.

यशवंतराव चव्हाण म्हणजे स्वातंत्र्य सैनिक, कुशल राजकारणी, मुत्सदी प्रशासक, संसंदपटू उच्च अभिरूचीचा रसिक, साहित्यिक, विचारवंत, शिक्षण तज्ञ, अनुभव संपन्न व्यक्तीमत्व, चिंतनशील व्यक्ती, संयमी तसेच विचारप्रवर्तक राजकारणी, चारित्र्य संपन्न नेता, ओजस्वी वक्ता, सौजन्यमुर्ती प्रतिभावंत अशा कित्येक शब्दात त्यांचे वर्णन करता येईल. हेच यशवंतराव चव्हाण प्रति शिवाजी म्हणून देखील ओळखले जात होते.

यशवंतराव चव्हांणाचे व्यक्तिमत्व बहुआयामी होते. त्यांनी भारतीय स्वातंत्र्य लढ्यामध्ये दिलेले योगदान हे अत्यंत महत्वाचे आहे. देशाचे स्वातंत्र्य मिळवण्यामध्ये आणि ते टिकवण्यामध्ये ज्या लाखो लोकांनी योगदान दिले होते. त्यामध्ये यशवंतराव चव्हाण यांची भूमिका आणि कार्य विशेष महत्वाचे होते. यशवंतराव चव्हाण हे भारतीय स्वातंत्र्य लढ्यामध्ये केवल सामील झाले नाहीत तर त्यांनी आपले प्रत्येक पाऊल अत्यंत विचाराने उचलले दिसते. ते कधीही कोणत्याही प्रसंगात भावनिक होऊन कोणत्याही गोष्टीच्या आहारी गेले नाहीत तर प्रत्यक्षात परिस्थितीचे बारकाईने निरीक्षण करून योग्य तो निर्णय घेतलेला दिसतो. म्हणूनच यशवंतराव चव्हाण फक्त एक स्वातंत्र्य सैनिक नव्हते तर ते कर्तबगार मुत्सदी सुद्धा होते. त्यांनी भारतीय स्वातंत्र्य आंदोलनात दिलेले योगदान, आणि त्यांच्या कार्य कर्तृत्वाने देशाच्या स्वातंत्र्य लढ्यात सातारा जिल्हयास धगधगता ठेवण्याचे महत्वपूर्ण कार्य केले. एक भूमिगत क्रांतीकारक म्हणून त्यांनी केलेले कार्य उल्लेखनीय असेच आहे. स्वातंत्र्य आंदोलनातील त्यांच्या कार्याविषयी मतमतांतरे असली तरी एकंदरीतच त्यांच्या योगदानाकडे आपणास दुर्लक्ष करता येणार नाही. म्हणूनच प्रस्तुत संशोधनपर निबंधात यशवंतराव चव्हाण यांचे भारतीय स्वातंत्र्य आंदोलनातील योगदान या दृष्टीकोणातून मांडणी करण्यात आली आहे.

यशवंतराव चव्हाणांच्या क्रांतीकारक विचारांची बैठक :

यशवंतराव चव्हाण आणि वाचन यांचा अत्यंत जवळचा सबंध आहे. त्यांच्या चौफेर वाचन वृत्तीमुळे त्यांचे व्यक्तिमत्व घडत गेले. वाचनाची ही आवड पुण्याच्या येरवडा जेल मध्ये असतानाच निर्माण झाली होती. इ. स. १९३३ मध्ये यशवंतरावाना तुरूंगवास झाला होता व त्यांना येरवडा जेल मध्ये १२ नंबरच्या बराकी मध्ये ठेवण्यात आले होते. या काळात त्यांचा तेथे अनेक राष्ट्रीय नेत्यांशी संबंध आला. तेथे त्यांना त्यांच्या मित्रांच्या सहकार्याने पुस्तके वाचण्यास मिळत होती.[१]

जेलमध्ये असताना त्यांनी बर्नाड रसेल यांचे रोड्स टू फ्रिडम हे पुस्तक त्यांनी वाचले होते. त्या पुस्तकामुळे त्यांच्या विचारांची दिशा बदलली व स्वातंत्र्याचा प्रश्न हा भारतापुरता मर्यादित नसून तो संपूर्ण मानव जातीचा आहे ही भावना त्यांच्या ठिकाणी निर्माण झाली. गांधीजी, लेनीन यांच्या जीवनावरील पुस्तकांनी त्यांच्या विषयी आदराची भावना निर्माण झाली.[२] राजशास्त्र आणि इतिहासाची त्यांना विशेष गोडी होती. कोल्हापूर मधील राजाराम कॉलेजच्या ग्रंथालयात ते तासनतास वाचन करीत असत. एस. जी वेल्स यांच्या 'आऊट लाईन ऑफ हिस्टरी' या पुस्तकाने त्यांची इतिहासाकडे बघण्याची दृष्टी बदलली.

त्याचबरोबर, लोकमान्य टिळकांचा स्वातंत्र्याचा मंत्र, गांधीजींची असहकार चळवळ, महात्मा फुले यांच्या सत्यशोधक विचारांचा प्रभाव शालेय जीवनापासूनच त्यांच्या मनावर पडलेला होता. त्यामुळे राष्ट्रप्रेम, देशभक्ती, निष्ठा या गोष्टीतून त्यांचे व्यक्तिमत्व घडत गेले. महात्मा फुले, मार्क्स, रॉय, गांधी, नेहरू इत्यादींच्या विचारांचा जबरदस्त पगडा त्यांच्यावर होता.[३]

इ. स. १९३० साली टिळक हायस्कूल मध्ये असताना यशवंतराव चव्हाण हे हायस्कूलच्या आवारातील लिबांच्या झाडावर झेंडा लावून आपल्या मित्रासमवेत झेंडा वंदन करत असत. ही गोष्ट आज आपणास किरकोळ वाटत असली तरी त्या काळी आपल्या देशावर ब्रिटीशांचा अंमल होता हे लक्षात घ्यायला हवे. त्यांनी दाखवलेल्या धाडसाबद्दल त्यांना अटक

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राष्ट्र उभारणीस बळ प्राप्त करून देणारे महिला सक्षमीकरण

श्रीमती मीना भा. सावंत
सहा. प्राध्यापक
समाजशास्त्र विभाग
म.ह.शिंदे महाविद्यालय, तिसंगी.

प्रस्तावना :

२६ जानेवारी, १९५० रोजी भारत प्रजासत्ताक देश बनला. डॉ. आंबेडकरांच्या कुशल नेतृत्वामुळे भारताची राज्यघटना तयार झाली. समाजाच्या विकास प्रक्रियेला चालना देणारे जे अनेक घटक आहेत, त्यापैकी कायदा हा महत्वाचा घटक आहे. भारतीय स्त्रियांना अनेक मौलिक अधिकार कायद्याने प्राप्त झाले. स्वातंत्र्यापूर्वी अनेक समाजसुधारकांनी केलेल्या प्रयत्नामुळे स्त्रियांचे जगणे सुसह्य झाले. तर स्वातंत्र्यानंतर घटनेला अनुसरून करण्यात आलेल्या विविध तरतुदी, कायदे, विकास योजना, सोयी-सवलती, विविध क्षेत्रातील आरक्षण यामुळे स्त्रियांचा दर्जा उन्नत होण्यास मदत झाली. म्हणूनच भारताच्या सामाजिक, शैक्षणिक, सांस्कृतिक, आर्थिक व राजकीय क्षेत्रात स्त्रियांचा सहभाग वाढलेला दिसून येतो. एकूणच समतेच्या तत्वावर भारतातील विभिन्न प्रांतातील, धर्मातील, जातीतील, भिन्न संस्कृती व भिन्न आर्थिक स्तरातील स्त्रिया जागृत झाल्या व आपले अधिकार व हक्क प्राप्तीसाठी एकवटल्या. सर्व भारतीय स्त्रियांना आपले प्रश्न, आपल्या समस्या व त्यासाठी द्यावा लागणारा लढा यामध्ये समानता जाणवली. साहजिकच, भारतीय स्त्रियांमध्ये परस्परांविषयी आत्मियता निर्माण झाली. संघटीत झालेल्या जनसमुहामुळे राष्ट्र उभारणीस बळ प्राप्त झाले. म्हणून स्वातंत्र्योत्तर काळातील विविध तरतुदी, कायदे, योजना यामुळे स्त्रियांमध्ये निर्माण झालेले सक्षमीकरण अभ्यासणे महत्वाचे ठरते.

उद्दिष्टे / हेतू :

१.भारतीय स्त्रियांचा समाजातील दर्जा अभ्यासणे.
२.स्वातंत्र्योत्तर काळातील स्त्रियांचा दर्जा उंचावणारे घटक अभ्यासणे.

संशोधनाची पध्दत :सदर संशोधनासाठी दुय्यम साधनसामग्रीचा वापर करण्यात आला आहे. उपरोक्त विषयाच्या अनुषंगाने इंटरनेट, उपलब्ध संदर्भ ग्रंथ, मासिके यांचा अभ्यासासाठी वापर करण्यात आला आहे.

भारतीय स्त्रीचा दर्जा :

भारतीय समाजाच्या जडण-घडणीत आजपर्यंत स्त्रियांचे स्थान दुय्यम असलेचे दिसते. स्त्रियांचे होणारे शोषण, अत्याचार, यांची पाळेमुळे आपल्याला भारतीय ऐतिहासिक घटनात दिसतात. वैदिक कालखंडात स्त्री दर्जा जवळ-जवळ समान होता. तिला उपनयनाचा, शिक्षणाचा, प्रौढ विवाह, स्वयंवर, वर निवडीचा, सामाजिक कार्यात पुरूषाच्या बरोबरीने भाग घेण्याचा अधिकार होता. सामाजिक बदलांबरोबरच सामाजिक मूल्यांत परिवर्तन झाले. उत्तर स्मृतीकाळात धार्मिक कर्मकांडाना महत्व येत गेले. जातीव्यवस्था काटेकोर झाली. कुलवान व वेदसंपन्न पुरूष मिळावा म्हणून वरदक्षिणा म्हणजे हुंडा देण्याची प्रथा निर्माण झाली. वंश शुध्दतेसाठी अंतर्विवाहाबरोबरच, बालविवाहाची, जरठकुमारी विवाहाची प्रथा वाढत गेली. स्त्रियांचे स्वातंत्र्य नष्ट झाले. शिक्षणाअभावी स्त्रीच्या व्यक्तीमत्वाचा, ज्ञानाचा, प्रगल्भतेचा विकास खुंटला. एक प्रकारचे मानसिक परावलंबीत्व तिच्या वाट्याला आले. तिच्या वारसा हक्कावर, मालमत्तेवर गदा आली. चूल आणि मूल हे तिचे कार्यक्षेत्र बनले. शिक्षण व ज्ञानाअभावी स्त्रीचा विकास खुंटलाच, पण कुटुंब आणि समाजाचाही विकास खुंटला.

ब्रिटीशांच्या आगमनानंतर भारतीय समाजसुधारक व त्यांनी केलेल्या प्रयत्नामुळे ब्रिटीशांनी केलेल्या कायद्यामुळे स्त्रियांना शिक्षण, आंतरजातीय विवाह, विधवा पुनर्विवाह, सतीबंदी, मालमत्तेत वारसा, बालहत्या बंदी, प्रौढ विवाहास मान्यता अशा सुधारणा घडून आल्या. तरीसुध्दा सामाजिक जीवनात स्त्रियांचे आरोग्य, शिक्षण, एकूण साक्षरता, त्यांचे होणारे शोषण यामुळे स्त्रियांच्या दर्जात सातत्याने घसरण दिसून येते. देशाला स्वातंत्र्य मिळाल्यानंतर स्त्रियांच्या दर्जात हळूहळू परिवर्तन होण्यास सुरवात झाली. अनेक क्षेत्रात

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हिंदी विभाग,
म.ह.शिंदे महाविद्यालय, तिसंगी,
ता.गगनबावडा, जि.कोल्हापुर ।

प्रस्तावना :

भारत देश में सांस्कृतिक, साहित्यिक, धार्मिक, सामाजिक, आर्थिक विविधता दिखाई देती है । विविधता में एकता यह भारत देश की विशेषता है । सर्व धर्म सहिष्णुता भारतीय संस्कृति की परंपरा है । कश्मीर से कन्याकुमारी तक भौगोलिक, भाषिक विविधता होने पर भी आंतरिक एकता है । राष्ट्र के नामपर सब एक हो जाते है । प्राचीन काल से देश में एकता निर्माण करने का कार्य अनेक लोगों ने किया । राष्ट्र निर्माण में महात्मा ज्योतिबा फुले, सावित्रीबाई फुले, डॉ. आंबेडकर, राजर्षि शाहू छत्रपति, महामानव महात्मा गांधी इनका योगदान महत्त्वपूर्ण हैं । भारत जैसे सबसे बडे लोकतांत्रिक व्यवस्था में राष्ट्रीय एकता महत्त्वपूर्ण होती है । भारत के राष्ट्र निर्माण में महात्मा गांधी के विचारों का बहुत बडा योगदान है ।

महात्मा गांधीजी को महामानव कहा जाता है । अमरिका के 'यू एस टूडे' इस नियतकालिक ने बीसवी सदि का महामानव किसे कहा जायेगा ? इस संदर्भ में राय माँगी थी । तो विश्व के दस हजार विद्वान लोगों में से आठ हजार विद्वानों ने महात्मा गांधीजी को 'महामानव' कहा । ऐसे महामानव विचारों की जरूरत वर्तमान युग में भी है ।

महात्मा गांधीजी ने स्वतंत्रता के साथ-साथ समता, न्याय, संगठन, दलितोद्धार के लिए कार्य किया है । उनके जीवन में संघर्ष की शुरूवात दक्षिण अफ्रिका के एक प्रसंग से हुई । गांधीजी रेल से सफर कर रहे थे । उस समय (काले-गोरे)वर्णभेद का अपमान जनक कटू अनुभव उन्हें मिला । उस प्रसंग से गांधीजी ने असमानता के विरूद्ध समता के लिए संघर्ष करने का निश्चय किया ।

महात्मा गांधीजी की विचारधारा में आध्यात्मिक, धार्मिक, सामाजिक, राजनीतिक विचारों का विशेष महत्त्व हैं ।

आध्यात्मिक विचारधारा :

महात्मा गांधीजी के जीवन का मूलमंत्र है सत्य और अहिंसा । वैयक्तिक जीवन में सत्य और अहिंसा के पालन से मनुष्य की आध्यात्मिक उन्नति होती है । गांधीजी 'सत्य' को ईश्वर मानते थे । मानव में ईश्वर का अंश होता है ऐसा उनका विश्वास था । गांधीजी सत्य की प्राप्ति के लिए अहिंसा और आत्मानुभूति की आवश्यकता मानते थे । अहिंसा के विचार से वे भारतीय समाज को पशुवाद से बाहर निकालकर मानवतावाद के रास्तेपर लाना चाहते थे । गांधीजी के सत्य, अहिंसा, सत्याग्रह से भारत को स्वतंत्रता प्रदान की । सारे विश्व को शांति के मार्ग से क्रांति करने का नया हथियार भी दे दिया । उनके इस सत्य, अहिंसा पर विश्वज्योति बापू इस खंडकाव्य में लिखा है -

''सत्य, अहिंसा, सेवा पथ पर, इस प्रेम का देश
मानव को हे बापू, तुमने दिया मुक्ति-संदेश ।''

धार्मिक विचार धारा :

गांधीजी के अनुसार नैतिकता का पालन ही धर्म था । उन्होंने धर्म को हृदय के क्षेत्र में लाकर जनसाधारण के लिए सरल बनाया । वे सर्व धर्म समानता के तत्व को माननेवाले मानवधर्म के पुजारी थे । सर्व धर्म समान है ऐसी उनकी निष्ठा थी । ईश्वर चिंतन के लिए सच्चे मन से की जानेवाली प्रार्थना को वे महत्त्वपूर्ण मानते थे ।

आर्थिक विचार धारा :

गांधीजी पर कार्ल मार्क्स के आर्थिक विचारों का प्रभाव था । 'अन टू धिस लास्ट' इस रस्किन की पुस्तक से भी वे प्रभावित थे । बिना श्रम किए रोटी खाने का अधिकार किसी को भी नहीं है ऐसा गांधीजी मानते थे । अपने आश्रमवासियों के लिए असंग्रह और अस्तेय ये व्रत रखे थे । अनावश्यक धन संग्रह को वे पाप मानते थे । यह विचार कार्ल मार्क्स के 'प्राइवेट प्रॉपर्टी इज थेप्ट' इस विचार से साम्य रखता है ।

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राष्ट्र निर्माण में राष्ट्रसंत तुकडोजी का योगदान

प्रा.अजित दादू फाळके
सहाय्यक प्राध्यापक हिंदी विभाग
म.ह.शिंदे महाविद्यालय,तिसंगी

प्रस्तावना :

तुकडोजी महाराज महाराष्ट्र के एक महान एंव स्वयंसिध्द संत थे । इनका पूरा जीवन जात, धर्म, वर्ग, पंथ या धर्म से परे समाज की सेवा के लिए समर्पित था । तुकडोजी उपदेश समाजसुधारक, प्रबोधक एंव राष्ट्रभक्त के रुप में सामने आते हैं । इन्होने आजादी की जंग में युवा वर्ग में देशप्रेम की भावना जगाकर राष्ट्रीय चेतना निर्माण की हैं। इन्होने अपने खंजरी भजन तथा स्वरचित गीतों द्वारा सामाजिक प्रबोधन का कार्य किया है । 'मानवता ही पंथ मेरा' इस वाक्य को जीवन का घोष वाक्य बनाकर सर्वधर्म समन्वय का कार्य किया । निश्चित रुप से हमें कहना होगा कि राष्ट्र निर्माण मे तुकडोजी का योगदान महत्वपूर्ण रहा हैं । इन्होने राष्ट्रीय एकात्मता, सर्वधर्म समभाव, ग्राम-सुधार, शिक्षा, नारी शिक्षा, नशा बंदी, आदि में उल्लेखनीय कार्य किया हैं ।

जीवन परिचय :-

राष्ट्रसंत तुकडोजी का जन्म महाराष्ट्र के अमरावती जिले के यावली नामक ग्राम में ३० अप्रैल १९०९ में हुआ । इनका मूल नाम माणिक बांडोजी इंगळे था । पिताजी का नाम बंडोजी तथा माता का नाम मंजिलादेवी था । दोनो विठठलभक्त एवं पंढरपूर के वारकरी थे । आडकोजी के शिष्य थे । इनका प्रारंभिक जीवन योगाभ्यास और साधना मार्ग से पूर्ण था । अविवाहित थे । प्रारंभिक जीवन में इनका महान संतो के साथ संपर्क आया । ग्रंथो में तुकडोजी ग्रामगीता, गांधी-गीताजंली, लहर की बरखा, राष्ट्रीय गीतांजली जैसे अनेक ग्रंथ हिंदी और मराठी में लिखे हैं । इन्होने अनेक महान साधू-संतो संग भारत भ्रमण किया और अपनी खंजरी भजनों द्वारा लोकजागृती की ।

तुकडोजी ऐसे स्वयंसिध्द संत थे जिन्होने अपना पुरा जीवन राष्ट्र कार्य किया । राष्ट्र निर्माण में तुकडोजी का महत्वपूर्ण योगदान रहा हैं ।

तुकडोजी का राष्ट्रमार्ग :-

तुकडोजी ने अपने भजन तथा कीर्तनोंद्वारा लोगो में राष्ट्रीय भावना जागरुक करने का कार्य किया हैं । राष्ट्रीय कार्य के लिए उन्होने प्रचार कार्य चलाया । वह अपने भजनों में कहते है -

"झाड झडूले शस्त्र बनेगें, भक्त बनेगी सेना"
पत्थर सबहीं बॉब बनेगें ।" (१)

इनका भजन सुनकर लोग अंग्रेजो के लिखाफ भडक उठे । विदर्भ तथा महाराष्ट्र के अनेक गांवो में स्वतंत्रता आंदोलन ने जोर पडका । परिणामतः तुकडोजी के भजनों पर बंदी लगायी । आजादी के जंग में युवा वर्ग में देशभक्ति जगाते हुए तुकडोजी अपनी ग्रामगीता में कहते है -

" हम भारत की शान है, वीरों की संतान है"
बढो जवानो लडो शत्रु से चाहे हो बलिदान है । (२)

देश की आजादी के लिए लडना सीखाने वाले तुकडोजी आगे जाकर गीता का वरदान लेकर सत्य का समर्थन करने का साहस बँधाते हैं । इनके द्वारा राष्ट्रीय विषय के कई मोर्चाओंका नेतृत्व हुआ । १९६५ के पाकिस्तान आक्रमण पर अपनी भूमिका व्यक्त की । १९६२ को कोयना भूकंप में लोगों की सहाय्यता के लिए इन्होने मिशन चलाया । चिमूर गोलीबार यह घटना तुकडोजी के लोकप्रेम से ही घटी । तुकडोजी मानते है कि हम सबमें राष्ट्रीयता की भावना ओतप्रोत हो ।

"अब काहे को शोर मचाते हो" दुखवाकर भारत सारे,
आते है नाथ हमारे ।"

आजादी के जंग में गॉव-गॉव घुमकर लोंगो में देशभक्ती जगाते तुकडोजी लोगो में बहुत प्रिय हो गये थे । वह हमेशा राष्ट्रहित के लिए जुडे रहे । इसलिए गुरुकुंज के समारोह में हमारे देश के राष्ट्रपती डॉ. राजेंद्रप्रसाद ने इन्हे आदर के साथ ' राष्ट्रसंत' के सम्मान से प्रतिष्ठित किया ।

सर्वधर्म समन्वय का कार्य :-

हमारे देश में अनेक जात, धर्म, पंथ के लोग रहते है फिर भी देश में एकता की भावना दिखाई देती है । यही एकता की भावना के लिए तुकडोजी अपने पदो में कहते है -

"जात-पाँत को दूर हटावो, हम इंसान है यही बोलो ।" हिंदी साहित्य के महान संत कबीर ने भी अपनी भक्ति भावना में जाति-पाँति का खूलकर विरोध किया हैं । वह कहते है -

'जात-पाँत पुछे नहीं कोए हरि को भजे सो हरि का होए ।'

तुकडोजी अपने भजनो में कहते है किसी को भी दुःख और दर्द नहीं देना चाहिए और अपना गांव स्वर्ग बनाओ । अपनी जान तथा मान को देश के लिए समर्पित कर दो । हम किसी भी धर्म के हो लेकिन हम सबका वर्म एक है । और वह है मानवता का । इन्होने

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Postcolonial Consciousness in Thea Astley's *Reaching Tin River*

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Abstract: Reaching Tin River (1990) is a novel written by Australian Author Thea Astley which was awarded with New South Wales Premier's Literary Awards. The main character of this novel is Belle who is witty, determined, revolutionary natured young woman with aspirations. Belle narrates us the story of her earlier years in a sarcastic tone and her obsession with a person who is in fact dead. In her attempt to research the archives of a town called Jericho Flats, she comes across Gaden Lockyer, who is a long-dead person and center of her obsession. In this novel, she centralizes her attention to an individual who starts his battle from normal circumstances and from common masses and reaches to the extreme stages which are almost unknown. Belle continues her obsession afar the spring of reason. The central character, Belle shows departure from her past life which involves her family and community too. The story delineates Town of Tin River in Queensland region, Australia. This paper presents the postcolonial consciousness in the novel written by Australian author Thea Astley.

Key Words: Postcolonial Consciousness, otherness, hybridity etc.

The postcolonial consciousness is concerned with the readings and writings of literary genres produced in formerly or presently colonized countries. It takes an account of the literary creations generated by the people of colonizing countries highlighting colonization or colonized peoples. It gives prominence to the manner in which the writings of colonizing customs misrepresents the experience and veracity and carves the inadequacy of the aborigines of colonized nations. It manifests the literature which comprehends the individuality of natives of a country under foreign influence and regains their own self as well as inevitable past in the light of otherness. It transacts with the acuteness in the use of diction, imagery, landscapes, customs in the literature produced by a colonial or colonized nation's individual.

The postcolonial consciousness is constructed in relation to the huge concept of otherness in literature. The term otherness tends to involve duality in its association with identity and distinctiveness. It denies looking at the West as the only planned, balanced, mannish, and superior. It even refuses to consider colonized natives as disordered, illogical, womanly, and wicked. It considers one's own past and national customs and gives significance to them in his life. It examines the distinct nature of colonized people who respect their own traditions and oppose intrusion of foreign culture and influence. It even exhibit their constructed past and changing nature though they stand as 'other' from the colonial perspectives. Their divergence from one another and from their own past remains the matter of investigation for postcolonial consciousness. It expects that colonized feelings should not be summated from colonized view. Due to the inevitable nature of past, nostalgic sensation occupies a prominent pose in the postcolonial literature. This forms the basis of thought process of the colonizers who considers their unity of cultures while puzzling the cultures of others. Postcolonial consciousness is marked by the features such as alienation, racism, hybridity, otherness, human conflicts, longings for the past and resistance to regain the past. The novel Reaching Tin River manifests these features in true sense.

Belle presents the story in first person narrative. The narrative voice of Belle in this novel is quite superficial, blowy, and casual as she young protagonist of Astley. Her narration captures the reader's attention through portrayals that takes an account of her life. Her mother worked as a drummer in a two-woman band and she consistently ignored her daughter Belle. Belle remains unknown about her American trumpet-playing father. She remains loveless throughout her life. Due to this reason, Belle survives as an alienated child who feels disillusioned in the Australian social milieu. Belle is a fine explorer of Astley's postcolonial consciousness as she reveals the features of Postcolonialism such as identity crisis, loveless life, feeling of outsider, otherness, hybridity and many more in the best sense. Belle remains unsuccessful while pursuing her career path and she even receives utter failure in her marital life too which develops her sense as a permanent outsider. She longs for emotional fulfillment throughout her life and becomes obsessed with long-dead archetypal settler named Gaden Lockyer. She comes across his photograph in library archives and feels attracted as well as obsessed with him. Due to the obsession, she decides to trace life of Gaden Lockyer.

In the due procession of narration of this story, Belle reaches to an utter fall in her attempt to reenter into the life-size poster of Lockyer. Gaden Lockyer was consecutively a banker, farmer and a politician with corrupt mind. He met his death in a nursing home in the Town of Tin River. The novel reaches to an end with

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Achivement Of Women Wrestlers In Nation Building

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Abstract: For a long time, professional wrestling has existed on the outskirts of society, with the idea that it was just for college-aged men. With the rise of the popularity of the World Wrestling Entertainment promotion, professional wrestling entered the mainstream. This paper explores achievement of women wrestling in nation building. Women's wrestling has changed, and to see if there is more work to be done to have women's wrestling truly become equal to the men. Women have come, and are still critical of storylines and characterization the women get. Findings also show that participants emotionally identify with women wrestlers, and are critical because they care.

Keywords: Professional wrestling, women wrestlers, entertainment.

Introduction

Women's in a sport and a company occupied mostly by men. Their treatment by the company, and how fans make meaning of this, provides insight into how, in other areas of culture, women are treated when they enter fields traditionally dominated by men. As suggested earlier, the New Era has also been notable for its increasing visibility and promotion of women wrestlers. While, in the past, the women were seen mostly as sex objects (e.g., bra and panty matches, evening gown matches, and the WWE mainly using the women as valets), in the New Era there has been more focus on the athletic and wrestling ability of the women. Most recently, on October 30th, 2016, Charlotte Flair and Sasha Banks became the first women to be allowed by WWE to fight in a Hell in the Cell match, a type of cage match described previously. The violent nature of the match is why women were not been allowed to participate in the past.

Geeta Phogat (born 15 December 1988) is a freestyle wrestler who won India's first ever gold medal in wrestling at the Commonwealth Games in 2010. She is also the first Indian female wrestler to have qualified for the Olympic Summer Games. Sakshi Malik (born 3 September 1992) is an Indian freestyle wrestler. At the 2016 Summer Olympics, she won the bronze medal in the 58 kg category, becoming the first Indian female wrestler to win a medal at the Olympics and the fourth female Olympic medalist from the country. She is a part of the JSW Sports Excellence Program, along with fellow female wrestlers Vinesh Phogat, Babita Kumari and Geeta Phogat.

Reshma Mane, a 20-year-old girl from Kolhapur, Maharashtra is the latest chapter added in this series. The first girl from Maharashtra to participate in the third season of Pro Wrestling League, Mane is set to take on the poster girl of Indian Wrestling League - Sakshi Malik in the 62 kg category. All these women wrestler having a good achievement in Nation building.

Methodology

A specific area of research is role of women wrestler in nation building and social construction of identities has been in sports research. Although WWE is distinctly sports entertainment, research on sports and women is still informative to my project. Some scholars have focused on the differences between male and female sports organizations. For example, Messner (1988) refers to the gap between men in sports and women in sports and their performance as the "muscle gap" and the reason the28 gap is closing is due to women gaining more access to coaches and facilities. When looking at the history of women's basketball, Cain (2000) mentions that there were special rules for women's basketball that were not there for men's basketball.

This paper uses in-depth, semi-structured of data collection from various nesws papers. Qualitative interviews allow more active participation from the participants, in comparison to survey-based on data collection from various nesws papers methods, which beget passive participants.

Discussion

Women are traditionally removed from violent sports and activities, so the fact women wanted to see the women wrestlers in violent situations that are usually reserved for men speaks to the idea that women want to be seen as equal to men. I also expected emotional attachment to wrestlers, but not in the possessive way I saw some participants refer to the women wrestlers. So, Women wrestlers are equal to men wrestler in Nation building.

The Voice Of Denotified And Nomadic Tribes In Nation Building

Dr. D. B . Ingawale

Abstract

The **Nomadic Tribes** and Denotified Tribes consist of about 60 million people in India, out of which about five million live in Maharashtra. There are 315 Nomadic Tribes and 198 Denotified Tribes .A large section of these tribes are known as *vimukta jatis* or 'ex-criminal castes' because they were classed as such under the Criminal Tribes Act 1871, enacted under British rule in India After Indian Independence, this act was replaced by the Government of India in 1952. In Maharashtra, these people are not been included in the list of Scheduled Tribes due to historical circumstances, but are listed as Scheduled Castes or "Nomadic Tribes" The tribes designated as "Denotified", "Nomadic" or "Semi-Nomadic" are eligible for reservation in India[4].

The DTNT development is not a new phenomenon. Backward cast community was faced a serious challenge. In present contest of globalization , they may appear to be a difficult ,the development of DTNT's but this is not a impossible task . So the voice of DTNT in nation building is very important.

To take forward the discussion, the paper is organized into four different sections. Introduction in first section and the second section discuss the situation and issues of DTNT's, this section we focus the situation and issued of DTNT in India. The third section goes an describing the understanding of Remedies of upgrade the DTNT. The fourth section ends up with the concluding remarks. .

Introduction :

Indian economy is a developing economy. The economic stagnation and various circles of poverty and unemployment which characterized the pre - independent economy. And the social inequalities and injustices the situation of the social order have the characteristic of Indian society. The Backward class community was faced with a serious challenges in Indian economy.

The **Nomadic Tribes** and Denotified Tribes consist of about 60 million people in India, out of which about five million live in the state of Maharashtra. There are 315 Nomadic Tribes and 198 Denotified Tribes. A large section of these tribes are known as *vimukta jatis* or 'ex-criminal castes' because they were classed as such under the Criminal Tribes Act 1871, enacted under British rule in India After Indian Independence, this act was replaced by the Government of India in 1952. In Maharashtra, these people are not been included in the list of Scheduled Tribes due to historical circumstances, but are listed as Scheduled Castes or "Nomadic Tribes". The tribes designated as "Denotified", "Nomadic" or "Semi-Nomadic" are eligible for reservation in India.

DTNT development is not a new phenomenon. This community was faced a serious challenge . Present contest of globalization ,this may appear to be a difficult ,the development of DTNT's but this is not impossible task. The development of this community is very important issues in nation building.

To The people, who were notified as Criminal Tribes during the British rule and were denotified after independence in 1952, have been known as Denotified tribes, based on the report of Ananthasayanam Ayyangar in 1949-50. Except a few states like Maharashtra, Gujarat etc. some of these communities figure in various classifications in the states such as Backward Tribe (Pondicherry), Most Backward Classes (Tamil Nadu), Extremely Backward Classes (Bihar), 'Original settlers' in Arunachal Pradesh, Primitive Tribes (Jharkhand/Odessa), Hill Tribes (Assam) etc. In some states they are called 'Tribal Settlers'. In some states they are called 'Hidden Tribes' etc. Many DNT/NT communities tried to hide their castes for fear of harassment of the British. Many communities are tried to hide their caste so that they are grouped as 'Lower Castes'. Many states did not notify them as criminal tribes but in police records, they were noted as criminals'

There are many problems identification of these communities, (National Commission for Denotified , Nomadic and Semi Nomadic Tribes) from state to state. Many people also do not know what is Denotified tribe and which authority is looking after their grievances. Recently, this Commission made a recommendation to the Government of India to write to all state governments to form district level Grievances Redressal Committee under the District Collector to hear the grievances of these communities/groups/tribes in India.

These communities/tribes account for nearly 10 percent of community's population as has been mentioned in some writings and there are nearly 820 communities and tribes in India, although some of the community leaders assess that their number would be more with 198 denotified tribes and nearly 1500 nomadic tribes and their population may be even more than 10 percent Since basic census data is not available on these tribes , communities, we are intending to undertake a socio-economic survey through some

A Study of Population Growth of Hilly Talukas in Kolhapur District and Its Impact

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Introduction

A study of the structure and characteristics in population is an important aspect of the study of population. As pointed out earlier, the study of population, among other things, attempts to answer the question: what kinds of people are found in any given population and how do those in one group differ from those in another? The study of the structure and characteristics in population, which is also known as the study of the composition of population, covers this aspect of population studies. It embraces the following basic personal, social and economic characteristics and attributes of population i.e. age, sex, race, nationality, religion, language, marital status, household and family composition, literacy and educational attainment, employment status, occupation, income etc.

Population may be distributed into sub-groups according to each of the foregoing characteristics. For instance, when sex is considered, the entire population may be classified into two groups' males and females; when religion is considered, the entire population may be divided into different religious groups. The study of population structure and characteristics thus relate of the distribution of one or more of these characteristics or attributes within population

Statement of Problem

In the study of population (demography), the structure of population has most important place along with the motion of population. When we start the studies in the population it becomes noticeable that there are many changes in total population. It creates its importance from social and economic point of view. On the basis of this information we can find out the growth of population, rate or growth, causes of growth and its effects on society etc.

Need of the Study

The researcher has study the changing structure of population of hilly talukas in Kolhapur district. The structure of population is changing because of the growing population, urbanization and migration etc.

Scope of Research

As far as the scope of the research study is concerned, it covers almost all socio-economic aspects of Kolhapur district, particularly in the hilly talukas.

In the study of population one would come to know about the extent of increase in population, the responsibility of the state; and the socio-economic problems

Objectives of the Study

The following main objectives have been taken into consideration for the study.

1) To study the population growth and density of hilly talukas in Kolhapur district.
2) To Study the concept of population growth.

Data Collection and Research Methodology

The researcher has study the structural changes in population as well as its impact on socio-economic development of Kolhapur district.

A) Data Collection

The entire study only based on secondary sources. The secondary data have been collected from various census reports of Kolhapur district, report of district statistical office, Zilla Parishad, Tahshil Office, Grampachayat Collector office, Municipal Corporation and Municipal Council. It is also collected from

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Model for Re-engineering of Academic Libraries

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Abstract: Re-engineering in the libraries has become inevitable today as the libraries have to meet their users' needs effectively and efficiently. In this context, the present paper throws light upon the fundamental factors like model for re-engineering and the steps involved in re-engineering. Further it discusses about the basic components which need to be considered at the time of re-engineering in the libraries. These components are: re-engineering proposal, cost estimationand time frame, requirements of re-engineering, approval and implementation, evaluation of change and sustaining the re-engineering process

Keywords: Re-engineering model, designing of re-engineering plan,

Introduction

The academiclibraries need to be re-engineered. They need to computerize their operations and activities and they also need to design and redesign their services as per the modern needs of the users. For re-engineering of these libraries, the re-engineering framework / model as given bellow may be adopted by these libraries.

Designingof Re-engineering Plan

It includes step by step information regarding methods, tools and techniques to be adopted in the process of re-engineering. The plan should be inclusive of the followings.

a) Identifying the activity to be re-engineered.
b) Understanding the current activity and developing a vision for the new improved activity.
c) To identify and list the action to be implemented for re-engineering.
d) Selection of re-engineering team.
e) Taking review of results.

The plan also explains core competencies, commitments, timeframe and operation plan required for re-engineering.

Need for Re-engineering

The library has to assess the need for re-engineering and it has to also see that the modified system would meet the desired results. While assessing the need of re-engineering, the library has to consider the significant components like resources available, management support, users' requirements and technology to be adopted. The study of these components is quite essentials before the initiation of the re-engineering activity.

The academic library is an organization working within an organization (Parent Organization) and hence the library has to respond to the expectations of parent organizations which are ever changing and accordingly the library also has to change its practices time to time in order to respond to its internal and external environments. These circumstances consequently enforce the academic libraries to adopt re-engineering of practices.

The academic libraries today are existing in an information age and today's society is information society. The information revolution causes for changes in information environment. In such situation, for libraries re-engineering has become necessity. Due to the followings factors re-engineering has become inevitable in the academic libraries.

1.Electronic Publishing

The changing media of information from print to non-print has led to electronic publishing and hence the information is being published in e-resources. So, to acquire, organize and to provide an access to such e-resources for their utilization, the academic library has to re-engineer its traditional practices.

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Zinc ferrite as efficient H_2S gas sensor

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KEYWORDS

Zinc ferrite,
Co-precipitation,
XRD, SEM,
Electrical resistivity,
Gas sensor.

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ABSTRACT

$ZnFe_2O_4$ was synthesized by using co-precipitation method under stoichiometric conditions. The structure and the crystal phase of the powder were characterized on an X-ray diffractometer. The ferrite powder existed as single phase cubic spinel oxide and has a particle size of ~30nm. DC electrical resistivity of the prepared ferrite powder was studied by using two prove method and it indicates the semiconducting nature of prepared spinel ferrite. Gas sensing response of zinc ferrite was evaluated as a function of operating temperature for different test gases such as ammonia, chlorine, LPG, CO_2, Cl_2, hydrogen sulphide and H_2. $ZnFe_2O_4$ exhibit significantly high response towards H_2S gas at their 300 ppm concentration at 300^{0}C.

Introduction

Hydrogen sulphide gas is a colorless, corrosive, toxic and flammable gas, occurring naturally in crude petroleum, natural gas, volcanic gases, and hot springs with smell of rotten eggs. Combustions of petroleum and coal are the predominant sources of the gases containing sulfur. Hydrogen sulfide is considered a broad-spectrum poison, meaning that it can poison several different systems in the body, although the nervous system is most affected. The toxicity of H_2S is comparable with that of hydrogen cyanide. It forms a complex bond with iron in the mitochondrial cytochrome enzymes, thus preventing cellular respiration. Since hydrogen sulfide occurs naturally in the body, the environment and the gut, enzymes exist in the body capable of detoxifying it by oxidation to (harmless) sulfate. Hence, low levels of hydrogen sulfide may be tolerated indefinitely.

The gases containing sulfur can result in undesirable disastrous deformations such as infection to respiratory track and lung cancer [1, 2]. In last decade, remarkable efforts have been taken for the development of ferrite gas sensors in detection of toxic gas pollutants from vehicle exhaust, biological hazards, environment, and pollution monitoring [3].Therefore, monitoring of traces of such gases has become prime research work [4]. Various oxide as well as dioxides has been well studied as a sensor material to detect most of the reducing gases [5-7]. Sensors based on semiconducting oxides like SnO_2, ZnO, and WO_3 have been widely studied, due to their distinct advantages such as high response time and low cost [8-9]; however selectivity remains the main challenge for such materials But the major problem associated with this material is its total lack of selectivity. Several novel materials are being tried with distinct and extra

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Ecofriendly Solvent Free Synthesis of Dihydropyrimidine Derivatives by Biginelli Reaction

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KEYWORDS

Zinc ferrite,
Co-precipitation,
XRD, SEM,
Electrical resistivity,
Gas sensor.

ABSTRACT

This work involves synthesis of dihydropyrimidine 4(a-f) derivatives from various substituted benzaldehyde, ethyl acetoacetate and urea/thiourea. After completion of the reaction products obtained 4(a-f) was confirmed by spectroscopy. Library of such dihydropyrimidine 4(a-f) derivatives has been generated and the structures were subjected to PASS for their probabilities of being biologically active. Biological prediction study of the library was done to find out most active molecules. Computer programme PASS predicted for three activities with top probability for compound 4(a-f) as- 1. Mucomembranous protector, 2.Arylacetonitrilase inhibitor, 3.Macrophage elastase inhibitor.

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Introduction

Multicomponent reactions (MCRs) are of increasing importance in organic and medicinal chemistry[1,2]. In times where a premium is put on speed, diversity, and efficiency in the drug discovery process, MCR strategies offer significant advantages over conventional linear-type syntheses. In such reactions, three or more reactants come together in a single reaction vessel to form new products that contain portions of all the components. MCRs can provide products with the diversity needed for the discovery of new lead compounds or lead optimization employing combinatorial chemistry techniques[3,4]. The search and discovery for new MCRs on one hand, and the full exploitation of already known multicomponent reactions on the other hand, is therefore of considerable current interest. One such MCR that belongs in the latter category is the venerable Biginellidihydropyrimidine synthesis[5,6,7].

In 1893, Italian chemist PietroBiginelli reported[8] on the acid catalyzed cyclocondensation reaction of ethyl acetoacetate (1), benzaldehyde (2), and urea (3). The reaction wascarried out by simply heating a mixture of the three components dissolved in ethanol with a catalytic amount of HCl at reflux temperature. The product of this novel one-pot, three-component synthesis that precipitated on cooling of the reaction mixture was identified correctly by Biginelli as 3,4-dihydropyrimidin-2(1*H*)-one. Apart from a series of publications by the late Karl Folkers in the mid 1930s, the "Biginelli reaction" or "Biginelli condensation" as it was henceforth called was largely ignored in the early part of the 20th century.

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Green synthesis of silver nanoparticles from *Lantana camera*

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KEYWORDS

Green synthesis,silvernano particles,plant extract,Lantana camera.

ABSTRACT

The field of nanotechnology is one of the most active researches nowadays in modern material science and technology. Eco friendly methods of green mediated synthesis of nanoparticles are the present research in the field of nanotechnology. The silver nanoparticles synthesized biologically have been widely used in medicinal field. In this research article we present a simple and eco-friendly bio synthesis of silver nanoparticles using *Lantana camera* leaf extract as reducing agent. The aqueous silver ions when exposed to leaf extract were reduced and resulted in silver nanoparticles whose average size was 35 nm. The silver nanoparticles were characterized by UV-Visible and transmission electron microscopy (TEM) techniques.

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Introduction

The synthesis of noble metal nanoparticles attracts an increasing interest due to their new and different characteristics as compared with those of macroscopic phase, that allow attractive applications in various fields such as antimicrobials, medicine, biotechnology, optics, microelectronics, catalysis, information storage and energy conversion. Silver nanoparticles (AgNPs) have the properties of high surface area, very small size (<20 nm) and high dispersion. Silver is a safe and effective bactericidal metal because it is non-toxic to animal cells and highly toxic to bacteria. Silver nanoparticles (AgNPs) are one of the most commonly used nanomaterials. AgNPs are known to have antioxidant and antimicrobial properties (Patil et.al.2017) AgNPs are used in coating or embedding for medical purposes. In addition to their medical uses, AgNPs are also used in clothing, food industry, paints, electronics and other fields. Several techniques have demonstrated that AgNPs can be synthesized chemical and physical methods, but due to the fact of usage of a huge amount of toxic chemicals and high temperature conditions, it becomes a mandate to find an alternative method (Ayman et. al.) Green chemistry approach emphasizes that the usage of natural organisms has offered a reliable, simple, nontoxic and eco-friendly. Therefore, researchers in the last years have turned to biological systems for nanoparticle synthesis. Synthesis of nanoparticles by biological methods, using microorganisms, enzyme and plant or plant extract, has been suggested as possible eco-friendly alternatives to chemical and physical methods. Biosynthesis of nanoparticles by plant surpasses other biological methods by reducing the complicated process of maintaining cell culture. *Lantana camera* which belongs to the family Verbenaceae is being used since ancient period to alleviate various ailments (Dosi,2009).In the present investigation, we report the easy, one step, ecofriendly synthesis of silver

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Biopotential of *Trichoderma sp.* aganst *Fusarium oxysporum f.sp. dianthi* causing wilt of carnation in the presence of micronutrients

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KEYWORDS

Fusarium oxysporum f.sp. dianthi Trichoderma sp. Micronutrients.

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ABSTRACT

Micronutrients are the key elements for the proper growth and development of the living organisms. Their deficiency inhibits the growth of microorganism. Therefore in the presence study investigation has been made on the antagonistic potential of *Trichoderma sp.* against *Fusarium oxysporum f.sp. dianthi* causing wilt of carnation in presence of different micronutrients. In this study two micronutrients were taken to study the antagonistic potential of *Trichoderma* species against *Fusarium* at 0.01, 0.02, 0.03 and 0.04 µg/ml. copper and zinc in the medium increased the antagonistic potential of *Trichoderma* species against *Fusarium oxysporum* f. sp.*dianthi*.

Introduction

Dianthus chinensis L. is an important ornamental plant cultivated in the gardens. It increases the aesthetic value of garden as well as house. It is small herbaceous plant having very attractive flowers. It belongs to the family Caryophyllaceae. It is anthelmintic, antibacterial, antichlorotic, diaphoretic, diuretic, febrifuge and haemostatic. The old leaves are crushed and used for clearing the eyesight (Duke and Ayensu, 1985) . Such economically important medicinal and ornamental plant suffered from the wilt disease caused by *Fusarium oxysporum f.sp. dianthi*. Therefore for the high yield it is necessary to control the disease, but there are number of side effects reported in the chemical method of disease management. Hence in the present study different *Trichoderma* sp. used against the pathogen in the presence of different micronutrients.

Material and Methods

Naturally infected wilt samples of carnation brought to the Botany laboratory of Shivaji University, Kolhapur in the sterile polythene bags. Surface sterilization of infected samples was made with 0.1% mercury chloride, washed the material with sterile distilled water and removed the traces of mercury chloride. Samples were cut into small pieces and cultured on the Czapek Dox Agar (CDA) medium. After 4-5 days different fungal colonies were observed in the petriplates. Pathogen was identified with the help of standard mycological literature(Subramanian,1971) Pure culture of *fusarium oxysporum f.sp. dianthi* was maintained on Czapek Dox Agar medium in BOD incubator for further study.

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Qualitative analysis of secondary metabolites from some phytofungicidal plants

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KEYWORDS

Secondary metabolites, phytochemicals, phytofungal, drugs.

ABSTRACT

The Western Ghats of India is well known for its biodiversity. This paper deals with qualitative analysis of secondary metabolites from some plants. Different plants part having the different chemical compounds. Parts of *Parthenium hysterophorus*, *Pongamia glabra*, *Tridax procumbens*, *Nerium oleander*, *Lantana camara*, *Ipomoea carnea*, *Datura stramonium* and *Clerodendron inerme* were screened for phytochemicals studies. Alkaloids, Flavonoids, Saponins, Steroids and Tannins were found to be present in selected plant. Some of these secondary metabolites are useful in different drugs as well as phytofungal or phytoinsecticides which are ecofriendly in controlling of fungal diseases and insect pest of crops.

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Introduction

Number of chemical compounds present in plants. Drugs from the plants are easily available, safe, efficient, less expensive and rarely have side effects (Thite *et.al* 2013).The presence of antifungal compounds in higher plants has long been recognized in disease resistance (Mahadevan, 1982). Such compounds being biodegradable and selective in their toxicity are considered valuable for controlling plant diseases (Singh and Dwivedi, 1987). The analysis of plant material for secondary metabolites was carried out (Harborne, 1988, Wagner and Bladt 1996) using Thin Layer Chromatography (TLC) technique.

Phytochemical analysis of the extracts to detect alkaloids, flavonoids, phenols, saponins, tannins, cardiac glycosides and terpenoids was done (Trease and Evans 1985). The *Lantana* and *Parthenium* exhibited the presence, saponins, cardiac glycosides and steroids. Presence of tannins, alkaloids, terpens, flavonoids, glycosides, steroids etc in these weeds have been reported earlier (Mahadevappa *et.al* 2001, Singh *et.al*; 1990, 1991, 1996, Yadav and Tripathi 2000, 2003). *Parthenium hysterophorus* is a well known medicinal plant widely used traditionally in the treatment of various diseases and as a constituent of various drugs and in phytotherapy (Bakhtiar Muhammad *et.al* 2012).

According to De.*et.al* (2009) and Latterodt *et.al* (1991) secondary metabolites play an important role in defense mechanism against microorganism. Number of plant species has been reported to have antifungal and antinectisidal properties which will be useful to control disease and insect pest of crops.

Material and Methods

The extract or powder of each plant was taken for phytochemical analysis as per the qualitative chemical tests

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Phytochemical constitute and antioxidant potential of *Lantana camera*

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KEYWORDS

Phytochemical, antioxidants, *Lantana camera*

ABSTRACT

Traditional knowledge of medicine has long been used since ages for curing various human diseases. Most of world population still rely on plant based medicines. the traditional Indian system of medicine has a long history of use, but they lack adequate scientific documentation. The medicinal value of plant lies in the bioactive phytochemical constituents of the plant and which shows various physiological effects on human body. So through phytochemical screening one could detect the various important compounds which could be used as the base of modern drugs for curing various diseases. The present study was aimed to analyze the chemical composition, antioxidant potential in the leaf extract of *Lantana camera*. Methanol extract, alcohol and water extracts of *Lantana camera* were screened to determine phytochemical analysis like tannin, flavonoides, saponin, steroid, carbohydrate, glycoside, protein, emodins, anthocyanin, coumarins, phlobatanins, anthraquinones. The antioxidant activity was determined by Free-Radical Scavenging Ability (DPPH assay). The methanolic extracts of *Lantana camera* leaves show the maximum free-radical scavenging activity (69.97%) at 500 ppm, while the synthetic antioxidant Gallic acid showed 90.93% inhibition at the same concentration in DPPH assay.

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Introduction

Medicinal plants besides therapeutic agents are also a big source of information for a wide variety of chemical constituents which could be developed as drugs with precise selectivity. These are the reservoirs of potentially useful chemical compounds which could serve as newer leads and clues for modern drug design (Vijayalakshmi and Ravindran,2013).The most important of these bioactive constituents of plants are alkaloids, tannins, flavonoides and phenolic compounds (Dave,2009). Correlation between the phytoconstituents and the bioactivity of plant is desirable to know for the synthesis of compounds with specific activities to treat various health ailments and chronic diseases as well Pandey et al.(2013). Owing to the significance in the above context, such preliminary phytochemical screening of plants is the need of the hour in order to discover and develop novel therapeutic agents with improved efficacy. Numerous research groups have also reported such studies throughout the world (Rajkud 2012;Kumari 2013; Kavitha,2013;Dasgupta,2013; Dhaval,2013). Thus, the present study deals with the screening based on

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Initial permeability of Zn–Ni–Co ferrite

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ABSTRACT

$Zn_{0.35}Ni_{0.57}Co_{0.03}Fe_{2.05}O_4$ ferrite was prepared by a chemical combustion route. The resulting precipitate was dried and sintered at 1050 °C and 1150 °C respectively. The X-ray diffraction pattern of composition $Zn_{0.35}Ni_{0.57}Co_{0.03}Fe_{2.05}O_4$ confirmed the formation of single phase cubic spinel structure. The average crystallite size as well as grain size of $Zn_{0.35}Ni_{0.57}Co_{0.03}Fe_{2.05}O_4$ increases with increasing sintering temperature. Initial permeability and loss tangent of the samples under investigation has been studied as the function of frequency and the sintering temperatures using a LCR-Q meter. It was found that the real part of initial permeability increases whereas loss factor of the ferrite decreases with increasing sintering temperature.

Introduction

Nano-sized ferrites may have extraordinary electric and magnetic properties that are different from microstructured materials [1]. Nano-sized spinel ferrites have been extensively studied for their fundamental understanding and applicability in a variety of areas such as, high density information storage system, ferrofluid technology, medical diagnostics, electronic and microwave devices, gas sensors etc. [2].

Today scientists and engineers in the field of computer, extend their attention to study the magnetic properties of highly resistive cobalt ferrites because of their wide applications in computer memory [3]. Ni–Zn ferrites are widely used in various electronic applications at high frequencies because of their high electrical resistivity, high ferromagnetic resonance frequencies as well as appropriate magnetic properties. To analysis a.c. losses in ferrites, it is essential to consider quality factor (*Q*-factor). Yokoyama et al. [4] has observed remarkable improvement in the quality factor of Ni–Zn ferrites by substitution of small amount of cobalt by nickel. Beitollani and Hoor [5] studied effect of sintering temperature on the microstructure and high frequency magnetic properties of Ni–Co–Zn ferrites. They found that quality factor at 120 MHz decreases with increase in sintering temperature.

Several researchers have prepared different nano-sized ferrites by physical and chemical methods such as co-precipitation [6], sol–gel [7], microemulsion method [8], hydrothermal [9], spray pyrolysis [10], reverse micelle [11], precursor [12], combustion synthesis [13] etc. The aim of present work is to prepare nanoparticles of $Zn_{0.35}Ni_{0.57}Co_{0.03}Fe_{2.05}O_4$ using chemical combustion route and study effect of sintering temperature on its initial permeability. The main advantages of combustion route are that; synthesis is carried out in short duration, do not require special equipment and low costs, less energy consumption and yield high purity product. Thus citrate–nitrate combustion route is chosen because it is a powerful tool for producing nanosized materials.

Experimental

The composition $Zn_{0.35}Ni_{0.57}Co_{0.03}Fe_{2.05}O_4$ was synthesized by chemical combustion route, in which metal nitrates are used as an oxidizing agent and fuel citric acid as a reducing agent. Stoichiometry of the redox mixture for combustion is calculated based on the total oxidizing and reducing valencies of oxidizer and fuel [14]. The stoichiometric molar proportions of the reactants were mixed in a 300 cm^3 pyrex dish and heated up to around 80 °C on magnetic stirrer, after evaporation of water content and other by-products the stoichiometric amount of citric acid was added in to the melt slurry of nitrates and heated up to 500 °C for combustion.

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Room Temperature H_2S Gas Sensing Application of Polyol Route Synthesized Nanosized Nickel Ferrite

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Nanocrystalline powder of Nickel ferrite was synthesized by novel polyol route. Thick films of the material powder were prepared by screen printing technique. X-ray diffraction (XRD) method was used to confirm the formation of single phase cubic spinel lattice. TEM analysis reveals the average size of spherical nanoparticles of about 10–15 nm. The present work describes the gas sensing performance of the nanostructured ferrite towards H_2S, CO_2, NH_3, and Cl_2. It was found that the material exhibits high selectivity and sensitivity towards 50 ppm H_2S at the room temperature. The detailed results of XRD, TEM and gas sensing application have been discussed so as to bring out the role of nickel ferrite in structural properties and gas sensing application.

Keywords: Ferrospinel, Polyol Synthesis, Thick Films, Gas Sensors.

RESEARCH ARTICLE

1. INTRODUCTION

Mixed-metal oxides are an attractive material for gas sensing applications, photocatalytic environmental remediation, fuel cells and dye sensitized solar cells due to its low cost, good chemical stability, bio-compatibility and its appropriate band positions.[1–3] Current research in gas sensor technology has focused on the development of sensors that can operate at low temperature and detect very small concentration. In order to achieve high performance gas sensors, materials with large effective surface area are preferred. Generally, materials with large surface to volume ratio having more active sites on the surface of materials for physical or chemical interactions are expected to have superior performances.

Now a day, developing high performance sensors which work at low temperature is of great importance because of minimize power consumption and low temperature application. To date, several synthesis methods such as sol–gel,[4] co-precipitation[5–7] and citrate technique[8] have been suggested for nanocrystalline $NiFe_2O_4$ preparation. Among various methods for synthesizing ferrites, the polyol method stands out as an alternative and highly promising method. Polyol method is a low temperature synthesis technique that offers a unique mechanism. The powder characteristics such as crystallite size, surface area, size distribution and nature of agglomeration are dependent on the nature of the fuel and fuel to oxidizer ratio. Among the various control parameters in a polyol process, fuel plays an important role in determining the morphology, phase and particulate properties of the final product. Some of the reports on ferrospinel as a gas sensor reveal their response toward various gases, more specifically; Xinshu et al.[9] synthesized zinc ferrite at 1023 K, which exhibits a response toward chlorine, while Xiangfeng et al.[10] synthesized nanotubes and nanorods of nickel ferrite exhibit a response to triethylamine.

Hydrogen sulfide is a colorless and toxic gas widely used in many chemical industries as well at research laboratories. It could be found as natural gas in mines, oil fields and wastewater.[11] Recently the use of ferrites as H_2S gas sensor material has increased, for instance Reddy et al.[12] reported usage of zinc ferrites and cobalt ferrites in H_2S. In the present research work, preparation of nanosized Nickel ferrites by polyol route has been discussed, along with various characterization techniques, viz. XRD, TEM, etc. The gas sensing performance of the synthesized ferrite for

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RESEARCH ARTICLE

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Structural, Magnetic and Gas Sensing Application of Novel Polyol Route Synthesized Cobalt Ferrite

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$CoFe_2O_4$ powder was synthesized by a novel polyol method. The X-ray diffraction results indicate that the synthesized nanocrystalline cobalt ferrite have only spinel structure without the presence of other phase impurities. FT-IR data indicates two strong bands observed in spectrum which is well matched with spinel structure. The elemental analysis, morphology and particle size of the spinel ferrite powder, as revealed by SEM-EDAX as well as TEM analysis. It shows that the $CoFe_2O_4$ sample contain uniform and homogenous particles with exact elemental composition analysis. A room temperature magnetization result shows a ferromagnetic behavior of the $CoFe_2O_4$. The present work describes the gas sensing performance of the nanostructure ferrite towards H_2S, CO_2, NH_3, LPG, Ethanol, H_2 and Cl_2. It was found that the material exhibits high selectivity and sensitivity towards 50 ppm NH_3 at the 150 °C temperature.

Keywords: Cobalt Ferrite, Polyol Synthesis, SEM, EDAX, Magnetization.

RESEARCH ARTICLE

1. INTRODUCTION

Spinel ferrite nanoparticles are being extensively investigated in recent years because of their remarkable electric and magnetic properties having wide practical applications in magnetic recording, electronics, catalysis, information storage system, ferrofluid technology, magnetocaloric refrigeration and medical diagnosis.[1–4] Among the spinels, cobalt ferrite is a candidate of particular interest due to its high saturation magnetization, high coercivity, strong anisotropy and excellent chemical stability. It is well known that most of the physical and chemical properties of ferrites depend strongly on the size, shape, composition and microstructure of the particles which are sensitive to the preparation methodology and preparative parameters used in their synthesis.[5,6]

In recent years, synthesis of $CoFe_2O_4$ nanoparticles of desired size and magnetic properties has been the subject of investigation by many researchers. Several synthesis methods such as forced hydrolysis,[7] co-precipitation,[8] combustion reaction[9] and sonochemical[10] have been suggested for nanocrystalline $CoFe_2O_4$ preparation. Among various methods for synthesizing ferrites, the polyol method stands out as an alternative and highly promising method. Polyol method is a low temperature synthesis technique that offers a unique mechanism. The powder characteristics such as crystallite size, surface area, size distribution and nature of agglomeration are dependent on the nature of the fuel and fuel-to-oxidizer ratio. Among the various control parameters in a polyol process, fuel plays an important role in determining the morphology, phase, and particulate properties of the final product.

In the present study, cobalt ferrite nanoparticles were synthesized from a polyol method. This method does not require the addition of any other chemicals to the solution, and it has the advantages of simplicity, a low cost, a lack of by-product effluents, and an environmentally friendly operation. The textural and morphological characteristics of the prepared cobalt ferrite nanoparticles were studied with various techniques to verify the particle size and distribution as well as to explore other parameters of interest. Moreover, this study is a significant milestone in the development of general preparation schemes of stoichiometrically and size controlled multi-cation oxide nanocrystals and in the application of suitable characterization probes. Some

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Structural, electrical and magnetic study of nanocrystalline Ti-substituted Zn–Mn ferrospinels

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ABSTRACT

Titanium substituted Zn–Mn ferrites were prepared by sol–gel route. Formation of single phase cubic spinel structure for all the compositions was confirmed from their X-ray diffraction studies. These ferrite samples existed as uniform and homogenous grain size as observed from scanning electron microscopy technique (SEM). The magnetic studies indicated that, the ferrimagnetic behavior increases with titanium substitution. Dielectric constant and complex impedance were measured as a function of frequency in the range 20 Hz–1 MHz. Frequency dependence of dielectric constant shows dielectric dispersion due to the Maxwell–Wagner type of interfacial polarization and impedance study reveals that the electrical conduction in the ferrites is by the interior of the grain boundaries. In general, the substitution of titanium plays an important role in changing the structural, magnetic and electrical properties of these ferrites.

1. Introduction

Semiconducting ferrites are well-studied materials and its wide range of commercial applications, due to their interesting structural, electrical and magnetic properties. They are extensively used in microwave devices, information storage systems, magnetic cores and several medical diagnostic purposes because of high electric resistivity, low eddy current and low dielectric losses [1–3]. In ferrites the distribution of the different ions in the tetrahedral and octahedral sites of the spinel lattice mainly depends on the method of preparation and processing conditions. The dielectric properties of these ferrites are mainly dependant on the method of preparation and substitution of various cations in them. Ferrite prepared by a ceramic route involves high-temperature and the particles obtained rather large and non-uniform in size. In order to overcome these difficulties, wet chemical methods like sol–gel method has several advantages over others for preparation of nanosized metal oxides as the process begins with a relatively homogeneous mixture and involves low temperature conditions resulting in a uniform ultrafine porous powder [4–6]. The advantages of nanosized ferrites are that it is possible to sinter them at relatively low temperatures for a short duration, which saves time, cost, and other factors such as volatility occurring at higher sintering temperatures. Nanosized ferrites are expected to give higher sintered density at relatively lower sintering temperatures, without considerable grain growth. A number of investigators have studied the frequency dependent dielectric permittivity, dielectric loss tangent, and ac conductivity of Li–Mn [7], Zn–Mn–Fe [8] and Li–Cr [9] ferrite system. However, literature survey indicates that, effect of Ti substitution on dielectric properties and complex impedance of Zn–Mn ferrite has not yet been studied. Hence, we have investigated the nanosized $ZnMn_{1-x}Ti_xFeO_4$ ($1.0 \geq x \geq 0$) system synthesized by the sol–gel method with a view to understand the effect of Ti substitution on its structural, magnetic and dielectric properties. The variation in saturation magnetization with Ti content is also reported.

2. Experimental technique

Polycrystalline sample having the general formula, $ZnMn_{1-x}Ti_xFeO_4$ (where x=0.0, 0.25, 0.50, 0.75 and 1.0) were synthesized by sol–gel method. The titanium oxynitrate, iron nitrate, zinc nitrate, manganese nitrate and citric acid were mixed in the required stoichiometric ratios in distilled water. The pH of the solution was maintained between 9 and 9.5 using ammonia solution. The solution mixture was slowly heated around 373 K with constant stirring to obtain a fluffy mass. This precursor powder was sintered at 973 K for 8 h. The sintered powders were

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Structural and magnetic properties of Co substituted $Li_{0.5}Fe_{2.5}O_4$

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ABSTRACT

Nanocrystalline $Li_{0.5}Fe_{2.5-x}Co_xO_4$ ($2.5 \geq x \geq 0$) system was prepared by sol–gel route. Formation of single phase cubic spinel structure for all the compositions was confirmed from their X-ray diffraction studies. These ferrite samples existed as homogenous and uniform grains as observed from Scanning Electron Microscopy technique. The magnetic studies indicated that, the ferrimagnetic behavior decreases with Cobalt substitution. In general, the substitution of cobalt plays an important role in changing the structural and magnetic properties of these ferrites.

1. Introduction

The ferrite material consists of iron oxide as their main constituent along with metal ions, are the most important magnetic materials due to their excellent twin property of electrical insulator and magnetic conductor. The focus of global magnetic materials like ferrite production seems to erupt very rapidly due to their numerous applications. The applications of ferrite depend on various electrical and magnetic properties. Large number of work has been carried out on ferrite to understand their basic structural, electrical and magnetic properties, which depends on various parameters [1–2]. The magnetic properties are found to depend on cation distribution at A and B site. So, study of cation distribution in spinel ferrite is important to understand the magnetic behavior as well as catalytic applications [3].

Ferrite prepared by a ceramic route involves high-temperature to complete the solid state reaction between the constituent oxides or carbonates. The particles obtained by this method are rather large and non-uniform in size. These non-uniform particles, on compacting, result in the formation of voids or low density. In order to overcome these difficulties, synthesis of solids possessing desired structures, composition and properties continues to be a challenge to chemists, materials scientists and engineers. It is well known that the sol–gel method synthesis has been proved to be one of the most effective routes to realize the low temperature sintering of ferrites. However, properties of these ferrite materials are also very sensitive to the starting materials that are used for the composition, method of preparation, the preparation conditions, such as calcining temperature, soaking time, etc. [4–5].

In our previous research work, $Li_{0.5}Fe_{2.5}O_4$ is an inverse spinel ferrite in which Li^+ ions occupies the octahedral (B sites) and Fe^{3+} occupies the tetrahedral (A sites) of the spinel lattice [6]. Lithium and substituted lithium ferrites are useful for microwave devices such as isolators, circulars, gyrators, phase shifters, cathode materials and memory cores owing to their high Curie temperature, high resistivity, low eddy current losses, high saturation magnetization and hysteresis loop properties, which offer performance advantage over other spinel structures [7–10]. Due to various applications our research group [6,11–14] studied the structural, electrical and magnetic properties of chromium and Manganese substituted Li-ferrites synthesized by the sol–gel method. Mazen et al. [15] studied infrared and dielectric properties of Li–Cu ferrite. Laishram et.al. studied magnetic properties of Chromium substituted Li–Sb ferrites [16].

Now a days, lithium rechargeable cells are constructed usually by coupling a graphite anode and any one of the cathodes among lithium cobaltate in an air tight pouch or in a metal container [17]. However, no reports have been found in the literature on structural and magnetic properties of Co substituted lithium ferrites. In present work, we report the synthesis of $Li_{0.5}Fe_{2.5-x}Co_xO_4$ (where $x=0.0, 0.5, 1.0, 1.5, 2.0$ and 2.5) system by sol–gel method and their structural and magnetic properties have been investigated by XRD, SEM and VSM studies.

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Magneto-structural studies of sol–gel synthesized nanocrystalline manganese substituted nickel ferrites

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ABSTRACT

Nanocrystalline $NiFe_{2-x}Mn_xO_4$ ($2 \geq x \geq 0$) ferrites were prepared by sol–gel method. X-ray diffraction patterns reveal that synthesized compounds are in single phase cubic spinel lattice for all the composition. The surface morphology of all the samples were studied by scanning electron microscopy. The particle size measured from transmission electron microscopy and X-ray diffraction patterns confirms the nanosized dimension of the as-prepared powder. The elemental analysis was carried out by energy dispersive X-ray analysis technique. Magnetic properties such as saturation magnetization, coercivity and remanence are studied as a function of increasing Mn concentration at room temperature. The saturation magnetization shows a decreasing trend with increase in Mn content. The substitution of manganese in the nickel ferrite affects the structural and magnetic properties of cubic spinels.

1. Introduction

Mixed- metal oxides of nano size generated considerable interest because of their unique relationship between size and physico-chemical properties [1]. The synthesis, structural and magnetic characterization of spinel nano-ferrites have been studied by various investigators [2,3]. In magnetic nanoparticles, ferrimagnetisms and superparamagnetism are interesting phenomena [4–6]. In order to study the technological applications of magnetic nanomaterials such as data storage, [7] magnetocaloric refrigeration [8], drug delivery, medical diagnostics [9] and magnetic resonance imaging contrast enhancement [10] controlling and understanding of these behaviors are very important. Spinel compounds are ideal systems for investigating the relationship between magnetic properties and crystal chemistry of materials [11]. These properties are dependent on the nature of ions and their charge distribution among tetrahedral and octahedral sites. In spinels, the oxygen ions form a close packed cubic array, in which the A site cations occupy one-eighth of the tetrahedral sites while the B site cations are distributed over one half of the octahedral positions. And hence the change in the structural and magnetic properties of ferrites is due to substitution of different ions [12–15].

For the investigation of change in magnetization in a single-domain magnetic structure of the mixed spinel ferrite, the system $NiFe_{2-x}Mn_xO_4$.has been synthesized. Here, Fe^{3+} is partially replaced by Mn^{3+} which has a weaker magnetic moment than Fe^{3+}; that causes magnetic frustration. $NiFe_{2-x}Mn_xO_4$ nanoparticles should have a single domain magnetic structure, which might offer a simple system for understanding the magnetic behavior of all compositions. Also the oxides like nickel ferrite, nickel manganite display a negative temperature coefficient behavior where resistance decreases with increasing temperature. This makes the compound well suited for temperature sensing application [16].

2. Experimental details

During synthesis, powdered samples of the system $NiFe_{2-x}Mn_xO_4$, ($0.0 \leq x \leq 2.0$) were synthesized by sol–gel method. High purity AR grade ferric nitrate, manganese nitrate, nickel nitrate and citric acid were used in the method of synthesis. The metal nitrate solutions were mixed in the required stoichiometric ratios in distilled water. The pH of the solution was maintained between 9 and 9.5 using ammonia solution. The solution was slowly heated around 373 K with constant stirring to obtain a floppy mass. The as synthesized precursor powder where $x=1.0$ was subjected to thermal analysis. The precursor powder was sintered at 973 K for

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Cation distribution and magnetic study of Cr-substituted lithium ferrites

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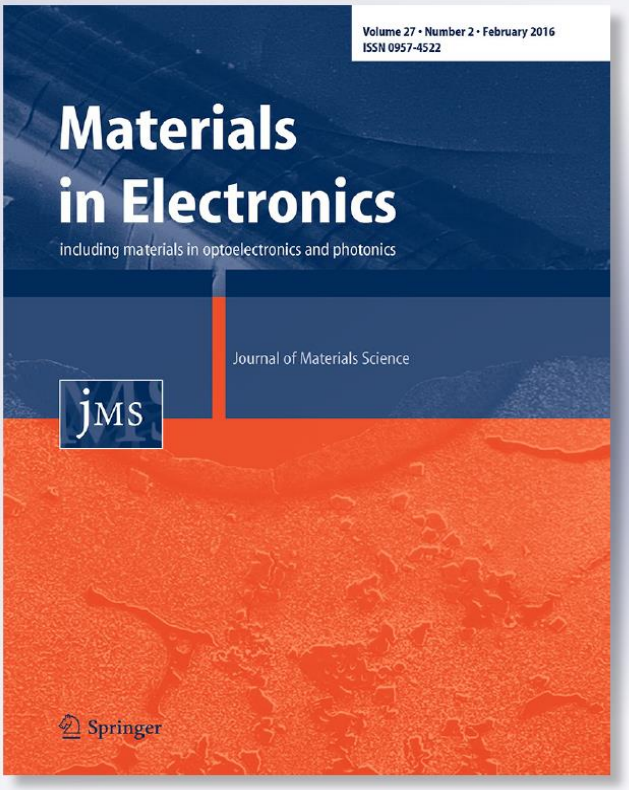

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Cation distribution and magnetic study of Cr-substituted lithium ferrites

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Abstract Nanocrystalline $Li_{0.5}Fe_{2.5-x}Cr_xO_4$ ($2.5 \geq x \geq 0$) systems were prepared by the sol–gel method. Formation of single phase cubic spinel structure for all the compositions was confirmed from their X-ray diffraction patterns. The lattice parameter shows a decreasing trend with the increase in Cr content. Infrared spectra showed two main absorption bands in the range 400–800 cm^{-1} arising due to tetrahedral and octahedral stretching vibrations. A room temperature magnetization result shows a ferromagnetic behavior decreases with increase in chromium content. The detailed results of structural and magnetic have been discussed so as to bring out the role of Cr substitution in lithium ferrite.

1 Introduction

Spinel ferrites have potential applications in electrical components, memory devices and microwave devices over a wide range of frequencies because of their high resistivity and low loss behavior [1–3]. Ease of fabrication, low cost, high Curie temperature and better temperature stability of saturation magnetization of lithium ferrites have made them attractive from a commercial point of view and are good substitutes of garnets for microwave devices such as isolators, circulators, gyrators and phase shifters. lithium ferrite has an important role in microwave latching devices, magnetic switching circuits and can also be used as cathode material in lithium batteries. There are many reports on the effect of magnetic and non-magnetic substitutions on various properties of lithium ferrite [4–7].

Lithium ferrites in the spinel phase, $Li_{0.5}Fe_{2.5}O_4$, have a square hysteresis loop, high magnetization and high Curie temperature. These properties are useful for technological applications such as the development of low-cost materials microwave devices. Many transition metal cations such as Mn, Cr, Co and Ti can be introduced into the lattice of the magnetic structure, which is related to a large number of applications [8–11]. Hankare et al. [12, 13] reported that structural and magnetic properties of Li–Mn and Li–Cr ferrites. Studies on electrical properties of Li–Co ferrites have been reported by Song et al. [14].

Owing to its interesting physical properties and technological relevance, a number of studies on lithium ferrite prepared by several methods, like sol–gel, chemical co-precipitation, polymeric precursor, hydrothermal and forced hydrolysis etc., have been carried out. However, the preparation of Cr substituted spinel-type lithium ferrites in sol–gel method is relatively less explored. This method has several advantages over a conventional method, as heat produced by combustion can be controlled, hence preventing excessive growth of the nanocrystals. Also, no reports have been found in the literature on the cation distribution by X-ray intensity calculation method and magnetic properties of Cr substituted lithium ferrites.

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ARTICLE

Investigation of Structural, Magnetic and Photocatalytic Properties of Al Substituted Cobalt Ferrites

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ABSTRACT

Nanocrystalline $CoFe_{2-x}Al_xO_4$ ($2.0 \geq x \geq 0$) systems were prepared by sol–gel route. Formation of single phase cubic spinel structure for all the compositions was confirmed from their X-ray diffraction patterns. The lattice parameter shows a decreasing trend with the increase in Al content. Infrared spectra showed two main absorption bands in the range 400–800 cm^{-1} arising due to tetrahedral and octahedral stretching vibrations. A room temperature magnetization result shows a ferromagnetic behavior decreases with increase in aluminum content. The enhanced photocatalytic activity is attributed to surface area of the nano catalyst. The detailed results of structural and magnetic have been discussed so as to bring out the role of aluminum substitution in cobalt ferrite.

KEYWORDS: Sol–Gel Chemistry, TGA-DTA, X-ray Diffraction, Infrared Spectroscopy, Magnetic Properties.

1. INTRODUCTION

Ferrites are spinels with the formula AB_2O_4, where A and B represents various metal cations, usually including iron. Spinel ferrites usually adopt a crystal consisting of cubic close-packed oxides with A cations occupying one eighth of the tetrahedral holes and B cations occupying half of the octahedral holes that is, the inverse spinel structure.[1,2] Ferrite cores are used in electronic inductors, transformers, electromagnets, magnetic recording tapes, component of radar-absorbing materials or coatings used in stealth aircraft and in the absorption tiles lining the rooms used for electromagnetic compatibility measurements.[3–5]

The applicability of these materials mainly depends upon their various physico-chemical properties. Their structural, electrical, magnetic, catalytic and gas sensing activity were examined for dependence on their oxidation state, active centers, surface area and smaller uniform sized grains, which crucially depend on the process of synthesis, heat treatment and location of cations over tetrahedral (T_d) and octahedral (O_h) sites.

Various physical and chemical methods like mechanical milling, inert gas condensation, hydrothermal reaction, oxidative precipitation, sol–gel synthesis and reverse micelle technique are employed for the preparation of nanoferrites.[6–13] The sol–gel method is used to speed up the synthesis of complex materials. It is a simple process, a significant saving in time and energy consumption over the traditional methods. Small crystalline size of the resultants may have an important influence on the particles of the materials prepared. This method is employed to obtain improved powder characteristics, more homogeneity and have a narrow particle size, thereby influencing structural, electrical, and magnetic properties of spinel ferrites.

A large number of organic pollutants are now days introduced into the water systems from various sources such as industrial effluents, agricultural runoff and chemical spills. Their toxicity, stability towards natural decomposition and persistence in the environment has been the cause of much concern to societies and regulation authorities around the world. Dyes, phenols, pesticides, fertilizers, detergents, and other chemical products are disposed off directly into the environment, without being treated, controlled or uncontrolled and without an effective treatment strategy. Color removal from the textile wastewater has become an issue of interest during the last few years because of the toxicity of the dyes and more often the colored wastewater from the textile industries also decreases the transparency of the receiving waters. Therefore, photocatalytic activity of the system was studied by using hazardous methyl blue in presence of ultra-violent light with fixed wavelength.

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ARTICLE

LPG Gas Sensing Application of Lithium Ferrite

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ABSTRACT

Lithium ferrites were prepared by sol–gel route. Formation of single phase cubic spinel structure for the composition was confirmed from their X-ray diffraction studies. These ferrite sample existed as uniform and homogenous grain size as observed from scanning electron microscopy technique (SEM). Nanocrystalline nature of the sample was confirmed by TEM analysis. The present work describes the gas sensing performance of the nanostructure ferrite towards H_2S, CO_2, NH_3, LPG, Ethanol, H_2 and Cl_2. It was found that the material exhibits high selectivity and sensitivity towards 50 ppm LPG at the 250 °C temperature.

KEYWORDS: Sol–Gel Method, X-ray Diffraction, SEM, TEM, Gas Sensing.

1. INTRODUCTION

Mixed-metal oxides are classified into three types viz. spinel, garnet and hexaferrite.[1] Spinels have interesting structural, electrical and magnetic properties and are widely used in many important components such as microwave devices, magnetic memory and recording media, transformer cores, choke coils, high frequency instruments, data storage, noise filters and recording heads, as a ferrofluids, catalytic activity and sensors owing to the very important properties viz. structural, electrical, high magnetic permeabilities and low magnetic losses.[2,3] These properties and applications are dependent on the nature of ions and their charge distribution among tetrahedral and octahedral sites.

Lithium ferrites have been studied and developed for many researchers because of their very interasting structural, electrical and magnetic properties that provide better applications of scientific and technological interest.[4–8] Lithium ferrite in the spinel phase, $Li_{0.5}Fe_{2.5}O_4$, has a square hysteresis loop, high magnetization and high Curie temperature. These properties are useful for technological applications such as the development of low-cost materials microwave devices.

Various methods have been developed for the synthesis of ferrites. Wet chemical methods such as, co-precipitation,[9–12] sol–gel,[13–15] citrate-gel,[16] hydrothermal,[17–19] solvothermal,[20,21] mechanical alloying[22,23] have been reported. Chemical methods for synthesis of ferrites require low sintering temperature and consequently produce powders with fine particles having good homogeneity and high surface area. Some of these wet chemical methods require sophisticated instruments. Lithium ferrites with possible application in the field of lithium batteries, we have developed a preparation procedure for lithium ferrites using sol–gel autocombution method. Sol–gel method is useful technique as compared to other methods, due to the better homogeneity, smaller particle size and modification of surface area. In present investigation, an attempt is made to prepare lithium ferrite nanoparticles, by sol–gel auto-combustion route, which neither requires sophisticated instrument nor high sintering temperature. Their structural and magnetic properties were characterized by using X-ray diffraction (XRD), Thermal analysis (TGA-DTA), Scanning electron microscopy (SEM) and Transmmision electron microscopy (TEM) of synthesized compounds have been investigated. Various oxidizing and reducing gases were used to check the gas sensing performance of these ferrite. Different gas sensing parameters were studied in detail to express the mechanism and activity of this ferrite.

2. SYNTHESIS TECHNIQUE

Polycrystalline samples having the general formula, $Li_{0.5}Fe_{2.5}O_4$ were synthesized by sol–gel method. High purity AR grade ferric nitrate, lithium nitrate and citric acid were used for synthesis. The metal nitrate solutions

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ARTICLE

Synthesis, Characterization and Catalytic Application of Magnetically Separable Zn–Cr Ferrite

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ABSTRACT

Magnetically separable nanocrystalline $ZnCrFeO_4$ ferrite has been synthesized and studied its catalytic activity for fungicide synthesis. Formation of single phase cubic spinel structure was confirmed from their X-ray diffraction pattern. These ferrite sample existed as crystalline nanoparticles of about 30–40 nm size as observed from Transmission Electron Microscopy technique. EDAX analysis indicated that the concentration of different elements in different compositions is in close agreement with the starting concentrations. Infrared spectra showed two main absorption bands in the range 400–800 cm^{-1} arising due to tetrahedral (A) and octahedral (B) stretching vibrations. The sample was found to be ferromagnetic. The enhanced catalytic activity is attributed to surface area of the nano catalyst. The ferromagnetic property can be exploited for the retrieval of the catalyst from water after the purification process.

KEYWORDS: Zn–Cr Ferrite, Magnetic Catalyst, Catalytic Activity, Benzimidazole.

1. INTRODUCTION

Spinels nanoparticles have been intensively studied in the last decade for their unusual physical and chemical properties owing to their extremely small size, large specific surface area and number of promising applications. Among various classes of nanomaterials, spinels oxides are very common, most diverse and possess richest class in terms of physical, chemical and structural properties. In spinel structure, the oxygen atoms are closely packed in face centered lattices, into the interstices of which the metal ions are distributed. The unit cell of spinel contains 8 molecules ($8 \times FeFe_2O_4$). There are 32 divalent oxygen ions, 16 trivalent iron ions and 8 divalent iron ions per unit cell. When the oxygen atoms arrange themselves in FCC structure, there are 8 occupied tetrahedral voids called the A and 16 occupied octahedral voids called the B sites.

Various methods are available for the synthesis of metal oxides, such as microwave refluxing,[1] sol–gel,[2,3] hydrothermal,[4,5] co-precipitation,[6,7] citrate-gel[8] and spray pyrolysis[9] etc. The selection of appropriate synthetic procedure often depends on the desired properties and final applications. Among these synthesis techniques, sol–gel autocombution method has several advantages over others for preparation of nanosized metal oxides as the process begins with a relatively homogeneous mixture and involves low temperature conditions and results a uniform ultrafine porous powders.[10] This method was employed by us to obtain improved powder characteristics, better homogeneity and narrow particle size distribution, thereby influencing structural, electrical and magnetic properties of spinel ferrites.[11–13] Spinel ferrites find potential applications in electrical components, memory devices, magnetostrictive and microwave devices over a wide range of frequencies because of their high resistivity and low losses.[14–18] The field of ferrites is well explored, due to their potential applications and the interesting physics involved in them.

Spinels with divalent and trivalent had been used for a variety of reactions like oxidation of hydrocarbon[19] and oxidative dehydrogenation of hydrocarbons.[20] The activity for the CO oxidation on Cr_2O_3 mixed with MgO and BeO was found to depend on formation of spinel.[21] Natta and Corradini had shown that the spinel formation is an essential feature in the $ZnO–Cr_2O_3$ catalytic system for synthesis of methanol.[22]

In the present work, we report the synthesis, characterization and catalytic activity of a magnetically separable sol–gel synthesized nanosized Zn–Cr ferrite. It is a simple process, which offers a significant saving in time and energy consumption over the traditional methods, and requires lower sintering temperature. This method was employed to obtain improved powder characteristics, more homogeneity and narrow particle size distribution, thereby influencing their structural, electrical and magnetic properties. The structural, electrical and magnetic properties were

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ARTICLE

Catalytic Activity of Nanocrystalline Cr Substituted Zn–Mn Ferrospinels

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ABSTRACT

Nanocrystalline Cr substituted Zn–Mn ferrites powders were synthesized by a sol–gel method. The X-ray diffraction results indicate that the synthesized nanocrystalline ferrites having only spinel structure without the presence of other phase impurities. The crystal structure and morphology of the spinel ferrite powders, as revealed by TEM, show that the all samples are nanosized in nature. Catalytic study reveals that $ZnCrFeO_4$ shows good catalytic activity towards oxidation of different oximes.

KEYWORDS: Sol–Gel Synthesis, X-Ray Diffrcation, TEM, Catalytic Activity.

1. INTRODUCTION

Now a day everyone interested in the field of spinel ferrite because these ferrites having very important role in modern materials research such as magnetic recording media and magnetic fluids for the storage and retrieval of information, magnetic resonance imaging (MRI) enhancement, catalysis, magnetically guided drug delivery, sensors, and pigments.[1,2] It is well known that the chemical, structural, and magnetic properties of spinel ferrite particles are strongly influenced by their composition and microstructures, which are sensitive to the preparation methodologies.[3,4]

Oxidation reactions are the most widely observed reactions in the nature. It can happen in living as well as non-living systems. A simple example of this is rusting of iron or reddening of piece of apple when exposed to air. Many biochemical reactions involve the oxidation reactions in many forms such as energy transformation and storage, as well as the biosynthesis and metabolism of essential amino acids, hormones vitamins, etc. Oxidation reactions are involved at some or other step in modern chemical industrial process which is responsible for improvement in standard of living whether it is pharmaceutical industry or polymer industry or the information technology industry. Thus it is difficult to imagine the life without oxidation reactions. The direct single step oxidation of benzylic compounds to carbonyls is a reaction of fundamental synthetic utility. Aromatic carbonyl compounds are widely employed as solvents and intermediates in organic synthesis. Chromic acids and chromium based reagents are versatile oxidizing agents for the benzylic oxidations. Most of methods used to effect this oxidative transformation suffer from drawbacks such as the use of large excess of reagent, solvents, long extraction periods, poor product yield and generation of toxic effluents. Clark et al. has reported catalytic oxidation of ethyl benzenes to acetophenones using alumina supported dichromate.[5] Shaabani et al. has reported the oxidation of alkyl aromatics using $KMnO_4$ supported on ion exchange resins.[6] All the heterogeneous catalytic methods mentioned above suffer from drawbacks like difficulty in the preparation and poor reusability in the liquid phase. Hence our objective was to develop a simple, efficient and reusable catalytic system.

In this communication, we report a sol–gel synthesis of Cr substituted Zn–Mn ferrites. The synthesized nanoparticles were characterized by X-ray diffraction (XRD) and transmission electron microscopy (TEM). The catalytic properties of nanoparticles were investigated using an oxidation of different oximes.

2. EXPERIMENTAL DETAILS

Analytical grade chromium nitrate $[Cr(NO_3)_3 \cdot 9H_2O]$, iron nitrate $[Fe((NO_3)_3 \cdot 9H_2O]$, zinc nitrate $[Zn(NO_3)_2 \cdot 6H_2O]$, manganese nitrate $[Mn(NO_3)_2 \cdot 4H_2O]$ and citric acid $[C_6H_8O_7 \cdot H_2O]$ were used to prepare $ZnMn_{1-x}Cr_xFeO_4$ (where $x = 0.0$, 0.25, 0.50, 0.75 and 1.0) by sol–gel method. Metal nitrates and citric acid were dissolved in minimum quantity of deionized water with 1:1 molar ratio. The pH of the solution was adjusted to about 9.0 to 9.5 using ammonia solution. The solution was transformed to dry gel on heating to 353 K. On further

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STRUCTURAL, ELECTRICAL AND THERMOELECTRIC POWER MEASUREMENT STUDIES OF POLYOL ROUTE SYNTHESIZED $LI_{0.5}FE_{2.5}O_4$

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Abstract

Lithium ferrite powder was synthesized by a novel polyol method. The X-ray diffraction results indicate that the synthesized nanocrystalline lithium ferrite have only spinel structure without the presence of other phase impurities. FT-IR data indicates two strong bands observed in spectrum which is well matched with spinel structure. The morphology and particle size of the spinel ferrite powder, as revealed by SEM analysis. It shows that the $Li_{0.5}Fe_{2.5}O_4$ sample contain uniform and homogenous particles. The electrical behavior clearly indicates that the present ferrite have semiconductor like nature. Thermoelectric power measurement also confirms n-type semiconducting nature of lithium ferrite. A room temperature magnetization result shows a ferromagnetic behavior of the lithium ferrite. The present work describes the structural, electrical and magnetic properties of lithium ferrite.

Keywords: *lithium ferrite, Polyol synthesis, SEM, Magnetization*

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Synthesis, characterization and catalytic application of Cr substituted Zinc Manganese Ferrite

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KEYWORDS

Ferrites,
Sol-gel method,
XRD, SEM,
Catalysis

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ABSTRACT

Nanocrystalline $ZnMn_{1-x}Cr_xFeO_4$ ($1.0 \geq x \geq 0$) ferrites were prepared by sol-gel route. The synthesized material was characterized by various physicochemical methods. X-ray diffraction (XRD) method was used to confirm the formation of single phase cubic spinel lattice for all the composition. Lattice parameter shows a decreasing trend with an increase in Cr content in the compositions. Formation of spherical nanoparticles was revealed by scanning electron microscopy (SEM) analysis. Photocatalytic activity studies for thymol blue degradation indicate an enhanced activity for the composites when the maximum chromium is present in $ZnMnFeO_4$.The detailed results of physicochemical properties and photocatalytic application have been discussed so as to bring out the role of chromium substitution in determining structural and photocatalytic application of Zn-Mn ferrites.

Introduction

Mixed-metal oxide nanoparticles have been intensively studied in the last decade for their unusual physical and chemical properties owing to their extremely small size, large specific surface area and number of promising applications. Among various classes of nanomaterials, metal oxides are very common, most diverse and possess richest class in terms of physical, chemical and structural properties. The result and prospects of numerous applications of metal oxides, such as fabrication of microelectronic circuits, sensors, piezoelectric devices, fuel cells, dielectrics, lasers, magnets and catalysts have been discussed in literature [1-13].

Recently, considerable effort has been made on the preparation of surface modified nanoparticles of different types of metal oxides. Various methods are available for the synthesis of metal oxides, such as microwave refluxing [14], sol-gel [15-16], hydrothermal [17-18], co-precipitation [19-20], citrate-gel [21] and spray pyrolysis [22] etc. The selection of appropriate synthetic procedure often depends on the desired properties and final applications. Among these synthesis techniques, sol-gel autocombustion method has several advantages over others for preparation of nanosized metal oxides as the process begins with a relatively homogeneous mixture and involves low

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Synthesis, Characterization and gas sensing study of Cd-Mn Ferrite

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KEYWORDS

Cd-Mn Ferrite,
XRD, SEM,
Electrical
magnetic study,
Gas sensing performance.

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ABSTRACT

Hydroxide precursor method has been used for the synthesis of Nano-cyrstaline of Cd-Mn Ferrite material. The characterization of synthesized material was carried out by using X-ray diffraction (XRD), scanning electron microscopy (SEM), and IR spectroscopy. X-ray analysis revealed that all the compositions are in cubic phase. Homogenous grain structure was observed from SEM. FT-IR spectral studies indicate two absorption bands, one around 600cm^{-1} (Tetrahedral) and the other weak around 500 cm^{-1} (Octahedral). The electrical dc resistivity measurement reveals the semiconducting nature of synthesized material where as the ferrimagnetic behavior has been confirmed by Magnetic study. Gas sensing performance of system $Cd_{1-x}Mn_xFe_2O_4$ tested for various gases. The composition $Cd_{0.25}Mn_{0.75}Fe_2O_4$ is seen to be more selectivity and maximum response towards NH_3 gas at 30°C operating temperature.

Introduction

With the rapid development of information technology and mobile communication, the electronic components with small size, high efficiency, and low cost are urgently demanded [1,2]. Multilayer Chip Inductor (MLCI) is such a component, widely used in electronic products, such as cellular phone, notebook computer, and video cameras [3]. Up to now, ferrites have been the dominant materials for MLCI due to their better magnetic properties at high frequency and low sintering temperature [4,5]. Ferrite is also a pertinent magnetic material for wide applications owing to its high resistivity, high Curie temperature and environmental stability [6].Materials with high permeability are required for reducing the number of layers in MLCI and realizing the better miniaturization. Along with these properties ferrites are having wide range of applications such as in drug delivery system, photocatalysis and gas sensors.

The properties of ferrite material depend on preparation methods. The conventional way of producing these materials is by the solid-state reaction of oxide/carbonate and calcination at high temperature. The solid-state reaction method has some inherent disadvantages such as chemical inhomogeneity, coarser particle size, and introduction of impurities during ball milling [7].The new chemical wet methods overcome these problems. Ferrites are prepared by various methods such as sol-gel [8], co–precipitation [9], citrate precursor [10], solvent evaporation [11] and hydrothermal [12].

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PHOTOCATALYTIC ACTIVITY OF ZN-CO-FERRITE NANOPARTICLE SYNTHESIZED USING LEMON AS GREEN BINDING AGENT BY SOL-GEL METHOD

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Abstract:

Spinel ferrite nanoparticles exhibits significant magnetic, optical and oxidation properties compared to the bulk dimensions. Nanoparticles of pure ferrites, mixed ferrites and inverse spinels are popular in the field of photocatalysis. Zn-Co-ferrite nanoparticles have been synthesized by sol-gel auto combustion method from nitrate salts of respective metal ions using lemon as a chelating agent. X-ray diffraction pattern confirmed the formation of single-phase nanoparticles of Zn-Co-ferrite. Fourier transform infrared study was performed to ascertain the structure of the nanoparticles. The objective of this study is to find a synthesized compound such as Zn-Co-ferrite ferrite nanoparticles as photocatalyst for degradation of organic dyes. Absorbance versus time measurements are made at λ max values ***430 nm*** *for* ***Tartrazine dye****. It was found that dyes undergo fast degradation with UV light in presence of doped compound. UV-visible spectrophotometer was used to estimate the rate of degradation of dyes from residual concentration in dyes.*

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Investigation of structural and magnetic properties of TiO_2 supported Zinc ferrite

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KEYWORDS
Nanocomposite,
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ABSTRACT

Nanocrystalline TiO_2 loaded $ZnFe_2O_4$ was synthesized by wet chemical process. Phase formation study was carried out by using x-ray diffraction technique and it's reveals that TiO_2 properly supported on the surface of zinc ferrite. Nano sized two different layers such as cubic zinc ferrite and TiO_2 were confirmed by transmission electron microscopy technique. Magnetic data for all samples indicates that ferromagnetism was decreases with increasing non magnetic titania. In this manuscript detailed study of structural and magnetic properties of TiO_2 supported Zinc ferrites nanocomposites samples were investigated.

Introduction

Mixed-metal oxides having general formula AB_2O_4, were A is divalent metal ion, B is trivalent metal ion and O^{2-} is oxide ion. In these mixed-metal oxides Iron is main element, therefore this materials is called as ferrites. In our earlier research work, we have synthesized various mixed-metal oxides or ferrites such as $Li_{0.5}Fe_{2.5}O_4$, $Li_{0.5}Mn_{2.5}O_4$, $CoFe_2O_4$, $ZnTiFeO_4$ and $ZnCrFeO_4$ [1-5].The structural, magnetic and electrical properties of theses ferrites were based on method of preparation, sintering temperature, atmospheric conditions, complexing agent and purity of metal salts.

Several researchers have prepared different nano-sized ferrites by physical and chemical methods such as co-precipitation [6], sol-gel [7], microemulsion method [8], hydrothermal [9], spray pyrolysis [10], reverse micelle[11], precursor [12], combustion synthesis [13] etc. Out of all methods, our interest only in citrate-gel method because this method is superior than others, not require any sophisticated instrument, obtained homogenous uniform grains and require low sintering temperature.

In this article, we have synthesized 10, 20 and 30% TiO_2 supported zinc ferrite by citrate-gel and impregation method. After synthesis, structural properties of all samples were characterized by XRD and TEM analysis. Magnetic study was carried out by using Vibrating sample magnetometer. This research work was already published in one reputed journal [14] but dielectric permittivity study for 10, 20 and 30% TiO_2 supported zinc ferrites nanocomposite samples are not available in literature.

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Synthesis and characterization of Zn-Cr ferrite

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KEYWORDS

Zinc ferrite,
Co-precipitation,
XRD, SEM,
Electrical resistivity,
Gas sensor.

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ABSTRACT

Nanocrystalline $ZnCrFeO_4$ ferrite has been synthesized. Formation of single phase cubic spinel structure was confirmed from their X-ray diffraction pattern. These ferrite sample existed as crystalline nanoparticles of about 30-40 nm size as observed from Transmission Electron Microscopy technique. Infrared spectra showed two main absorption bands in the range 400-800 cm^{-1} arising due to tetrahedral (A) and octahedral (B) stretching vibrations. The sample was found to be ferromagnetic.

Introduction

Spinels nanoparticles have been intensively studied in the last decade for their unusual physical and chemical properties owing to their extremely small size, large specific surface area and number of promising applications. Among various classes of nanomaterials, spinels oxides are very common, most diverse and possess richest class in terms of physical, chemical and structural properties. In spinel structure, the oxygen atoms are closely packed in face centered lattices, into the interstices of which the metal ions are distributed. The unit cell of spinel contains 8 molecules ($8\times FeFe_2O_4$). There are 32 divalent oxygen ions, 16 trivalent iron ions and 8 divalent iron ions per unit cell. When the oxygen atoms arrange themselves in FCC structure, there are 8 occupied tetrahedral voids called the A and 16 occupied octahedral voids called the B sites.

Various methods are available for the synthesis of metal oxides, such as microwave refluxing [1], sol-gel [2-3], hydrothermal [4-5], co-precipitation [6-7], citrate-gel [8] and spray pyrolysis [9] etc. The selection of appropriate synthetic procedure often depends on the desired properties and final applications. Among these synthesis techniques, sol-gel autocombustion method has several advantages over others for preparation of nanosized metal oxides as the process begins with a relatively homogeneous mixture and involves low temperature conditions and results a uniform ultrafine porous powders [10]. This method was employed by us to obtain improved powder characteristics, better homogeneity and narrow particle size distribution, thereby influencing structural, electrical and magnetic properties of spinel ferrites [11-13]. Spinel ferrites find potential applications in electrical components, memory devices,

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Manganese doped Co-Zn Ferrite Nanoparticle Synthesis and Characterization; Effects of Annealing Temperature on the Size of nanoparticles.

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KEYWORDS

Manganese doped Co-Zn ferrite nanoparticles, sol-gel technique, XRD, FT-IR

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ABSTRACT

Manganese doped Co-Zn ferrite nanoparticles have been synthesized by sol-gel auto combustion method from nitrate salts of respective metal ions. The nanoparticles synthesized were annealed at different annealing temperatures of 873K, 973K, 1073K, 1173K and 1273K. The size of nanoparticles was also analyzed at a constant annealing temperature for different duration of time. X-ray diffraction pattern confirmed the formation of single-phase nanoparticles of Manganese doped Co-Zn ferrite. Fourier transform infrared study was performed to ascertain the structure of the nanoparticles. FT-IR studies also supported the trend of increasing size as shown by XRD results. The study revealed that crystallinity enhanced and size of the nanoparticles increased with increasing annealing temperature due to coercity.

Introduction

Polycrystalline spinel ferrites are widely used in many electronic devices. They are preferred because of their high permeability in the radio- frequency (RF) region, high electrical resistivity, mechanical hardness and chemical stability. Ferrite nanoparticles are under intense research because of their unique chemical, mechanical, structural magnetic and electric properties.(1,2) Ferrite nanoparticles have versatile application in catalysis, electronics, photonics, sensors and Ferro fluids.(3) Ferrite nanoparticles are also used in biomedical sciences. Due to their unique size and shape, they can easily reach to the body parts where other conventional drugs find hard to reach.

Cobalt ferrite ($CoFe_2O_4$) is a well-known hard magnetic material with high coercivity and moderate magnetization. These properties, along with their great physical and chemical stability, make $CoFe_2O_4$ nanoparticles suitable for magnetic recording applications (4). Many efforts have been made to improve the basic properties of these ferrites by substituting or adding various cations of different valence states depending on the applications of interest. Among spinel ferrites, Zn^{2+} substituted $CoFe_2O_4$ nanoparticles exhibit improved properties such as excellent chemical stability, high corrosion resistivity, magnetocrystalline anisotropy, magnetostriction, and magneto-optical properties (5-7).

Size of the particles depends mostly on the preparation method and conditions. In The literature, there are a number of methods like as hydrothermal synthesis, mechanical Milling and hydrolysis of metal carboxylate in organic solvent (8-9), sol–gel pyrolysis method (10),the microwave hydrothermal method (11), template-assisted hydrothermal method (12), and combustion technique are used to prepare ferrites nanoparticles. However sol-gel auto

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Zinc ferrite as efficient H_2S gas sensor

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KEYWORDS

Zinc ferrite,
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Electrical resistivity,
Gas sensor.

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ABSTRACT

$ZnFe_2O_4$ was synthesized by using co-precipitation method under stoichiometric conditions. The structure and the crystal phase of the powder were characterized on an X-ray diffractometer. The ferrite powder existed as single phase cubic spinel oxide and has a particle size of ~30nm. DC electrical resistivity of the prepared ferrite powder was studied by using two prove method and it indicates the semiconducting nature of prepared spinel ferrite. Gas sensing response of zinc ferrite was evaluated as a function of operating temperature for different test gases such as ammonia, chlorine, LPG, CO_2, Cl_2, hydrogen sulphide and H_2. $ZnFe_2O_4$ exhibit significantly high response towards H_2S gas at their 300 ppm concentration at 300^0C.

Introduction

Hydrogen sulphide gas is a colorless, corrosive, toxic and flammable gas, occurring naturally in crude petroleum, natural gas, volcanic gases, and hot springs with smell of rotten eggs. Combustions of petroleum and coal are the predominant sources of the gases containing sulfur. Hydrogen sulfide is considered a broad-spectrum poison, meaning that it can poison several different systems in the body, although the nervous system is most affected. The toxicity of H_2S is comparable with that of hydrogen cyanide. It forms a complex bond with iron in the mitochondrial cytochrome enzymes, thus preventing cellular respiration. Since hydrogen sulfide occurs naturally in the body, the environment and the gut, enzymes exist in the body capable of detoxifying it by oxidation to (harmless) sulfate. Hence, low levels of hydrogen sulfide may be tolerated indefinitely.

The gases containing sulfur can result in undesirable disastrous deformations such as infection to respiratory track and lung cancer [1, 2]. In last decade, remarkable efforts have been taken for the development of ferrite gas sensors in detection of toxic gas pollutants from vehicle exhaust, biological hazards, environment, and pollution monitoring [3].Therefore, monitoring of traces of such gases has become prime research work [4]. Various oxide as well as dioxides has been well studied as a sensor material to detect most of the reducing gases [5-7]. Sensors based on semiconducting oxides like SnO_2, ZnO, and WO_3 have been widely studied, due to their distinct advantages, such as high response time and low cost [8-9]; however, selectivity remains the main challenge for such materials. But the major problem associated with this material is its total lack of selectivity. Several novel materials are being tried with distinct and extraordinary gas sensing capabilities.

Magnetically Separable Sustainable Nanostructured Catalysts Pd/ $Mg_{(1-x)}Mn_xCo_2O_4$ used in Heck coupling reaction

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Abstract

Mixed metal oxides have attracted significant attention as catalysts for various organic reactions. In this study, we have synthesis Pd/$Mg_{1-x}Mn_xCo_2O_4$ catalyst for organic transformation. While Mg substituted magnesium cobaltite prepared by sol-gel auto combustion technique. This synthesized material is characterized by different spectroscopic techniques such as XRD, SEM, EDAX and VSM analysis. The XRD studies show the formation of cubic spinel phase with average crystallite size of 33 nm. SEM shows spherical interlinked fibrous morphology. The purity of the material analyzed by EDAX analysis. A room temperature magnetization result shows a ferromagnetic behavior decreases with increase in Mg content. With Palladium is supported on these characterized materials and catalytic performance were studied over Heck coupling reaction it is found that 10% Pd supported $Mg_{0.5}Mn_{0.5}Co_2O_4$ shows ameliorate result.

Key words: - Sol-gel synthesis, XRD, SEM, EDAX.

1. Introduction

During the last decades, there has been an increasing attention inmixed metal oxides because of their remarkable dielectric, magnetic and optical properties, owing to both the broad applications in various technological areas. Number ofdifferent methods have been discovered to prepare mixed metal oxides such as, citrate precursor [1], forced hydrolysis [2],spray pyrolysis [3], co-precipitation[4], hydrothermal [5],ceramic method [6] and sol–gel[7].

The vinylation and arylation of olefin with aryl or vinyl halides was developed independently by Mizorokiand Heck[8-9] about 50 years ago and universally known as Heck

Photocatalytic degradation of methyl orange using ceria, cassiterite and ceria-cassiterite nanocomposite

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Abstract

Nanosized ceria (CeO_2), cassiterite (SnO_2) and ceria-cassiterite (CeO_2-SnO_2) have been synthesized and studied its photocatalytic activity for methyl orange degradation under UV-Visible type radiation. Phase formation study was carried out by using x-ray diffraction technique and it's reveals that ceria (CeO_2) properly supported on the surface of cassiterite (SnO_2). Nano sized ceria, cassiterite and ceria-cassiterite nanocomposite were confirmed by transmission electron microscopy technique. The particle size of the CeO_2 and SnO_2 and their nano composite is in the range of 10-20 nm. Photocatalytic activity of the CeO_2-SnO_2 composite was improved as compared to CeO_2 and SnO_2. The enhanced photocatalytic activity is attributed to the increased visible light absorption and improved adsorption of the dye on the surface of the composite catalyst.

Keywords: Ceria, cassiterite, nanocomposite, photocatalytic degradation, methyl orange

1. Introduction

Effluents from textile industries contain a significant percentage of dyes that cause considerable environmental concerns. Dyestuffs are often non-biodegradable compounds and are hazardous to the living organisms. Photocatalytic degradation using solar radiation is a potential technique for the removal of the organic contaminants from water. Photocatalysts like TiO_2, CdS, WO_3, ZrO_2, and V_2O_5 have been investigated for the treatment of these effluents with the aim of mineralizing the dyes completely [1, 2]. When photocatalysts are dispersed on other oxides, its surface area increases and it can lead to enhanced photocatalytic activity. The increased activity was attributed to the increased surface acidity of the mixed oxide. Earlier researchers were studied TiO_2 dispersed on different supports like Al_2O_3, ZrO_2, CeO_2 and zeolite exhibited different photocatalytic activity for hydrogen generation from water-methanol mixture [3]. The highest activity was

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Photocatalytic Degradation of Methyl Red using CeO_2, TiO_2 and CeO_2-TiO_2 Nanocomposite

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Abstract

Nanosized ceria (CeO_2), titania (TiO_2) and ceria- titania (CeO_2-TiO_2) have been synthesized by microwave method and studied its photocatalytic activity for methyl red degradation under UV-Visible type radiation. Phase formation study was carried out by using x-ray diffraction technique and it's reveals that ceria (CeO_2) properly supported on the surface of titania (TiO_2). Nano sized ceria, titania and ceria- titania nanocomposite were confirmed by transmission electron microscopy technique. The particle size of the CeO_2, TiO_2 and their nanocomposite is in the range of 10-15 nm. Photocatalytic activity of the CeO_2-TiO_2 composite was improved as compared to CeO_2 and TiO_2. The enhanced photocatalytic activity is attributed to the increased visible light absorption and improved adsorption of the dye on the surface of the composite catalyst.

Keywords: Ceria, titania, nanocomposite, photocatalytic degradation, methyl red

INTRODUCTION

Photocatalytic reactions at the surface of titanium dioxide have been attracting much attention in view of their practical applications to environmental cleaning such as self cleaning of tiles, glasses and windows. Titanium dioxide represents an effective photocatalyst for water and air purification and for self-cleaning surfaces. Additionally, it can be used as antibacterial agent because of strong oxidation activity and superhydrophilicity [1]. Strong oxidation and reduction power of photoexcited titanium dioxide (TiO_2) was realized from the discovery of Honda-Fujishima effect [2]. Photocatalytic degradation using solar radiation is a potential technique for the removal of the organic contaminants from water. Photocatalysts like TiO_2, CdS, WO_3, ZrO_2 and V_2O_5 have been investigated for the treatment of these effluents with the aim of mineralizing the dyes completely [3, 4]. When photocatalysts are dispersed on other oxides, its surface area increases and it can lead to enhanced photocatalytic activity. The increased activity was attributed to the increased surface acidity of the mixed oxide.

TiO_2 is a high band gap semiconductor that is transparent to visible light and has excellent optical transmittance. The American Food and Drug Administration (FDA) has approved the use in human food, drugs and cosmetics and compounded in food contact materials such as cutting board and other surfaces in contact with unprotected food [5]. For photovoltaic applications, TiO_2 photo-catalyst is effective in solar light or light from visible region of the solar spectrum need to be developed as future generation photo-catalytic material [6]. TiO_2 has high refractive index and good insulating properties and as a result it is widely used as protective layer for very large scale integrated circuits and photovoltaic cells as well as antireflective coatings, gas sensors, electro-chromatic displays and planar waveguides. Similarly, CeO_2 is reported to be a predominantly ionic conductor, exhibits n-type conductivity under certain conditions. Cerium dioxide is an inexpensive and relatively harmless material that presents several characteristics that could be potentially advantageous for photocatalytic applications.

TiO_2 and CeO_2 nanomaterials reveal that they are promising materials for optoelectronic devices such as solar cells, conductive layers, and transistors due to its excellent electrical and optical properties. CeO_2 and TiO_2 are a well known photocatalyst having a suitable bandgap and works under UV illumination [7-8]. The observed photocatalytic activity of the composite was correlated with the proper microstructure of this composite and the isolation function of the supporting layer. In the present work, we report the synthesis, characterization and photocatalytic activity of CeO_2, TiO_2 and CeO_2-TiO_2 novel photocatalytic system. It is expected that a combination of CeO_2 and TiO_2 can show synergistic effect in improving the optical absorption property resulting in enhanced photocatalytic activity. With this aim, CeO_2, TiO_2 and CeO_2-TiO_2 nanocomposite has been synthesized and studied its photocatalytic activity for the degradation of methyl red dyes solution under UV-Visible light type irradiation.

Substitution effects of Cr^{3+} on the magnetostructural and semiconducting properties of the Lithium ferrites

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Abstract

Nanocrystalline Cr-substituted lithium ferrites were synthesized by sol-gel method. The structural data shows that, the cubic phase was observed by XRD ananlysis. The electrical properties study was carried out by using two probe methods and it is revealed that the all Cr substituted ferrites are semiconducting nature. Thermoelectric power measurement also confirms P-type semiconducting nature of Chromium substituted lithium ferrites. The effect of Chromium substitution in lithium ferrites was crucial role on the structural and electrical properties of the system.

Keyword: Sol-gel method, XRD, Electrical properties.

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1 Introduction

Polycrystalline Lithium and metal substituted lithium ferrites are magnetic semiconductors which cannot be replaced by any other magnetic materials, because ferrites are stable, relatively inexpensive, easily manufactured and have widespread applications in lithium batteries, recording heads, transformer cores, noise filters due to their interesting structural, electrical and magnetic properties [1]. These properties are mainly depending upon chemical composition, method of preparation, sintering temperature and time [2]. Lithium ferrites in the spinel phase, $Li_{0.5}Fe_{2.5}O_4$, have a square hysteresis loop, high magnetization and high Curie temperature. These properties are useful for technological applications such as the development of low-cost materials microwave devices. Many transition metal cations such as Mn, Cr, Co and Ti can be introduced into the lattice

Phase formation and Gas sensing application of Mn substituted Lithium ferrites

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Abstract:

Mangnease substituted Lithium ferrites were prepared by sol-gel route. Formation of single phase cubic spinel structure for all the compositions was confirmed from their X-ray diffraction studies. These ferrite samples existed as uniform and homogenous grain size as observed from scanning electron microscopy technique (SEM). The present work describes the gas sensing performance of the nanostructure ferrite towards H_2S, CO_2, NH_3, LPG, Ethanol, H_2 and Cl_2. It was found that the material exhibits high selectivity and sensitivity towards 50 ppm ethanol at the 250^{0}C temperature.

Keywords: Sol-gel method, X-ray diffraction, SEM, Gas sensing.

1.0 Introduction:

Ferrites have been studied and developed for many years because of their structural, electrical and magnetic properties that provide better applications of scientific and technological interest [1-5]. Lithium ferrite in the spinel phase, $Li_{0.5}Fe_{2.5}O_4$, has a square hysteresis loop, high magnetization and high Curie temperature. These properties are useful for technological applications such as the development of low-cost materials microwave devices. Many transition metal cations such as Mn, Cr, Co and Ti can be introduced into the lattice of the magnetic structure, which is related to a large number of applications [6-9]. Many Researchers like Wafik et. al have studied the composition dependence of discontinuous magnetization in Li-Ti ferrites [10]. Raman et. al [11] have reported the loss of lithium in Li ferrites as a result of heating above 1000^{0}C. Studies on electrical on Li-Co ferrites have been reported by Song et.al [12]. Microwave dielectric loss in Li-Zn ferrites has been reported by Raman et.al [13] and they observed an increase in dielectric loss with temperature. Lithium and metal substituted lithium ferrites with

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SYNTHESIS AND CHARACTERIZATIONS OF ZINC COBALT FERRITE ($Zn_{0.5}Co_{0.5}Fe_2O_4$) NANOPARTICLE USING GREEN AND ORGANIC CHELATING AGENTS VIA SOL-GEL AUTO COMBUSTION TECHNIQUE: - IT'S COMPARATIVE STUDY

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Abstract
*The nano size particle of Zinc Cobalt ferrite having the chemical formula $Zn_{0.5}Co_{0.5}Fe_2O_4$ was synthesized by a Sol-Gel auto combustion route using green and organic chelating agents. The obtained material was sintered at 700 °C for 8 hours. The sintered nanoparticles were characterized by means of Fourier transform infrared spectroscopy (FT-IR), X-ray diffraction analysis (XRD), scanning electron microscopy (SEM) and energy dispersion X-ray analysis (EDAX). FT-IR study was performed to ascertain the structure of the nanoparticles. XRD analysis revealed a single crystalline cubic phase for nanoparticles thermally treated at 700 °C. The average crystallite size was found to be around **15.6 nm and 15.9 nm**. Scanning Electron Microscopic (SEM) studies revealed nano crystalline nature of the sample. Energy dispersion X-ray analysis (EDAX) was performed to know an elemental composition of the sample and to confirm the stoichiometry.*
Keywords: *$Zn_{0.5}Co_{0.5}Fe_2O_4$, Sol-Gel auto combustion; X-Ray Diffraction; SEM; EDAX*

1. INTRODUCTION:

Spinel ferrite nanoparticles and their coated, specially Co-Zn ferrite have been extensively investigated during the recent years, due to their favorable magnetic properties in all areas of biomedicine and bioengineering, such as contrast enhanced magnetic resonance imaging, cell separation, hyperthermia, detoxification of biological fluids, drug delivery and tissue regeneration[1-6]. Synthesis of magnetic nanoparticle has been desperately interested because of their unique features and potential applications, such as magnetic resonance imaging, treatment of cancer and biomedical drug delivery [1,2, 7-10].

Cobalt ferrite ($CoFe_2O_4$) is a well-known hard magnetic material with high coercivity and moderate magnetization. These properties, along with their great physical and chemical stability, make $CoFe_2O_4$ nanoparticles suitable for magnetic recording applications [11]. Many efforts have been made to improve the basic properties of these ferrites by substituting or adding various cations of different valence states depending on the applications of interest. Among spinel ferrites, Zn^{2+} substituted $CoFe_2O_4$ nanoparticles exhibit improved properties such as excellent chemical stability, high corrosion resistivity, magnetocrystalline anisotropy, magnetostriction, and magneto-optical properties [12-13].

In addition, metallic nanoparticles are made of iron, nickel or cobalt, mostly due to their chemical instability for biological applications are ignored and are easily oxidized in the presence of water and oxygen [14]. Cobalt zinc ferrite nanoparticles have been synthesized by different methods, such as co-precipitation, hydrothermal, sol-gel and other chemical methods [15-17].

In this paper, focus was placed on the comparative study of size controlled synthesis and characterizations of zinc cobalt ferrite ($Zn_{0.5}Co_{0.5}Fe_2O_4$) nanoparticle using green chelating agent such as lemon juice and conventional chelating agent such as citric acid via Sol-Gel auto combustion method. Their characterization was investigated by X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FTIR), and scanning electron microscopy (SEM) with EDAX.

Effect of Nickel Substitution on Structural and Magnetic Properties of Novel Polyol route Synthesized Cobalt Ferrite

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Abstract

Nanocrystalline $Ni_xCo_{1-x}Fe_2O_4$ ($1.0 \geq x \geq 0$) ferrites were prepared by polyol route. Formation of single phase cubic spinel structure for all the compositions was confirmed from their X-ray diffraction patterns. These ferrite samples existed as crystalline nanoparticles of about 10-20 nm size as observed from Transmission Electron Microscopy technique. The magnetic studies indicated that, the ferrimagnetic behavior increases with Nickel substitution.

Keywords: polyol method; x-ray diffraction; nanostructures; magnetic materials; infrared spectroscopy

Introduction

Among various classes, nanoferrites are very common, most diverse and possess richest class in terms of physical, chemical and structural properties. Nanoferrites are being intensively studied due to their interesting physico-chemical properties as well as various promising applications, such as microelectronic circuits, dielectrics, sensors, magnets and catalysts have discussed[1-6]. The interesting physical and chemical properties of ferrospinels arise from their ability to distribute the cations among available tetrahedral (A) and octahedral (B) sites. Among various oxides, transition metal oxides with iron oxides as their main component have attracted the attention of physicists and technologists, since these are magnetic semiconductors suitable for use in microwave devices.

In a spinel structure, the distribution of cations on A and B sites depends on their nature of ions, charge distribution and site preference amongst tetrahedral and octahedral sites. $CoFe_2O_4$ possesses inverse spinel structure having wide range of applications and degree of inversion depends upon the heat treatment. It has high coercivity and moderate saturation magnetization[7]. Recently, considerable effort has been made on the surface modification of nanoparticles and the preparation of different type of metal oxides. Various methods are available for the synthesis of metal oxides, such as microwave refluxing[8], sol-gel[9], hydrothermal[10-11] co-precipitation[12], citrate-gel[13] and spray pyrolysis[14] etc. The selection of appropriate synthetic procedure often depends on the desired properties and final applications. Among these synthesis techniques, polyol method has several advantages over others for preparation of nanosized metal oxides as the process begins with a relatively homogeneous mixture and involvement low temperature conditions resulting a uniform ultrafine porous powder[15]. In our previous work[16] this method was employed to obtain improved powder characteristics, more homogeneity and narrow particle size distribution, thereby influencing structural, electrical and magnetic properties of ferrites. In this communication, we report preparation of nanosized cobalt substituted Ni ferrites by polyol method. The structural, morphological and magnetic properties investigated by X-ray diffraction, TEM and VSM are discussed in this manuscript.

Material and Methods

Experimental details

$Ni_xCo_{1-x}Fe_2O_4$ ($1.0 \geq x \geq 0$) ferrites system has been synthesized by polyol-mediated route. High purity (AR grade) Nickel Nitrate, Cobalt nitrate and Iron nitrate were used as raw materials. The stiochiometric amounts of individual metal nitrates were dissolved in doubly distilled deionized water to get a clear, transparent solution. The solution ($25cm^3$) was mixed with $25cm^3$ of ethylene glycol and refluxed at 373K for 1 h. Sodium hydroxide (molar ratio, Sodium /cation = 2.5) was dissolved in $25cm^3$ of water and

Gas Sensing Application of Ceria, Cassiterite and Ceria-Cassiterite Nanocomposite

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Abstract

Ceria, Cassiterite and Ceria-Cassiterite nanocomposites are studied as potential candidates for gas sensors. The particles of CeO_2 core and SnO_2 shell nanocomposite were prepared by microwave method. X-ray diffraction and transmission electron microscopy were used to characterize the CeO_2, SnO_2 and CeO_2/ SnO_2 core shell nanocomposites. The obtained results from XRD show that the CeO_2 nanoparticles coated on SnO_2 yields diffraction peaks correspond to the crystalline SnO_2 phase. Also, TEM results show that the nanocomposite particles have a spherical morphology and a narrow size distribution. The thickness of CeO_2 shell on the surface of SnO_2 particles was about 7 nm. The particle size of the CeO_2 and SnO_2 and their nano composite is in the range of 10-20 nm. The electrical resistivity is decreasing with increasing temperature for all the samples. This indicates that all the samples show semiconductor like behavior.

The present work describes the gas-sensing performance of the nanostructured CeO_2, SnO_2 and CeO_2-SnO_2 powder towards ethanol, LPG, H_2, CO_2, NH_3 andCl_2. It was found that the material exhibits high selectivity and sensitivity towards 60 ppm LPG at the operating temperature of 150^oC.

Keywords: Ceria, cassiterite, nanocomposite, gas sensors, PPM.

Introduction

Gas sensors based on metal dioxide and their nanocomposites have attracted much public attention during the past decades due to their excellent potential for applications in environmental pollution remediation, transportation industries, personal safety, biology and medicine[1-3].

Numerous efforts have therefore been devoted to improving the sensing performance of metal oxides. In those effects, the construct of nanoheterostructures is a promising in gas sensing modification which shows superior sensing performance to that of the single component based sensors. Since the 20th century, atmospheric pollution has been proved to be one of most urgent issues. For the sake of controlling the exhaust emissions, gas sensors for the quantitative detection of various toxic and harmful gases have been widely developed as a result of their high response, outstanding selectivity, excellent repeatability and good stability[4–6].

So far a variety of gas sensors such as metal oxide semiconductor-based gas sensors[7–12], solid electrolyte-based gas sensors[13], electrochemical gas sensors[14], carbon-based gas sensors[15–17], organic gas sensors[5,6] and so on have been extensively investigated.

Amongst these different types of gas sensors, resistance type metal oxide gas sensors offering low cost, simple manufacturing approaches and excellent sensitivity to the great majority of gases have attracted considerable attention during the past several years[18,19].

SnO_2 is a special oxide material because it has a low electrical resistance with high optical transparency in the visible range. SnO_2 owing to a wide bandgap is an insulator in its stoichiometric form. However, due to the high intrinsic defects, that is oxygen deficient SnO_2 is an n-type semiconductor and has many applications. Similarly, CeO_2 is reported to be a predominantly ionic conductor, exhibits n-type conductivity under certain conditions. Cerium dioxide is an inexpensive and relatively harmless material that presents several characteristics that could be potentially advantageous for gas sensing applications. SnO_2 and CeO_2 nanomaterials reveal that they are promising materials for optoelectronic devices such as solar cells, conductive layers and transistors.

In this study, we briefly summarize and highlight the development of CeO_2, SnO_2 and CeO_2-SnO_2 based heterostructure gas sensing materials with diverse models, including semiconductor/semiconductor nano-heterostructures, which have been investigated for effective enhancement of gas sensing properties through the increase of sensitivity, selectivity and stability.

Also, we report the synthesis, characterization and gas sensing of CeO_2, SnO_2 and CeO_2-SnO_2 novel microwave system and describe the gas-sensing performance of the nanostructured CeO_2, SnO_2 and CeO_2-SnO_2 powder towards ethanol, LPG, H_2, CO_2, NH_3 andCl_2.

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GREEN SYNTHESIS OF SILVER NANOPARTICLES USING *ECLIPTA ALBA* LEAF EXTRACT AND THEIR CHARACTERIZATION

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ABSTRACT

In the present study, biosynthesis of silver nanoparticles by using leaf extract of Eclipta alba and their characterization techniques were investigated. Silver nanoparticles were rapidly synthesized using leaf extract of Eclipta alba and the formation of nanoparticles was observed within 10 min. The results recorded from UV–vis spectrum, scanning electron microscopy (SEM) and Transmission electron microscopy (TEM). Nanoparticles almost spherical in shape having a size of 10–20 nm are found. UV-visible study revealed the surface plasmon resonance at 452 nm.

KEYWORDS: *Silver nano particles, Eclipta alba ,UV-visible, TEM, SEM.*

1. INTRODUCTION:

The development of reliable green process for the synthesis of silver nanoparticles is an important aspect of current nanotechnology research. Nanomaterials such as Ag, Au, Pt and Pd have been synthesized by different methods, including using bacteria [1], fungi [2] and plants [3]. Among these, silver nanoparticles play a significant role in the field of biology and pharmacy due to its attractive physiochemical properties, antimicrobial properties. Silver nanoparticles are playing a major role in the field of nanoscience and nanotechnology. In recent years, the biosynthesis of nanoparticles using plant part extracts has gained more significance. The major advantage of using plant extracts for silver nanoparticle synthesis is that they are easily available, safe, practical, scalable, nontoxic and avoidance of maintaining the microbial culture. It also reduces the cost of micro-organisms isolation and culture media enhancing the cost competitive feasibility over nanoparticles synthesis by microorganisms. A lot of literature is available on green synthesis of silver nanoparticle till date.

As the plants contain different phytochemical products which can breakdown the hazardous silver nitrate complex, into Ag^+ and NO_3^-ions. In the process, the toxic Ag^+ ions are further reduced to the nontoxic Ag^0 metallic nanoparticles through the use of different functional groups on the surface of the extract [4].

Eclipta alba(known as Bhringraj), which belongs to the family Asteraceae, is a common weed growing mostly in shade has proved its potential as medicinallyimportant herb. It is an actively utilized plant as an antidote against scorpion sting, a time tested liver tonic, blood purifier, hair vitalizer, etc. [5]. These plants are rich in flavonoids broadly belonging to the class of phenolic compounds.In present investigation we have reported the synthesis of silver nanoparticles by an ecofriendly method using *Eclipta alba* leaves extract. The synthesized silver nanoparticles were characterized by UV-vis spectrum, scanning electron

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Phytochemistry of some medicinal plants from Western Ghat region

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ABSTRACT

Medicinal plants have bioactive compounds which are used for curing of various human diseases. Phytochemicals have two categories i.e., primary and secondary constituents. Primary constituents have chlorophyll, proteins sugar and amino acids. Secondary constituents contain terpenoids and alkaloids. Medicinal plants have antifungal, antibacterial and anti-inflammation activities. The present study involves five different medicinal plants *Acacia nilotica, Morus alba, Morus nigra, Momordica charantia, Luffa cylindrical* locally available in Gaganbavada Taluka. The results of the phytochemical analysis of these medicinal plants showed that the terpenoids, phlobatannins, reducing sugar, flavonoids and alkaloids were found to be present in these mentioned medicinal plants. The phytochemical analysis of the plants is very important commercially and has great interest in pharmaceutical companies for the production of the new drugs for curing of various diseases. It is expected that the important phytochemical properties recognized by our study in the indigenous medicinal plants of Gaganbavada Talukawill be very useful in the curing of various diseases of this region.

KEYWORDS: Medicinal plants; Phytochemicals; Anti-fungal; Antibacterial;Anti-inflammation activities.

INTRODUCTION

The medicinal plants are useful for managing human diseases because of the presence of phytochemical constituents [1]. Phytochemicals are naturally occurring in the medicinal plants, leaves, vegetables and roots that have defense mechanism and protect from various diseases. Phytochemicals are primary and secondary compounds. Chlorophyll, proteins and common sugars are included in primary constituents and secondary compounds have terpenoid, alkaloids and phenolic compounds [2]. Terpenoids exhibit various important pharmacological activities i.e., anti-inflammatory, anticancer, anti-malarial, inhibition of cholesterol synthesis, anti-viral and antibacterial activities [3]. Terpenoids are very important in attracting useful mites and consume the herbivorous insects [4]. Alkaloids are used as anaesthetic agents and are found in medicinal plants [5]. The *Momordica charantia* belongs to the Cucurbitaceae family and it has common names such as bitter melon, karela and bitter gourd. More than thousand herbal products of *Momordica charantia* are used for treatment of diabetic patients and also helpful in lowering of glucose level in the blood [6]. The bioactive constituents are present in *Momordica charantia* that is charantosides, momordin and goyaglycosides. It also includes terpenoids constituents such as momordicinin, momordenol, momordicin-28, momordicilin and momordol [7-11]. Morus nigra is the botanical name of the mulberry and it belongs to the family Moraceae. Mulberries have shown various biological properties such as anti-inflammatory activities [12].

Acacia nilotica, it is the member of the Leguminosae family. The subfamily of the Acacia nilotica is Mimosoideae [14]. Luffa cylindrica is the botanical name of the sponge gourds and belongs to Cucurbitaceae family. The fruits of this plant have flat seeds and black in colour which is enclosed by group of fibers [16]. Medicinal and nutritional properties are the characteristics of Luffa cylindrical and seeds of this plant are used for curing of asthma, fever and sinusitis [18]. *Morus alba* is included in the Moraceae family. Their leaves and fruits are used for curing prematurely grey hair. Its root bark is used by humans for more than 4 thousand years [16,18].

The main objective of our research work was to analyze the presence or absence of different phytochemicals in the selected five medicinal plants from Gaganbavada Taluka used for healing and curing of various diseases.

MATERIALS AND METHODS

Plant material:

The present study included plant species which were *Acacia nilotica*, *Morusalba*, *Morus nigra*, *Momordica charantia*, and *Luffa cylindrical*.

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Green Synthesis of Silver Nano Particles from *Clerodendrum serratum* and Antimicrobial Activity Against Human Pathogens

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The field of nanotechnology is one of the most active researches nowadays in modern material science and technology. Eco friendly methods of green mediated synthesis of nanoparticles are the present research in the limb of nanotechnology. The silver nanoparticles synthesized biologically have been widely used in medicinal field. In this research article we present a simple and eco-friendly bio synthesis of silver nanoparticles using *Clerodendrum serratum* leaf extract as reducing agent. The aqueous silver ions when exposed to leaf extract were reduced and resulted in silver nanoparticles whose average size was 35 nm. The silver nanoparticles were characterized by UV–Visible and transmission electron microscopy (TEM) techniques. Furthermore these biologically synthesized nanoparticles were found to be highly effective against on human pathogenic bacteria *Escherichia coli* and *Staphylococcus aureus*.

Keywords: Silver Nanoparticles, *Clerodendrum serratum*, UV-visible Spectrophotometer, TEM, Antibacterial Activity.

RESEARCH ARTICLE

1. INTRODUCTION

The field of nanotechnology is one of the most active areas of research in modern material science. Though several physical and chemical methods are comprehensively applied for the synthesis of nanoparticles, the stability and the use of toxic chemicals is the topic of predominant concern. The use of non polar solvents and toxic chemicals on the surface of nanoparticles in the synthesis procedure limits their applications in the clinical field. Therefore, the development of nontoxic, clean, biocompatible, and ecofriendly methods for nanoparticle synthesis deserves merit. In this regard, recent research is focused on the novel protocol that links it to the green aspects. The green aspects in nanoparticle preparation bypass the conventional techniques and toxic organic solvents. In the literature it has been observed that the current research focuses on the novel, nonconventional, and green methods for metal and metal oxide nanoparticle synthesis. In addition to the benign environmental properties, the new green protocol is inexpensive and time-saving. Recently, biosynthetic methods employing either biological microorganisms such as bacteria[1] and fungus[2] or plants extract[3–5] have emerged as a simple and viable alternative to more complex chemical synthetic procedures to obtain nanomaterials. Different types of nanomaterials like copper, zinc, titanium[6] magnesium, gold,[7] alginate[8] and silver were used but silver nanoparticles have proved to be most effective as it has good antimicrobial efficacy against bacteria, viruses and other eukaryotic microorganisms.[9] Silver nanoparticles are playing a major role in the field of nanotechnology and nanomedicine. In recent years, the biosynthesis of nanoparticles using plant extracts has gained more significance. The major advantage of using plant extracts for silver nanoparticle synthesis is that they are easily available, safe, practical, scalable, nontoxic and avoidance of maintaining the microbial culture.[10]

Silver nanoparticles play a profound role in the field of biology and medicine due to their attractive physiochemical properties. Silver products have long been known to have strong inhibitory and bactericidal effects, as well as a broad spectrum of antimicrobial activities, which has been used for centuries to prevent and treat various diseases, most notably infections.[11]

Different plants have been successfully used for the synthesis of biogenic metal nanoparticles. Plants extract from *Ocimum tenuiflorum*, *Solanum tricobatum*, *Syzygium cumini*, *Centella asiatica* and *Citrus sinensis* was used for the synthesis of silver nanoparticles from silver nitrate

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Research Article

ANTIFUNGAL ACTIVITY OF THE CRUDE EXTRACTS OF *COLOCASIA ESCULENTA* LEAVES *IN VITRO* ON PLANT PATHOGENIC FUNGI

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ABSTRACT

Colocasia esculenta belonging to family Araceae popularly known as "taro" is very useful medicinal plant described by Charaka as an anti-inflammatory plant. An experiment was carried out to study the antifungal activity of alcoholic and aqueous extract of *Colocasia esculenta* by food poisoning technique against *Alternaria* blight of chili caused by *Alternaria solani* and *Alternaria* blight of castor caused by *Alternaria ricini*. In anti-fungal study alcoholic extract showed good anti fungal activity than aqueous extract.

Key Words: *Colocasia esculenta*, Antifungal Activity, food poisoning technique.

INTRODUCTION

The plant kingdom is a treasure house of potential drugs and there has been an increasing awareness about their importance of medicinal plants. They are used locally in the treatment of infections caused by fungi, bacteria, viruses and parasites. Different plants have been used as a source of inspiration in the development of novel drug.

'Taro' corm is an excellent source of carbohydrate, the majority being starch of which 17-28% is amylase, and the remainder is amylopectin (Oke, 1990). Taro is especially useful to people allergic to cereals and can be consumed by children who are sensitive to milk, and as such taro flour is used in infant food formulae and canned baby foods (Lee, 1999). It contains greater amounts of vitamin B-complex than whole milk (Lee, 1999). Taro corm is low in fat and protein, however, the protein content of taro corm is slightly higher than that of yam, cassava or sweet potato. The protein is rich in some essential amino acids, but is low in isoleucine, tryptophan and methionine (Onwueme, 1998). Proximate composition of the taro corm on a fresh weight basis include; Moisture 63-85%, Carbohydrate (mostly starch) 13-29%, Protein 1.4-3.0%, Fat 0.16-0.36%, Crude Fibre 0.60-1.18%, Ash 0.60-1.3%, Vitamin C 7-9 mg/100 g, Thiamine 0.18 mg/100 g, Riboflavin 0.04 mg/100 g, Niacin 0.9 mg/100g (Onwueme, 1998). In Pacific Island countries such as Fiji and parts of Africa, taro is a staple food crop (Lebot and Aradhya, 1991; Opara, 2001). Taro is one of the few major staple foods where both the leaf and underground parts are important in the human diet (Lee, 1999). Opara (2001) reported that taro leaf is an excellent source of carotene, potassium, calcium, phosphorous, iron, riboflavin, thiamine, niacin, vitamin A, vitamin C and dietary fibre.

Alternaria blight of chili caused by *Alternaria solani* and *Alternaria blight* of castor caused by *Alternaria ricini* are serious diseases of chili and castor respectively. As castor is medicinally important crop and chili is important ingredient of spice so in the present investigation these fungal diseases were managed by using alcoholic and aqueous extract of *Colocasia esculenta* by food poisoning technique.

MATERIALS AND METHODS

The disease samples of chili and castor showing blight symptom were collected from different locations of Gaganbawada tahka. The disease samples were inoculated on Czapek's Dox agar medium, after getting pure culture pathogenesis test was carried out on chili and castor plant, the identification of *Alternaria solani* and *Alternaria ricini* was carried out by using standard techniques.

Fresh leaves of *Colocasia esculenta* (Herbarium Voucher Number 118) were collected in the month of November to December from Gaganbawada region. The fresh leaves of *Colocasia esculenta* were dried under shade & powder in a mixture grinder. The powder leaves packed in a paper bags and stored in air tight container until use. The Soxhlet process was used for the extraction of the plant material. Anti-fungal study was carried out through food poisoning technique at 100% 25%, 50% and 75 % concentration of extract. The toxicity of stock extracts was determined against *Alternaria solani* and *Alternaria ricini* by food poisoning technique. Petri plates (80 mm diameter) containing Czapek Dox agar (medium supplemented with different plant extracts at four concentrations i.e. 100, 50, 75 and 25%) inoculated with an 8 mm culture disc of *Alternaria solani* and *Alternaria ricini* from 7 day old colony by placing upside down in the centre of petriplate separately. Three replications were maintained for each treatment. The plates were incubated at room temperature (26±3°C). Medium without any plant extract was served as control. The radial growth of the mycelium was measured. Above procedure was also repeated for aqueous extracts of same plants instead of alcoholic extracts.

RESULT AND DISCUSSION

In anti-fungal study alcoholic extract showed good anti fungal activity than aqueous extract of *Colocasia esculenta*. Alcoholic leaf extract of *Colocasia esculenta* against *Alternaria solani* and *Alternaria ricini* showed 100% percentage control efficacy (PCE) at 25% concentration. Aqueous leaf extract reduced the growth of pathogen as concentration of extract increased (Table 1 and Table 2).

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Phytochemical Analysis of *Adiantum lunulatum*

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Keywords

Phytochemicals, Plant extract, *Adiantum lunulatum*.

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ABSTRACT

Screening of phytochemicals is a valuable step, in the detection of the bioactive principles present in medicinal plants and subsequently may lead to drug discovery and development. In the present study, chief phytoconstituents of *Adiantum lunulatum* were identified in order to relate their presence with bioactivities of the plant. Methanol extract, n-hexane and water extracts of *Adiantum lunulatum* were assessed to determine phytochemical analysis. The whole plant was phytochemical analyzed separately and which shows most of the phytochemicals were found in the n-hexane extract than the methanol and water extract.

Introduction

For thousands of years mankind is using plant source to alleviate or cure illnesses. Plants constitute a source of novel chemical compounds which are of potential use in medicine and other applications. Plants contain many active compounds such as alkaloids, steroids, tannins, glycosides, volatile oils, fixed oils, resins, phenols and flavonoids which are deposited in their specific parts such as leaves, flowers, bark, seeds, fruits, root, etc. These active compounds are secondary products (Touthubthimthong *et al*., 2001). The medicinal plants are useful for managing human diseases because of the presence of phytochemical constituents and the phytochemicals are primary and secondary compounds (Mengane, 2015). In 1985 Farnsworth *et al*., identified 119 secondary plant metabolites which were used as drugs. Out of 255 drugs which are considered as basic and essential by the World Health Organization (WHO), 11% are obtained from plants and a number of synthetic drugs are also obtained from natural precursors. Phytochemicals are known to possess antioxidant (Wong *et al*., 2009) antibacterial (Nair *et al*., 2005) antifungal (Khan *et al*., 1987) antidiabetic (Singh *et al*., 2007), anti-inflammatory and radio-protective activity (Jagetia *et al*., 2005) and due to these properties they are largely used for medicinal purpose. The development undesirable side effects of certain antibiotics have led to the search for new antimicrobial agents, mainly among

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Biosynthesis of Silver Nano Particles from *Tridax procumbens* and Its Antioxidant Potential: A Novel Biological Approach

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Present work reports a novel, eco-friendly, easy, one step and green protocol for the preparation of silver nanoparticles (AgNPs) using a medicinal plant *Tridax procumbens*. The plant extract not only help for reduction of ionic silver to metallic form, but also to control agglomeration and particle size. The color change from light green to dark brown confirms the reduction process of silver ions using leaf extract. The synthesized AgNPs were characterized by UV-vis and TEM (Transmission Electron Microscope). The prepared spherical shape nanoparticles are in the size range of 20–50 nm. The synthesized AgNPs was found higher antioxidant activity than plant extract. Significance of the present study is the production of biomedical products. This method is pollution-free, faster and cost effective compared to conventional method.

Keywords: Nanoparticles, Nanoscale, *Tridax procumbens*, TEM, UV-Visible, Antioxidant, Potential.

RESEARCH ARTICLE

1. INTRODUCTION

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BIOEFFICACY OF PLANT EXTRACTS ON *FUSARIUM OXYSPORUM* F.SP.*CUBENSE* CAUSING PANAMA WILT OF BANANA

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ABSTRACT

Wilt is an important disease of banana causing significant reduction in yield. In present study, the pathogenic fungus was isolated from pseudo stem of infected plants of banana. The in vitro efficacy of different plant extracts viz. Azardirachta indica, Artemesia annua, Eucalyptus globulus, and Ocimum sanctum were tested to manage panama wilt of banana. Different concentrations 5, 10, 15 and 20% of plant extracts were used in the study. All the plant extracts showed significant reduction in the growth of pathogen. Among the different extracts 20% of Azardirachta indica was found most effective followed by Eucalyptus globulus, Artemesia annua and Ocimum sanctum.

KEY WORDS

Plant extract, panama wilt, Musa indica

INTRODUCTION

Banana (*Musa indica*) is widely grown in India with great socio-economic significance, interwoven in the heritage of the country. It is fourth important food crop in terms of gross value exceeded only by paddy, wheat and milk products. It is also a desert fruit for millions apart from a staple food owing to its rich and easily digestible carbohydrates with a calorific value of 67-137/100 g fruit. India is the largest producer of banana in the world. In India, banana contributes to 17.30 % of the total fruit production. Besides this banana plantation suffers from many serious diseases but among that *Fusarium* wilt or panama wilt disease is very serious. Effective and efficient management of crop disease is generally achieved by the use of synthetic pesticides (2). Due to increased awareness about the risks involved in use of pesticides, much attention is being focused on the alternative methods of pathogen control. The continuous use of chemical fungicides causes residual effects and develops resistant races to the chemical fungicides. So now it is necessary to pay attention for the methods which are ecologically friendly, safe and specific for pathogens. The chemical fungicides have posed a serious threat to human health and some of them already been proved to be either mutagenic, carcinogenic or teratogenic. Keeping in view the drawback of chemical management of plant diseases, the use of plant extracts in the management of plant diseases is gaining importance. So in the present investigation different plant extracts viz. *Azardirachta indica*, *Artemesia annua*, *Eucalyptus globulus*, and *Ocimum sanctum* were tested to manage panama wilt of banana. Considering the severe wilting of banana observed in and around Gaganbawada Tahsil, objectives of this research were made to evaluate locally available plant extracts to control Panama Wilt of Banana caused by *Fusarium oxysporum* sp. *cubense*.

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PHYTOCHEMICAL SCREENING AND ANTIFUNGAL ACTIVITY OF PLUMBAGO ZEYLANICA L.

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ABSTRACT

The antifungal effect of Plumbago zeylanica Linn.(Plumbaginaceae) leaf extract was evaluated on fungal plant pathogen like Microphomina phaseolina causing charcoal rot of sweet potato. The aqueous and alcoholic extracts of Plumbago zeylanica were used to determine the antifungal activity against Microphomina phaseolina. The alcoholic extract of leaves of Plumbago zeylanica shows maximum antifungal activity. The in vitro antifungal evaluation was carried out by food poisoning technique. The significant antifungal activity of active extract was compared with fungicide carbendazum. The samples of leaves were further used for the phyto chemical studies. Results of the phytochemical analysis indicated the presence of alkaloids, glycoside, reducing sugars, simple phenolics, tannins, lignin, saponins and flavonoids. The antifungal activities of the leaves were due to the presence of various secondary metabolites.

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INTRODUCTION

Nature has been the source for medicinal properties from thousands of years and a remarkable number of modern drugs have been obtained from natural sources, particularly from the plants. Plant based medicines have played an important role in primary health care needs of human as well as animals. Variety of plants exhibit antimicrobial properties, due to the presence of some active compounds like essential oils, flavonoids, terpenoids, tri-terpenoids, glycosides, alkaloids and other natural phenolic compounds. These natural energetic compounds are usually termed as secondary metabolites that are not essential for the survival of plants but act as a defensive mediator for plants. Plumbago zeylanica L. belonging to family Plumbaginaceae has been used in preparation of medicinal drugs. It is a perennial herb with terete, glabrous, striate and woody stems. The leaves are ovate, glaucous beneath, amplexicaul at the base and dilated into stipule like auricles. Flowers are in the spikes and are white in colour. Capsules are oblong, pointed and the pericarp is thin below, thick and hardened above [2]). Chemically the plant consists of Naphthaquinone derivatives-plumbagin, 3-chloroplumbagin, 3, 3-biplumbgin, elliptinone, chitranone, droserone, zeylanone, iso-zeylanone, 1, 2 (4) -tetrhydro- 3, 3' -biplmbagin and plumbazeylanone are reported from leafs [2]. Leaf paste is applied on forehead to get relief from headaches and also useful in piles, skin diseases

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EFFICACY OF SOME PLANT EXTRACTS AGAINST THE LEAF RUST OF JOWAR UNDER FIELD CONDITIONS

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ABSTRACT: *The effect of plant extracts on leaf rust, Puccinia purpurea Cooke of jowar were studied under field condition in Kharif season 2012. Field application of plant extracts gave effective control on leaf rust disease. Azadirachta indica Juss and Calotropis gigantea L. were the most effective treatments gave least percent disease index of 11.88 percent was recorded in T2 followed by T3 recorded 13.73 percent respectively. Least percent disease control of 76.31 percent was recorded in T2 followed by T3 and recorded 71.91 percent. Foliar spray with all plant extracts significantly reduced the percent disease index (PDI). Application of higher concentrations of the extracts showed better disease control. All the treatments were significantly superior to untreated control. Hexaconazole (0.05%) showed complete protection against rust disease incidence in field trails*

Keywords: *Puccinia purpurea, jowar, hexaconazole, percent disease index*

INTRODUCTION:

Leaf rust disease of jowar caused by *Puccinia purpurea* is considered the most serious disease of jowar. In most major grain-sorghum-producing regions, the disease does not appear until seed is well developed. Hence, grain yield losses are relatively slight when compared to the usual damage caused by cereal rusts (Leukel *et al.*, 1951; Tarr, 1962). However, in warm humid areas of India (Patil-Kulkarni *et al.*, 1972) and in similar areas elsewhere in the world, heavy losses in grain yield occur (Frederiksen, 1980; Miller and Cruzado, 1969). Natural products and non-phytopathogenic fungi, bacteria and yeast have proved to be potential sources of environmentally safe antimicrobial agents useful in plant protection (Eldoksch, 1984; Biles and Hill, 1988; Bar-Nun and Mayer, 1990; Abdel-Moity *et al.*, 1993; Eldoksch and Abdel-Moity, 1997; Hassanein and Eldoksch, 1997 and Hammouda *et al.*, 1999). Pesticides hazards and resistance problems as well as effects on non-target organisms have produced renewed intrest to naturally occurring pesticides and biocontrol agents. These naturally compounds are often less toxic and less persistent so, they are assumed to be environmentally more acceptable and less hazardous to human and animals.

The present investigation aimed to study the antifungal activity of some plant extracts against the leaf rust, *Puccinia purpurea* of jowar under field conditions.

MATERIALS AND METHODS:

A rust susceptible local variety of jowar was used. A field experiment was conducted during Kharif 2012 in Vahagaon, a village located at the outskirt of Karad city. The experiment was laid out in a randomized block design (RBD) with ten treatments and three replications with size 1x1m plots. The plant extracts that produced high percentage of inhibition at 3% concentration viz, *Capsicum annum* L, *Azadirachta indica* Juss, *Parthenium hysterophorus* L, *Datura stramonium* L, *Calotropis gigantea* (L.) R.Br, *Argemone mexicana* L, *Pongamia pinnata* (L) Pierre, *Nerium oleander* L etc. Extracts of plant parts such as leaf, fruit, seed, etc. were tested further to see their effect *in vivo* conditions.

The uredospore inoculum prepared in tap water was uniformly sprayed in the evening hours to all the treatment plots at 35 days after sowing. In all the treatments totally three sprays were given at 45, 60 and 75 days after sowing. Recommended package of practices were followed to raise the crop. Plant extract of test plants were prepared a fresh on the day of foliar application and used for spray immediately after preparation. The spray treatments were started after 45 days of planting followed by two subsequent sprays at 15 days interval. A standard check with Hexaconazole (0.05%) and untreated control (water spray) was also maintained.

a. Percent Disease Index (PDI)

The five plants were selected from each plot and labeled randomly. The top, middle and bottom leaves of each jowar and were taken, labeled and the index of the disease recorded by scoring all the individual five plants in each cultivar using 0-9 scale (Mayee and Datar, 1986). Further the PDI was calculated with the above scales using the formula of Wheeler (1969).

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Evaluation of antifungal activities of some plant extracts against the brown leaf rust of wheat under field conditions

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ABSTRACT:

The effect of plant extracts on brown leaf rust, *Puccinia triticina* of wheat were studied under field condition in Kharif season 2012. Field application of plant extracts gave effective control on brown rust disease. *Azadirachta indica* Juss and *Oxalis corniculata* L were the most effective treatments gave least percent disease index of 9.74 percent was recorded in T3 followed by T4 recorded 11.47 percent respectively. Least percent disease control of 75.81 percent was recorded in T3 followed by T4 and recorded 70.57 percent. Foliar spray with all plant extracts significantly reduced the percent disease index (PDI). Application of higher concentrations of the extracts showed better disease control. All the treatments were significantly superior to untreated control. Hexaconazole (0.05%) showed complete protection against rust disease incidence in field trails.

KEYWORDS: *Puccinia triticina*, wheat, brown rust disease, hexaconazole.

INTRODUCTION:

Leaf rust disease of wheat caused by *Puccinia triticina* is considered the most serious disease of wheat. This disease develops on leaves causing great losses in yield and grain quality (Abdel-Hak *et al*; 1980 and Shafik *et al*; 1992). Natural products and non-phytopathogeenic fungi, bacteria and yeast have proved to be potential sources of environmentally safe antimicrobial agents useful in plant protection (Eldoksch. 1984; Biles and Hill. 1988; Bar-Nun and Mayer. 1990; Abdel-Moity *et al*., 1993; Eldoksch and Abdel-Moity. 1997; Hassanein and Eldoksch. 1997 and Hammouda *et al*., 1999). Pesticides hazards and resistance problems as well as effects on non-target organisms have produced renewed intrest to naturally occurring pesticides and biocontrol agents. These naturally compounds are often less toxic and less persistant so, they are assumed to be environmentally more acceptable and less hazardous to human and animals.

The present investigation aimed to study the antifungal activity of some plant extracts against the brown leaf rust, *Puccinia triticina* of wheat under field conditions.

MATERIALS AND METHODS:

A rust susceptible local variety of wheat was used. A field experiment was conducted during Kharif 2012 in Vahagaon, a village located at the outskirt of Karad city. The experiment

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Dianthus chinensis, Fusarium oxysporum, Mutant Trichoderma harzianum.

ABSTRACT

Dianthus chinensis L.. is commonly known as carnation. It has great ornamental and medicinal value in the market. Wilt disease caused by *fusarium oxysporum f.sp. dianthi* is very harmful to the plant, for getting the high yield cultivars using systematic fungicides this increased the resistance in the pathogen and also disturbed the ecological balance and human health. For avoiding this, there is need of ecofriendly disease management, hence in this study UV and Chemically muted *Trichoderma harzianum* were used to manage the disease. All mutants of the *Trchoderma harzianum* shown above 78% growth inhibition against the pathogen. *Trichoderma* Mutants are good natural enemies against the *Fusarium oxysporum f.sp. dianthi* as Compared to the wild strain.

INTRODUCTION

Dianthus chinensis L. is an important ornamental plant cultivated in the gardens. It is small herbaceous belongs to the family Caryophyllaceae, *Dianthus chinensis* has been used for over 2,000 years in Chinese herbal medicin (Bown, 1995). Carnation is an economically important ornamental and medicinal plant suffering from wilt disease caused by *Fusarium oxysporum* f. sp. *dianthi* (Prill. and Delacr.) It is very serious and problematic to the plant. Due to infection heavy loss takes place in the flower yield.. Wilt disease is being controlled by using systematic fungicides. Indiscriminate use of fungicide leads to health and environmental problems and it also disturbs the beneficial micro flora of the soil. Fungicide resistance in different fungal pathogens is reported by many workers (Gangawane and Kamble, 1993; Waghmare, 2010).The present day global interest is to manage the diseases by using the biocontrol agents. *Trichoderma* is one of the most effective bio control agent against plant pathogenic fungi (Chet *et al*., 1981; Kumar and Mukherjee, 1996 and Ambuse *et al*., 2012). Eziashi *et al,* (2007) reported that use of *Trichoderma* is one of the best alternatives to existing fungicides. *Trichoderma* species are most important in the disease management because of their mycoparasitic ability which makes them suitable for use as a bio control agents against the soil borne pathogenic fungi.(Benitez *et al*., 1998). In the present study investigation has been made on the antagonistic capability of UV and chemical mutant *Trichoderma harzianum* against *Fusarium oxysporum f.sp. dianthi* causing wilt of *Dianthus chinensis* L.

MATERIAL AND METHODS

Collection, Isolation and Identification of Fusarium oxysporum f. sp. dianthi.

Samples exhibiting wilt of carnation were collected from the different localities of Kolhapur (Malkapur, Devakar panad, kalamba, Kasbabavada).These samples were collected in clean sterile polythene bags. The bags with samples were brought to the mycology and plant pathology research laboratory of Department of Botany, Shivaji University, Kolhapur. Infected material was cut into small pieces by sterilized blade, washed thoroughly withtap water, surface sterilized by dipping in a 1% sodium hypochlorite solution for 2min. then rinsed several times in sterile water and dried between sterilized filter paper. The surface sterilized pieces were placed on Czapex Dox Agar medium (CDA) supplemented with streptomycin sulphate at the rate of (50 µg ml/1) in Petri-dishesand kept at room temperature, 28 °C, for 6 days. Pure cultures were grown on CDA

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medium. The fungal isolates were identified as *F. oxysporum* f. sp. *dianthi*. The isolates were identified by following available mycological literature (Barnett andHunter, 1972; Subramanian, 1971). Pure cultures of the isolates were maintained on Czapex Dox Agar medium for further study.

Isolation of Trichoderma Harzianum

The soil samples were collected at 5 to 10 cm depth from irrigated and non irrigated fields from different localities of Kolhapur, Maharashtra. Brought it to the Mycology and Plant pathology laboratory, Shivaji University, Kolhapur. From these samples isolation of *Trichoderma* species was done by dilution plate method (Waksman, 1922). Soil solution was prepared by mixing ten grams ofsoil sample poured aseptically into a 250 ml conical flask, containing 100 ml of sterile distilled water and the contents were mixed properly by shaking for five minutes. This was inoculated with the diluted sample aseptically into a Petri plates containing the CDA medium and *Trichoderma* selective medium (TSM) of Elad and Chet, (1983). The plates were incubated at 27 ^{0}C for seven days for developments of fungal colonies. The *Trichoderma* species were identified by following the manual of Nagmani *et al.*, (2006). Pure cultures of *Trichoderma* harzianum maintained in the BOD incubator at 28 ^{0}C for further study.

Improvement of Antagonistic Potential in Trichoderma Harzianum through Physical and Chemical Mutagens

Selected *Trichoderma* species was treated with different mutagenic agents like UV rays, Ethyl methyl sulphonate, sodium azide to improve their antagonistic potential against the pathogen. Conidial suspension of seven day old culture of *Trichoderma* harzianum was prepared. The suspensions were filtered through Whatsman filter paper no. 1. The filtrates were collected, centrifuged and treated with mutagenic agents at different time intervals.

The conidia were diluted in water to a concentration of 10^5 per ml and aseptically transferred to sterile Petri plates. The spore suspension in the Petri plate (without the lid to prevent shielding) was subjected to UV light at a distance of 5 cm for various time intervals (10, 20 and 30 Minutes). For each time interval, only one plate with fresh diluted spore suspension was placed in the chamber for the required irradiation time. To prevent the photo reactivation, after UV exposure spores were kept one hour in the dark condition. These UV treated conidial suspensions was inoculated on freshly prepared CDA medium. Surviving spores developed into small mutant colonies that were picked, transferred to CDA plates and incubated at 25 °C. The obtained mutants were screened for their antimicrobial properties.

Ethyl Methyl sulphonate (EMS)) and sodium azide (SA) mutagens also used for treatment. LD50 was determined for selected species of *Trichoderma*. The mycelial spore suspension were treated with SA and EMS at 0.01, 0.1, 0.5 concentration for 5 and 10 minutes. And treated suspensions were washed with sterile distilled water. Mycelial suspension was inoculated on (CDA) medium. The inoculated petriplates were thoroughly shaken for uniform distribution of suspension. The plates were incubated at 28 ± 2 ^{0}C for 7 days in BOD incubator. After 7 days of inoculation number of different colored colonies observed on the plate as compared to the control. Without any treated plates considered as a control.

Dual culture experiment

The antagonistic potential of UV muted *Trichoderma harzianum* evaluated against pathogenic fungus by dual culture technique (Mortan and Stroube, 1955). Mutant *Trichoderma harzianum* and test fungus was inoculated at two polar regions of the plate. Three replicates were maintained for each treatment and incubated at 28 ± 2 ^{0} C for six days.CDA plates inoculated with *Fusarium f.* sp. *dianthi* alone were treated as control. After Six days radial growth of *Fusarium f.* sp. *dianthi* was measured. The growth inhibition of test fungus by *Trichoderma harzianum* was calculated by using formula given by (Vincent, 1947).

I= 100 x C-T/C,

Where I= Inhibition of growth,

C= Radial growth of pathogen in control set,

T= Radial growth of pathogen in treated set.

RESULTS AND DISCUSSION

In the result it was found that mutants shown the morphological changes in colony appearance, colony colour, sporulation rate and pigmentation. These results are in agreement with (Ikhehta and Ono, 2011). All selected *T. harzianum* variants shown the better antagonistic potential against the *Fusarium oxysporum* than their original wild type.

UV exposed *Trichoderma harzianum* yielded 20, 16, and 10 variants at 10, 20 and 30 Minutes respectively (Table.1). EMS treated *Trichoderma harzianum* yielded 16variants. SA treated *Trichoderma harzianum* yielded 12 variants. All variants of *Trichoderma harzianum* shown the good antagonistic potential.

Table 1 Induction of biocontrol potential in different *Trichoderma harzianum* exposed to UV light

Trichoderma species	UV exposure Time (min)	No. variants	Colony character	Percentage of Inhibition (%)
T. harzianum	10	20	Dark green and yellow	83.33
	20	16	Pale green and yellow	80.66
	30	10	Green, white and yellow	72.00
Control	-	-		78.33

Table 2 Induction of biocontrol potential in the *T.harzianum* through chemical mutagens at different time and concentration

Trichoderma species	EMS (%)	Exposure Time(min)	No. of variants developed	Colony character	Percentage of Inhibition (%)
T. harzianum	0.1	5	10	Green	73.66
		10	07	Green and white	72.33
		15	00	---	00
	0.5	5	08	Light green	65.66
		10	06	Light green	56.66
		15	00	---	00
	1	5	04	White and green	37.33
		10	02	pale green and white	35.66
		15	00	---	00
control					78.33

Table 3 Induction of mutation in the *T. harzianum* through chemical mutagen (SA) at different time and concentration

Trichoderma species	SA (%)	Exposure Time(min)	No. of variants developed	Colony character	Percentage of Inhibition (%)
		5	13	Yellowish Green	65.66
	0.1	10	10	Yellowish Green	58.33
		15	00	---	00
		5	09	pale green	46.66
	0.5	10	05	pale green	36.66
T. harzianum		15	00	---	00
	1	5	00	--	00
		10	00	--	00
		15	00	---	00
control					78.33

UV *Trichoderma harzianum (T.h) 6* variants showed maximum antagonistic potential than wild *Trichoderma harzianum*. EMS *Trichoderma harzianum (T.h)* 14 showed maximum antagonistic potential than wild *Trichoderma harzianum*. SA *Trichoderma harzianum* (*T.h*) 8 Variants showed more antagonistic potential than wild *Trichoderma harzianum.*

CONCLUSION

Wilt is devastating fungal disease of carnation caused by *Fusarium oxysporum f.sp.dianthi* in the present research work isolated the *Fusarium oxysporum* from the naturally infected wilt of carnation from the Kolhapur district. Isolated the *Trichoderma harzianum* from the soil samples collected from different localities of Kolhapur. Exposed the pure culture of *Trichoderma* harzianum to UV light and Different chemical mutagens and obtained mutants. In the further study screened the mutants of *Trichoderma* against the pathogen by dual culture technique. In the result it was found that all mutants of *Trichoderma harzianum* shown the significant antagonistic potential against the tested pathogen, from this it is concluded that use of *Trichoderma* mutants are the better source of biological agents against the plant pathogen.

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References

Ambuse MG, Ghatage VS, and Bhale UN, Influence of Trichoderma spp. against *Alternaria tenuissima* inciting leaf spot of *Rumex acetilosa* L. *Bioscience Discovery.* 2012; *3* (2): 259 -262.

Barnett H L, and Hunter B B,- Illustrated Genera of Imperfect Fungi. APS press, Minnesota, USA. 1972; 218

Benitez T, Delgado-Jarana J,Rincon A, Rey M, and Limon C. Bio fungicides: *Trichoderma* as a biocontrol agent against phytopathogenic fungi. *Recent Research Developmental Microbiology,* 1998; 2: 129-150

Chet I, Harman G E, and Baker R. *Trichoderma harzianum*, its hyphal interaction with *Rhizoctonia solani* and *Pythium* spp. *Microb. Ecol.,* 1981; 7: 29-38.

Eziashi E I, Omamor I B, and Odigie EE. Antagonism of *Trichoderma viride* and effects of extracted water soluble compounds from *Trichoderma* species and benlate solution on *Ceratocystis paradoxa*. African J. Biotech. 2007; 6 (4): 388-392.

Gangawane L V, and Kamble S S, Synergistic effects of fungicides on Carbendazim resistance in *Macrophomina phaseolina* causing charcoal rot of potato. *In: Proc.WZ Mech of IPS PKV, Akola* (Eds. Mayee,C.D.*et al.*), 1993; 62-63.

Ikehata H, and Ono T, The mechanisms of UV mutagenesis. J. Radiat. 2011; 52:115–125

J. M. Vincent- Distortion of fungal hyphae in the presence of certain inhibitors. *Nature,* 1947, 150: 850

Kumar R N, and Mukherjee K G, Integrated disease management future perspectives, *Advances in Botany*.APH Publishing Corporation, New Delhi. 1996; 335-347

Morton D T, and Stroube N H, Antagonistic and stimulatory effects of microorganisms upon *Sclerotium rolfsii. Phytopathology*, 1955; 45:419-420.

Nagamani A, Kunwar I K, and Manoharachary C, - Hand Book of soil fungi, I.K. International Pvt.Ltd. New Delhi. 2006.

Waghmare M B, Studies on management of some important diseases of rose. Ph.D. Thesis Shivaji University, Kolhapur, 2010

Waksman S A, A method of counting the number of fungi in the soil. *J.Bact.*1922; 7: 339-341.

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राष्ट्र निर्माण में महात्मा गांधी के विचारों का योगदान

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प्रस्तावना :

भारत देश में सांस्कृतिक, साहित्यिक, धार्मिक, सामाजिक, आर्थिक विविधता दिखाई देती है । विविधता में एकता यह भारत देश की विशेषता है । सर्व धर्म सहिष्णुता भारतीय संस्कृति की परंपरा है । कश्मीर से कन्याकुमारी तक भौगोलिक, भाषिक विविधता होने पर भी आंतरिक एकता है । राष्ट्र के नामपर सब एक हो जाते है । प्राचीन काल से देश में एकता निर्माण करने का कार्य अनेक लोगों ने किया । राष्ट्र निर्माण में महात्मा ज्योतिबा फुले, सावित्रीबाई फुले, डॉ. आंबेडकर, राजर्षि शाहू छत्रपति, महात्मा महात्मा गांधी इनका योगदान महत्त्वपूर्ण हैं । भारत जैसे सबसे बडे लोकतांत्रिक व्यवस्था में राष्ट्रीय एकता महत्त्वपूर्ण होती है । भारत के राष्ट्र निर्माण में महात्मा गांधी के विचारों का बहुत बडा योगदान है ।

महात्मा गांधीजी को महामानव कहा जाता है । अमेरिका के 'यू एस टूडे' इस नियतकालिक ने बीसवी सदि का महामानव किसे कहा जावेगा ? इस संदर्भ में राय मांगी थी । तो विश्व के दस हजार विद्वान लोगों में से आठ हजार विद्वानों ने महात्मा गांधीजी को 'महामानव' कहा । ऐसे महामानव विचारों की जरूरत वर्तमान युग में भी है ।

महात्मा गांधीजी ने स्वतंत्रता के साथ-साथ समता, न्याय, संगठन, दलितोद्धार के लिए कार्य किया है । उनके जीवन में संघर्ष की शुरूवात दक्षिण अफ्रिका के एक प्रसंग से हुई । गांधीजी रेल से सफर कर रहे थे । उस समय (काले-गोरे)वर्णभेद का भयानक कटू अनुभव उन्हें मिला । उस प्रसंग से गांधीजी ने असमानता के विरूद्ध समता के लिए संघर्ष करने का निश्चय किया ।

महात्मा गांधीजी की विचारधारा में आध्यात्मिक, धार्मिक, सामाजिक, राजनीतिक विचारों का विशेष महत्त्व है ।

आध्यात्मिक विचारधारा :

महात्मा गांधीजी के जीवन का मूलमंत्र है सत्य और अहिंसा । वैयक्तिक जीवन में सत्य और अहिंसा के पालन से मनुष्य की आध्यात्मिक उन्नति होती है । गांधीजी 'सत्य' को ईश्वर मानते थे । मानव में ईश्वर का अंश होता है ऐसा उनका विश्वास था । गांधीजी सत्य की प्राप्ति के लिए अहिंसा और आत्मानुभूति की आवश्यकता मानते थे । अहिंसा के विचार से वे भारतीय समाज को पशुवाद से बाहर निकालकर मानवतावाद के रास्तेपर लाना चाहते थे । गांधीजी के सत्य, अहिंसा, सत्याग्रह से भारत को स्वतंत्रता प्रदान की । सारे विश्व को शांति के मार्ग से क्रांति करने का नया हथियार भी दे दिया । उनके इस सत्य, अहिंसा पर विश्व शांति का इस खंडकाव्य में लिखा है -

"सत्य, अहिंसा, सेवा पथ पर, इस प्रेम का देश
मानव को हे बापू, तुमने दिया मुक्ति-संदेश ।"

धार्मिक विचार धारा :

गांधीजी के अनुसार नैतिकता का पालन ही धर्म था । उन्होंने धर्म को हृदय के क्षेत्र में लाकर जनसाधारण के लिए सुलभ बनाया । वे सर्व धर्म समानता के तत्व को माननेवाले मानवधर्म के पुजारी थे । सर्व धर्म समान है ऐसी उनकी निष्ठा थी । देश विदेश के लिए सच्चे मन से की जानेवाली प्रार्थना को वे महत्त्वपूर्ण मानते थे ।

आर्थिक विचार धारा :

गांधीजी पर कार्ल मार्क्स के आर्थिक विचारों का प्रभाव था । 'अन टू धिस लास्ट' इस रस्किन की पुस्तक से भी प्रभावित थे । बिना श्रम किए रोटी खाने का अधिकार किसी को भी नहीं है ऐसा गांधीजी मानते थे । अपने आश्रमवासियों के लिए अपरिग्रह और अस्तेय ये व्रत रखे थे । अनावश्यक धन संग्रह को वे पाप मानते थे । यह विचार कार्ल मार्क्स के 'प्राइवेट प्रॉपर्टी' इस विचार से साम्य रखता है ।

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गांधीजी ने आर्थिक विकास का कार्यक्रम भी प्रस्तुत किया था । समाज के निम्न वर्ग का भी आर्थिक विकास होना चाहिए । वैसेही शहरों के साथ-साथ गाँव का विकास भी आवश्यक है । इसलिए 'गाँव की ओर चलो' (खेड्याकडे चला) ऐसा नारा लगाया । आर्थिक समानता के लिए गांधीजी के अनुयायी या उत्तराधिकारी आ.विनोबा भावे ने भूदान आंदोलन (चळवळ) चलाया । जिनके पास जरूरत से ज्यादा भूमि है वह भूमिहीनो को बाँटने का आंदोलन चलाया ।

गांधीजी आर्थिक विकास के लिए ग्रामीण उद्योगों का प्रचार तथा गोरक्षा आदि तत्वों को महत्त्व देते थे । उनका कहना था कि मशिनों के विकास से पूँजिपतियों के हाथों में संपत्ति जाती है और बेकारी बढती है । सारे विश्व की आर्थिक व्यवस्था ऐसी हो कि एक भी व्यक्ति भुखमरा न हो (बिना खाने का) और बिना कपडे का न रहे । याने प्रत्येक व्यक्ति को अपनी गुजारिश के लिए काम मिलना चाहिए । इसलिए लघु उद्योग ग्रामीण भागों में बढने चाहिए ऐसी उनकी धारणा थी ।

राजनीतिक विचारधारा :

गांधीजी ने राजनीति को आध्यात्मिकता प्रदान की । भारत देश की आजादी में अंग्रेज शासक के खिलाफ बिना अस्त्र-शस्त्र से लडे । बिना शस्त्र उठाए आजादी की जंग जीती । आजादी के लिए 1920, 1930, 1940, 1942 में गांधीजी के नेतृत्व में जनआंदोलन खडे हुए । सर्व शक्ति से ब्रिटीश साम्राज्य का सामना किया । हडताल, उपवास, बहिष्कार, सत्याग्रह आदि द्वारा हिंसा विहीन क्रांति गांधीजी ने की । अहिंसा का नया संदेश सारे विश्व को उन्होंने दिया । बिना शस्त्रोंवाली इस क्रांति का वर्णन कवि प्रदिप ने इन शब्दों में व्यक्त किया है -

"दे दी आजादी तूने बिना खड्ग, बिना ढाल !
साबरमती के संत, तूने कर दिया कमाल !!"

इसप्रकार गांधीजी ने सत्याग्रह में शाततामय मार्ग को अपनाया । गांधीजी के मार्गदर्शन से भारत को जैसे खंडप्राय देश में धर्मनिरपेक्ष प्रजासत्ताक गणराज्य की स्थापना हुई । सभी भारतीय नागरिकों को राजकीय समता के अधिकार मिले । वह एक शांतिपूर्ण आंदोलन था । यह सब महामानव गांधीजी के कारण ही संभव हुआ ।

सामाजिक विचारधारा :

गांधीजी की विचारधारा से भारतीय समाज में समूल परिवर्तन हुआ । उनका विचार था कि समाज में लिंग, वंश, जाति वर्ण आधारित विषमता को मिटाकर समता स्थापित होनी चाहिए । भारतीय हिंदू समाज में मनुस्मृति के आधारपर स्त्री और शुद्रो के साथ हो रहे अन्याय का उन्होंने विरोध किया । गांधीजी उच्च-नीच के भेद से रहित स्त्री-पुरूष एवं सर्वधर्म समभाव से युक्त समता, बंधुता पर आधारित समाज की स्थापना करना चाहते थे । वे स्त्री को पुरूषों के बराबर का अधिकार दिलाने के पक्ष में थे ।

उच्चवर्णीय लोगों ने दलितों पर हजारो वर्षों तक अन्याय किया है । वे अस्पृश्यता को हिंदू समाज कलंक मानते थे । गांधीजी ने दलितों को 'हरिजन' कहकर संबोधित किया । छुआछुत से मानव-मानव में दूरियाँ बढी हैं । उसे मिटाने के लिए मंदिर के दरवाजे खुले किए । दलित उद्धार के लिए 'हरिजन सेवक संघ' की स्थापना की । इसप्रकार दीन-दुःखी, उपेक्षित, पीडित लोगों के लिए गांधीजी ने जीवनभर कार्य किया । कवि रामगोपाल शर्मा 'दिनेश' उनके इस कार्य के बारे में कहते है -

"हरिजन से हरिजन-सेवक से, हरिजन सेवा आरंभ हुई ।
वह हरिजन-सेवक संघ बना, नव चेतना आरंभ हुई ।"

इस प्रकार गांधीजी बिना अस्त्र ब्रिटीश शासन के खिलाफ सत्याग्रह, अहिंसा से लडे । भारतीय लोगों के मन में स्वतंत्रता की ज्योत जलाई । शोषण तथा अत्याचार के खिलाफ अधिकार का भाव जगाया । उनके अहिंसा और व्रत-उपवासों के बारे में कवि लिखते है -

"यह नर है या सत्यावतार, ले अस्त्र, अहिंसा का लडता ।
व्रत उपवासों-हडतालों से, यह शासन के पीछे पडता ।"

इस प्रकार समता पर विश्वास रखनेवाले गांधीजी ने सत्य, अहिंसा, असंग्रह दलित उद्धार का कार्य करके मानव कल्याण का संदेश सारे विश्व को दिया ।

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गांधीवाद या गांधी विचारों का हिंदी साहित्य पर प्रभाव :

सन 1920 के बाद भारतपर गांधीजी का एक छत्र प्रभाव रहा । इस कारण साहित्यपर भी गांधीजी के मानवतावादी तथा आदर्शवादी विचारों का प्रभाव रहा । गांधीजी के विचारों से प्रभावित होकर अपनी लेखनी द्वारा देश में अंग्रेजों के खिलाफ आवाज उठाने के लिए अनेक साहित्यकार प्रेरित हुए ।

हिंदी काव्य में गांधी विचारों का प्रभाव माखनलाल चतुर्वेदी, सियारामशरण गुप्त, मैथिलीशरण गुप्त, प्रसाद पंत, दिनकर आदि कवियों पर दिखाई देता है । गांधीजी का अहिंसा तथा लोकमंगल की भावना इन कवियों के काव्य में दृष्टिगोचर होती है । गांधीजी नारी को श्रेष्ठ मानते थे । नारी अस्मिता को अनेक कवियों ने वाणी दी है । गांधी विचारों से प्रभावित हिंदी के अनेक कवियोंने अस्पृश्योद्धार किया है । पंतजी का 'लोकायतन' ठाकुरप्रसाद सिंह का 'महामानव' रघुवीरशरण मित्र का 'जननायक' दिनकर के 'बापू' आदि प्रबंध काव्य तथा अन्य गीतोंद्वारा गांधी मार्ग का चित्रण प्रस्तुत हुआ है ।

गांधी विचारों का उपन्यास और कहानी पर भी प्रभाव स्पष्टरूप से दिखाई देता है । प्रेमचंद पूर्व कथा साहित्य प्रमुखत: मनोरंजन हेतु लिखा गया था, परंतु प्रेमचंद और उनके समकालीन कथाकारों पर गांधीवादी विचारधारा का प्रभाव अधिक था । प्रेमचंद के अनेक उपन्यासों पर गांधी तत्वों का प्रभाव दिखाई देता है । प्रेमचंद लिखित 'रंगभूमि' का सूरदास, 'कर्मभूमि' का डॉ. शांतिकुमार अहिंसा पर विश्वास रखनेवाले पात्र थे । उसी उपन्यास में अस्पृश्यों के मंदिर प्रवेश का चित्रण है । प्रेमचंद के प्रेमाश्रम कर्मभूमि तथा गोदान आदि उपन्यासों में किसानों की आर्थिक विपन्नता तथा धार्मिक विश्वासों में फँसे ग्रामीण निरक्षर लोगों का चित्रण है । गांधीजी के मन में भी ग्रामीण, दलित लोगों के प्रति अपार दया और प्रेम था । प्रेमचंद जैसे वृंदावनलाल वर्मा लिखित झाँसी की राणी यशपाल के झूठा-सच में हिंदू-मुस्लिम एकता का चित्र है । फणिश्वरनाथ रेणु के 'मैला आंचल' प्रसाद के तितली आदि उपन्यासों में देहाती का सजीव चित्रण है । गांधीजी ने भी गाँव के विकास के लिए विशेष प्रयत्न किये थे ।

गांधीवाद का प्रभाव कविता और कथा साहित्य के साथ-साथ नाटक विधा पर भी दिखाई देता है । गांधीजी के सत्य, अहिंसा, अस्पृश्योद्धार आदि तत्वों का प्रभाव नाटककार उदयशंकर भट्ट, विष्णु प्रभाकर, प्रसाद, लक्ष्मीनारायण मिश्र इनके लिखे नाटकों पर दिखाई देता है । अन्य विधा जैसे निबंध, जीवनी, संस्मरण भी गांधी विचारों से प्रभावित है ।

निष्कर्ष रूप में हम कह सकते है कि विश्व में अहिंसा, प्रेम, विश्वास की भावना भरनेवाले महामानव के रूप में गांधीजी सबको परिचित है । गांधीजी ने स्वातंत्र्य, समता, न्याय, संगठन, दलित उद्धार के लिए कार्य किया । असमानता के विरूद्ध समता के लिए संघर्ष किया । हडताल, उपवास, बहिष्कार, सत्याग्रह के द्वारा हिंसा विहीन क्रांति का मार्ग (सबको) विश्व को दिखाया । जीवन में सर्वधर्म समभाव को गाँधीजी ने विशेष महत्त्व दिया । दीन-दु:खी उपेक्षित, दलित, पीडित लोगों के लिए जीवनभर कार्य किया । अंग्रेज शासन के शोषण तथा अत्याचार के खिलाफ लोगों में स्वत्व तथा अधिकार का भाव जगाया । अहिंसात्मक मार्ग पर चलकर सबको साथ लेकर भारत को आजादी दिलाई । आज इक्कीसवी सदि में भी लोग अन्याय, अत्याचार के खिलाफ लढने के लिए उनके तत्वों का आधार लेते हैं । गांधीजी के तत्व राष्ट्रीय एकता में योगदान देते हैं ।

संदर्भ ग्रंथ :

1) समता के सेनानी - प्रा. चंद्रकांत पाटगांवकर
2) विश्वज्योति बापू (खंडकाव्य) - रामगोपाल शर्मा 'दिनेश'
3) सत्याग्रही समाजवाद - संपादक - सुहास पळशीकर
4) लोकमान्य ते महात्मा - डॉ. सदानंद मोरे

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21 व्या शतकातील स्त्रीजीवन

प्रा. डॉ. नामदेव कृष्णा मोळे
विभाग प्रमुख – मराठी म.ह. शिंदे महाविद्यालय, तिसंगी.

प्रास्ताविक –

एकविसावे शतक हे भारतीय समाजाच्या आर्थिक आणि भौतिक विकासाचे शतक आहे. इतिहासात यापूर्वी कधीही झाला नाही. इतक्या झपाटयाने विकास या शतकात माहिती आणि तंत्रज्ञानाच्या क्षेत्रात होत आहे. जागतिकीकरण हा शब्द गेल्या दोन अडीच दशकापासून पुढे यायला लागला आहे. जागतिकीकरण, उदारीकरण, खाजगीकरण, ग्लोबल व्हिलेज, ग्लोबल वार्मिंग यासारखे शब्दही आपल्या कानावर यायला लागले आहेत. ज्ञान–विज्ञान आणि तंत्रज्ञानाच्या क्षेत्रात नवनवीन ध्येय–धोरणे उराशी बाळगली जात आहेत. मानवी जीवनाला व्यापून टाकणाऱ्या इतर सर्वच क्षेत्रात देखील अमुलाग्र परिवर्तन घडवून आणण्याचे प्रयत्न केले जात आहेत. जागतिकीकरण, आधुनिकीकरण, वैश्विक अर्थकारण हे सर्व घटक आज मानवी जीवनावर प्रभाव टाकीत आहेत. आर्थिक, शैक्षणिक व सामाजिक बदलातून निरनिराळे प्रश्न किंवा आव्हाने निर्माण होत असतात. अशा या बदलास कारणीभूत असणारी प्रकिया म्हणून जागतिकीकरणाकडे पाहिले जाते. या जागतिकीकरणाचा परिणाम स्त्रीजीवनावरही झालेला दिसतो. शिक्षणामुळे स्त्रियांची क्षितीजे विस्तारु लागली आहेत. त्यांच्या विकासाच्या कक्षा रुंदावल्या आहेत.

सन 1882 साली महात्मा जोतिबा फुले यांनी हंटर कमिशनला एक निवेदन दिले. या निवेदनात स्त्री शिक्षणावर महात्मा फुले यांनी भर दिला होता. महात्मा फुले यांनी स्त्रियांसाठी केलेले कार्य म्हणजे स्त्री सबलीकरणाची पेटती मशाल होती. या मशालीतूनच स्त्रीमनाच्या असंख्य ज्वाला निर्माण झाल्या. स्त्रीला तिच्या अस्तित्वाची खरी जाणीव झाली. भगवान बुध्दांच्या विचारांचीच पेरणी महात्मा फुल्यांनी केल्यामुळे असंख्य स्त्रियांच्या जीवनात प्रकाशाची ललाट रेषा निर्माण झाली. अर्थात महात्मा जोतिबांनी लावलेल्या स्त्री शिक्षणाचा आणि एकूणच स्त्रीविषयक कार्याच्या रोपटयाचा महान वृक्ष फोफावलेला आपण पहात आहोत. म्हणूनच तर आज जीवनाच्या प्रत्येक क्षेत्रात स्त्री ही पुरुषाप्रमाणेच चांगल्या प्रकारे कार्यरत आहे हे सबलीकरणच महात्मा फुले यांना अपेक्षित आहे.

स्त्रीजीवन –

वेदकाळात स्त्रीचा दर्जा पुरुषांच्या बरोबरीचा होता. स्त्रीची एक उज्वल परंपरा, प्रतिमा त्या काळात होती. सर्वच बाबतीत त्यांना स्वातंत्र्य होते. समाजात स्त्री सुरक्षित होती. वेदकाळात पुरुषांच्या बरोबरीने आपले बौध्दिक सामर्थ्य प्रकट करणारी स्त्री मध्ययुगात शिक्षणापासून वंचित राहिली. सामाजिक, धार्मिक बंधनात ती जखडली गेली. 16 व्या शतकात मुस्लिम राजवटीमध्ये

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विलासी जीवनात स्त्रियांचे अवमुल्यन वाढत गेले. 19 व्या शतकात भारतीय समाजसुधारक राजाराम मोहनरॉय, महात्मा फुले, गो.ग. आगरकर, महर्षी कर्वे यांच्या अथक प्रयत्नागुळे सती बंदी कायदा, विधवा कायदा झाला. फुले दांपत्यांनी स्त्रियांच्या जीवनात अमुलाग्र बदल घडविला. स्वातंत्र्योत्तर काळात स्त्रिया निर्भय होवून घराबाहेर सार्वजनिक जीवनात वेगवेगळया क्षेत्रात चमकू लागल्या. कला, क्रिडा, साहित्य, संगीत, पत्रकारिता, विज्ञान, व्यवसाय, व्यवस्थापन, पोलीस, संशोधन इ. क्षेत्रात आपल्या बुध्दिचा व क्षेमतेचा वापर करुन भरारी घेताना दिसतात. पण या विकासाचे चित्र एका बाजूला असतानाच दुस-या बाजूला असे दिसून येते की या विकासाबरोबरच स्त्रियांचे शोषण मात्र कमी झालेले दिसत नाही.

21 व्या शतकात भारतीय समाजासमोर कौटुंबिक विचाराचा गहन प्रश्न आहे. बालविवाह, हुंडाबळी, स्त्रीभ्रुणहत्या, अर्भकाची हत्या यासारखे प्रकार आधुनिक समाजात सुध्दा घडताना दिसतात. यातूनच स्त्रियांवर होणा-या अत्याचाराचे प्रमाण वाढत आहे. कुटूंबात घडणा-या गुन्हयात प्रामुख्याने स्त्रियाच बळी पडतात. अजूनही मुलीचा जन्म ही घटना काही कुटूंबात आनंददायी मानली जात नाही. कौंटुंबिक हिंसाचाराबरोबर सामाजिक हिंसाचाराचा प्रश्न गंभीर बनत चालला आहे. अल्पवयीन मुली व स्त्रियांवर होणारे बलात्कार, मुलीची विक्री, त्यांना सक्तीने वेश्या व्यवसायात ढकलणे, पेठबिगारी, देवदासी अशा स्त्रियांचे शोषण करणा-या अनिष्ठ प्रथाही प्रचलित असलेल्या दिसून येतात.

शिक्षणामुळे स्त्रियांची क्षितीजे उंचावू लागली आहेत. त्यांच्या विकासाच्या कक्षा रुंदावल्या आहेत. आज स्त्रिया विविध क्षेत्रात काम करत असलेल्या दिसून येतात. प्रगतीच्या सर्व दिशा तिच्यासाठी मोकळया झाल्या स्त्रीने सर्व क्षेत्रात प्रगती करायला सुरुवात केली. चूल व मुल या इतीकर्तव्याशिवाय दुसरे जग आहे यात ती रमू लागली. अनेक उच्चपदे, सन्मान ती मिळवू लागली. स्वत:बदलचा तिचा आत्मविश्वास वाढू लागला. सर्वत्र तिच्या कार्याचे कौतुक होवू लागले आहे. सर्व क्षेत्रात ती नैपुण्य मिळवू लागली आहे. ती कौतुकाचा विषय बनू लागली. हे सर्व खरे असले तरी त्याचे दुरगामी परिणाम पुढच्या पिढीवर होवू लागले. कुटूंब व्यवस्थेला यामुळे हादरे बसू लागतो. कुटूंब व्यवस्था धोक्यात येवू लागली त्यामुळे घरातील कामाची विभागणी होवू लागली. स्त्री ही बाईमाणूस आहे यापेक्षा ती माणूस आहे ही जाणीव वाढीला लागली. त्यामुळे 21 व्या शतकातील स्त्री विकासाचा सुर्योदय प्रगतीचे परिवर्तन सुचवित असलेले दिसून येते.

आज कुटूंबातल्या व्यवहारामध्ये स्त्रीचे मत विचारात घेतले जावू लागले आहे. घरात एखादी नवीन वस्तू आणताना घरातील वस्तू विकतांना किंवा एखादे कार्य ठरवत असताना आज तिला विचाराले जाते. स्त्रीच्या शिक्षणामुळे व अर्थार्जनामुळे कुटूंबातील तिचा दर्जा उंचावलेला दिसतो. बापाच्या नावाबरोबर आईच्या नावाची गरज निर्माण व्हावी हे सुध्दा समाजाच्या मानसिकतेचे लक्षण दिसून येते. मुलांच्या संगोपणाची जबाबदारी आईबरोबर बापाचीही आहे. मुलाचा डबा आईने केला

तर बाप पोषाख घालणे, शाळेला पोहचवतात. म्हणजेच मुलाचे उत्तम संवर्धन व त्याची सुरक्षितता याची जबाबदारी आईबरोबर बापाचीही आहे व ती त्यांनी स्वीकारली आहे. येथेच परिवर्तन दिसते.

73 व्या घटना दुरुस्तीमुळे महिलांना स्थानिक स्वराज्य संस्थात 33 टक्के आरक्षण मिळाले. त्यामुळे स्वयं सहाय्य गटाकडून महिला ग्रामसभा व ग्रामपंचायत अशी साखळी तयार झाली. या सर्व प्रकियेतून ग्रामीण भागातील महिलांना नेतृत्व मिळू लागले. महिला बचत गटाच्या माध्यमातून सामाजिक, सांस्कृतिक, आर्थिकदृष्टया स्त्रियांच्या अस्तित्वाचे भान जागृत होवू लागले. बचत गटामुळे स्त्रियांचा आत्मविश्वास वाढला असून त्यांचा सामाजिक स्तरही उंचावला आहे. बचत गटाच्या माध्यमातून अंगणवाडयांना पोषक आहार पुरविणे, रेशन दुकान चालविणे तसेच कुपोषण विरोधी व आरोग्य संबंधीत कार्यकमात सहभागी होत आहेत. वर्तमानत्रासह टी.व्ही. व रेडिओ ही माध्यमे महिलांच्या बचत गटाच्या कामाची दखल घेत आहेत. चूल आणि मुल तसेच घर आणि रान (शेती) या चकामध्ये अडकलेली स्त्री आता व्यक्त होवू लागली आहे.

नोकरी, व्यवसायाच्या निमित्ताने स्त्रियांचे घराबाहेर पडण्याचे प्रमाण वाढत आहे. तशी स्पर्धाही वाढत आहे. कामाच्या ठिकाणी स्त्रियांना अनेक अडचणींना सामोरे जावे लागत आहे. कामाच्या ठिकाणी विविध प्रकारचा होणारा छळ, मानसिक, शारीरिक, बौध्दिक, लैंगिक असा विविध प्रकारचा असतो. हे सर्व सहन करत ती आपली जबाबदारी प्रामाणिकपणे पार पाडत आहे. या जागतिकीकरणाच्या विळख्यात खूप स्त्रियांना असे वाटते की, जगाच्या विस्तारात आपला निभाव लागेल का, पुरुषांच्या बरोबरीने आपण टिकू का ही मानसिक भिती असते. जागतिकीकरणाचा वेग सध्या वाढत आहे. नवनवीन तंत्रज्ञान, संशोधन येत आहेत, ती सामान्य मानसांच्या आवाक्यात येईपर्यंत खूपच पुढे गेलेली असतात. स्त्रियांच्यापर्यंत पोहोचायला तर खूपच वेळ लागतो. असे जरी असले तरी आज स्त्रिया शासकीय, निमशासकीय कार्यालयात नोकरी करताना दिसत आहेत. पण अजुनही समाजाची पुरुषप्रधान मानसिकता बदललेली नाही. जास्त पुरुष असलेल्या ठिकाणी महिलांना नोकरी करणे असुरक्षित वाटते. काही वेळा लज्जास्पद वर्णन, अशोभनीय वर्तन हे कार्यालय प्रमुख बॉस यांच्याकडून होत असते. नोकरी करणा-या स्त्रियांना सातत्याने घरी आणि बाहेर दोन्ही ठिकाणी काम करावे लागते. यामुळे शारीरिक कमकुवतपणा लवकर निर्माण होतो. या स्पर्धेच्या युगात वेळेला फार मोठी किंमत आहे. त्यामुळे नोकरी करणाèया स्त्रिला कार्यालयात वेळेवर हजर रहावे लागते. ही धावपळ करत असताना महिलांना आपले शारीरिक विधी, पाळीच्या काळातील स्वच्छता करण्यासाठी वेळ मिळत नाही. कार्यालयाच्या ठिकाणी स्वच्छता गृहाची गैरसोय, स्वतंत्र महिला कक्ष नसणे अशा अनेक अडचणीमुळे काही स्त्रिया आपल्या चांगल्या नोकऱ्या सोडत आहेत. आज शिक्षण व विकासामुळे स्त्रीवरील ताण रोज वाढत आहे. पूर्वी केवळ तिच्यावर घरची जबाबदारी होती. आता करीअर व घर अशा दुहेरी कात्रीत तिला स्वतःसाठी वेळ नाही अशी स्थिती आहे हे सामाजिक व आरोग्य दोन्ही पातळयावर अराजक निर्माण करणार आहे.

आज स्त्रीशिक्षण व विकासाचे जे स्थूल चित्र समोर येते ते पाहिले तर भविष्याकालीन मार्ग निश्चितच उपयोगी पडेल असे वाटते. सध्या काही मोठ्या शहरामध्ये स्त्री आणि पुरुषांचे लग्नाशिवाय एकत्र राहण्याचे प्रमाण वाढले आहे. कुटूंब नियोजन साधनांच्या वापराची जागृती खेडयापाडयातूनही पहावयास मिळते. स्त्रियामध्येही दिसून येते. नवविवाहीत दांपत्य एकाच अपत्यांचा विचार करत आहेत. भारतीय नोकरदार वर्ग हा नवश्रीमंत उच्यवर्ग होत आहे. स्त्रियांचे स्वातंत्र्य, कमावतेपण, नोकरी निमित्ताने घराबाहेर राहणे, प्रवास, मोबाईलचा वापर यातून विवाहपूर्व व विवाहबाहय संबंध वाढत आहेत. खेडयापासून ते शहरापर्यंत मुलींचे वाढते मास्क, मुलांच्या कॅपचा वाढता वापर, टर्म लॉजिंग यासारख्या गोष्टी वाढू लागल्या आहेत.

समारोप –

मानव जातीच्या विकासासाठी मुलीच्या शिक्षणाइतके परिणामकारक दुसरे साधन नाही. त्यासाठी समाजाचा स्त्रीकडे पाहण्याचा दृष्टीकोन बदलला पाहिजे. स्त्रीचे संरक्षण, रक्षण झाले पाहिजे, ग्रामीण स्त्रीची दुरवस्था थांबविली पाहिजे. मुलींना पूर्णत: शिक्षणाच्या प्रवाहात आणले पाहिजे. आजही समाजावर रुढी, परंपरांचा पगडा आहे. महागडे शिक्षण घेवून मुलगी सासरचेच धन करणार. मुलगी जास्त शिकली की लग्न ठरवितेवेळी वरसंशोधन करताना अडचणी निर्माण होतात. लग्न लवकर जुळत नाही हे गैरसमज समाजात रुढ आहेत. खरे तर सध्याच्या सामाजिक, आर्थिक विकासात स्त्रीला अवघड जबाबदाऱ्या पेलाव्या लागतात. या सर्व जबाबदाऱ्या पेलणाऱ्या स्त्रीच्या शिक्षणाकडे बघण्याचा दृष्टीकोनही नवीन असला पाहिजे. सर्व पालकांनी स्त्रीच्या किंवा मुलीच्या शिक्षणासाठी सकारात्मक असले पाहिजे. स्त्रीने शिक्षणाबरोबरच इतर क्षेत्रातही गगनभरारी घेतली आहे.

स्त्रिया या खऱ्या अर्थाने समाजाचा शिल्पकार असतात. त्यासाठी सशक्त आणि विकसीत समाजाचे स्वप्न साकार होण्यासाठी समाजातील स्त्रियांना प्रथम सक्षम केले पाहिजे. कुटूंबाचे खरे शिक्षण स्त्रियांमार्फत होत असते. त्यामुळे एखादी शिक्षित स्त्री कुटूंबाचा उदधार करते. कुटूंबातून समाजाचा व पर्यायाने राष्टाचा विकास होत असतो. स्त्रियांचे सक्षमीकरण करण्यासाठी शिक्षणासारखे दुसरे माध्यम नाही. शिक्षणामुळे स्त्रियांना ज्ञानप्राप्ती झाल्यामुळे त्या सक्षम होवून पुरुषांच्या बरोबरीने किडा, कला, राजकारण, प्रशासन, व्यवसाय इ. क्षेत्रात चांगल्या प्रकारे कार्यरत झालेल्या दिसून येतात. आजच्या युगातील स्त्री ही विचारी आहे. काळानुसार बदलताना विकासाकडे, प्रगतीकडे आणि वैभवाकडे तिची वाटचाल सुरु आहे. वेळ पडल्यास भंडाचे निशान ती हाती घेवू शकते.

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संदर्भ :.

1. डॉ. सुनिलकुमार लवटे – एकविसाव्या शतकातील शिक्षण. अक्षरदालन, मंगळवार पेठ, कोल्हापूर.
2. मिळून साऱ्याजनी – अंग 5 वा डिसेंबर 2019
3. शिक्षण संक्रमण – अंक 9 वा मार्च 2020

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SAVE ENVIRONMENT; SAVE EARTH

Date: 27th August 2020

Dear Patil R.P.,

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Effect of Nickel Substitution on Structural and Magnetic Properties of Novel Polyol route Synthesized Cobalt Ferrite

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Abstract

Nanocrystalline $Ni_xCo_{1-x}Fe_2O_4$ ($1.0 \geq x \geq 0$) ferrites were prepared by polyol route. Formation of single phase cubic spinel structure for all the compositions was confirmed from their X-ray diffraction patterns. These ferrite samples existed as crystalline nanoparticles of about 10-20 nm size as observed from Transmission Electron Microscopy technique. The magnetic studies indicated that, the ferrimagnetic behavior increases with Nickel substitution.

Keywords: polyol method; x-ray diffraction; nanostructures; magnetic materials; infrared spectroscopy

Introduction

Among various classes, nanoferrites are very common, most diverse and possess richest class in terms of physical, chemical and structural properties. Nanoferrites are being intensively studied due to their interesting physico-chemical properties as well as various promising applications, such as microelectronic circuits, dielectrics, sensors, magnets and catalysts have discussed[1-6]. The interesting physical and chemical properties of ferrospinels arise from their ability to distribute the cations among available tetrahedral (A) and octahedral (B) sites. Among various oxides, transition metal oxides with iron oxides as their main component have attracted the attention of physicists and technologists, since these are magnetic semiconductors suitable for use in microwave devices.

In a spinel structure, the distribution of cations on A and B sites depends on their nature of ions, charge distribution and site preference amongst tetrahedral and octahedral sites. $CoFe_2O_4$ possesses inverse spinel structure having wide range of applications and degree of inversion depends upon the heat treatment. It has high coercivity and moderate saturation magnetization[7]. Recently, considerable effort has been made on the surface modification of nanoparticles and the preparation of different type of metal oxides. Various methods are available for the synthesis of metal oxides, such as microwave refluxing[8], sol-gel[9], hydrothermal[10-11] co-precipitation[12], citrate-gel[13] and spray pyrolysis[14] etc. The selection of appropriate synthetic procedure often depends on the desired properties and final applications. Among these synthesis techniques, polyol method has several advantages over others for preparation of nanosized metal oxides as the process begins with a relatively homogeneous mixture and involvement low temperature conditions resulting a uniform ultrafine porous powder[15]. In our previous work[16] this method was employed to obtain improved powder characteristics, more homogeneity and narrow particle size distribution, thereby influencing structural, electrical and magnetic properties of ferrites. In this communication, we report preparation of nanosized cobalt substituted Ni ferrites by polyol method. The structural, morphological and magnetic properties investigated by X-ray diffraction, TEM and VSM are discussed in this manuscript.

Material and Methods

Experimental details

$Ni_xCo_{1-x}Fe_2O_4$ ($1.0 \geq x \geq 0$) ferrites system has been synthesized by polyol-mediated route. High purity (AR grade) Nickel Nitrate, Cobalt nitrate and Iron nitrate were used as raw materials. The stiochiometric amounts of individual metal nitrates were dissolved in doubly distilled deionized water to get a clear, transparent solution. The solution ($25cm^3$) was mixed with $25cm^3$ of ethylene glycol and refluxed at 373K for 1 h. Sodium hydroxide (molar ratio, Sodium /cation = 2.5) was dissolved in $25cm^3$ of water and

mixed with 25cm^3 ethylene glycol and this solution was added to the clear solution containing the precursor ions in water and ethylene glycol mixture. This mixture was then refluxed at 453K for 4 h to get the precipitate of the oxide. The precipitate obtained was separated by centrifugation, washed with acetone and ethyl alcohol followed by drying in an oven at 363K for 5 h. After drying, this powder was then sintered at 773 K for 4 hrs. The sintered powders were granulated and using 2 % polyvinyl alcohol as a binder were uniaxially pressed at a pressure of 8 ton/cm^2 to form pellet specimens.

Characterization technique

Thermal analysis of the unsintered $CoFe_2O_4$ ferrite sample was carried out from the curves of TG-DTA. Stability of the dry complexes was checked by scanning the thermogram in the temperature range of 10-1000 ^{0}C in static air at the flow rate of 10 ^{0}C/min. The phase formation of the sintered samples was confirmed by x-ray diffraction studies. (Philips PW-1710 X-ray diffractometer with CuKα radiation λ=1.57058Å). Particle size was measured using a transmission electron microscope (TEM) (Philips, CM200, operating voltages 20–200 kV). Magnetic study was carried out by using B-H loop traces technique. The high field hysteresis loop tracer was used to measure the saturation magnetization, corecivity and remanance magnetization of all the samples.

Results and Discussion

Thermal analysis

The temperature of decomposition, crystallization and phase transformation of the as-prepared powder was studied using TG-DTA measurement for the typical composition $CoFe_2O_4$ in the temperature range 10-1000^{0}C at a heating rate of 10^{0}C K/min. **Fig. 1** shows the TG-DTA curves, it can be seen that a one to one correlation exists between these thermoanalytical curves indicating that the thermal effects are accompanied by weight loss. There are three major steps in the decomposition process dehydration, decomposition of the unreacted glycol and decomposition metal glycolate complex to ferrite. There is one endothermic and two exothermic peaks observed for the glycolate decomposition followed by ferrite formation. First step below 125 ^{0}C is ascribed to the vaporization of absorbed water. Second step is from 175 ^{0}C to 200 ^{0}C and is associated with the residual organic matter including ethylene Glycol. The third step above 200 ^{0}C is due to weight loss of as received $CoFe_2O_4$ powder. It indicates that the unreacted metal glycolate is oxidized in this step.

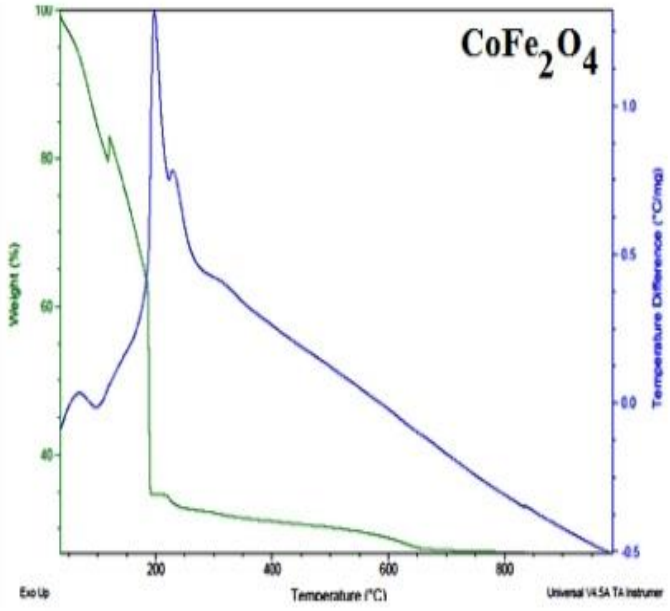


Fig.1. Typical TGA-DTA analysis of $CoFe_2O_4$

X-Ray Analysis

X-ray diffraction patterns of nickel substituted cobalt ferrite powders are shown in **Fig. 2.** The diffraction patterns and data indicate that, all the samples are cubic in nature. It is observed from **Table 1** that, lattice constant decreased from 8.389 to 8.325Å with increase in concentration of Nickel, which may be due to smaller ionic radius of Ni^{2+} (0.55Å) ions as compared to Co^{2+}(0.58Å) in tetrahedral coordination[17-18]. The lattice constant was calculated for the cubic phase using following relation:

$$a = d\,(h^2 + k^2 + l^2)^{1/2} \quad \text{------ 1}$$

Where, a = Lattice constant, (hkl) = Miller indices and d = interplanar distance

The crystallite size of all the samples were calculated from the full width at half maxima of the most intense (311) peak by using Scherrer's formula.

$$t = 0.9\lambda / \beta \cos\theta \quad \text{------ 2}$$

Where, symbols have their usual meaning.

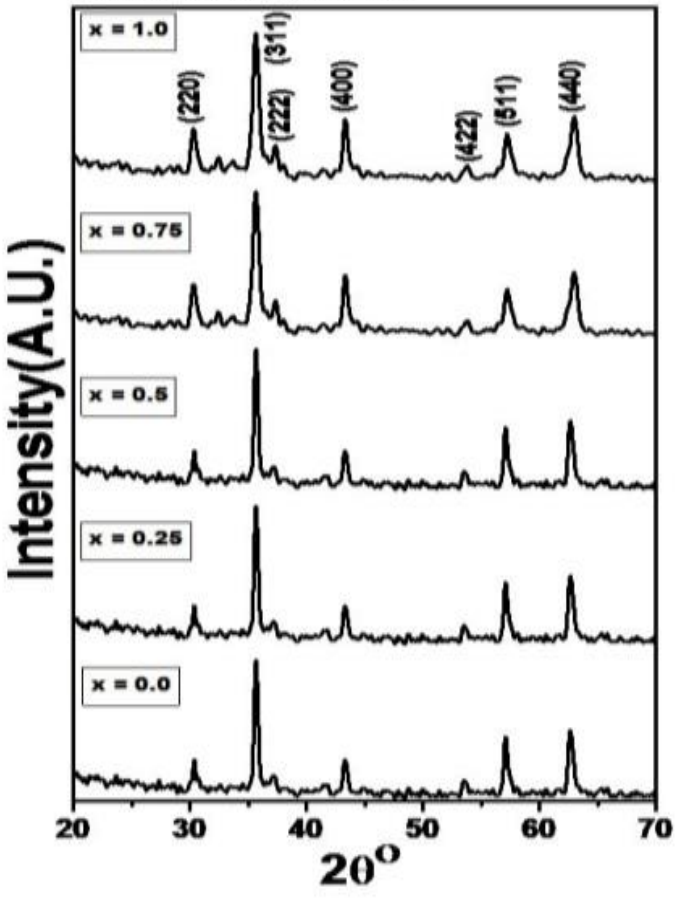


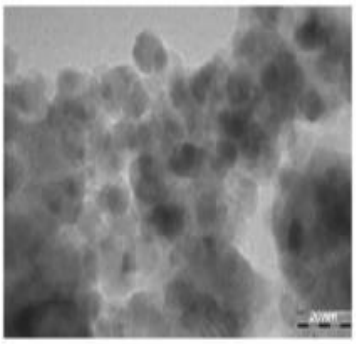
Fig.2. XRD Pattern of $Ni_xCo_{1-x}Fe_2O_4$ system

Table 1 Data on Lattice constant and crystallite size of $Ni_xCo_{1-x}Fe_2O_4$ system

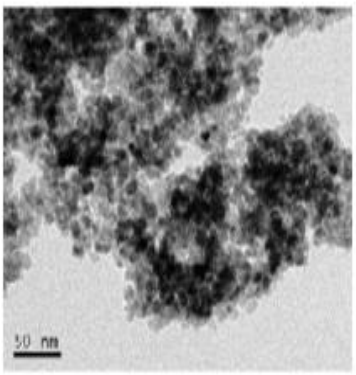
Composition (x)	Lattice constant Å	Crystallite size (nm)
0.0	8.379	22.6
0.25	8.368	21.2
0.5	8.351	18.1
0.75	8.334	16.3
1.0	8.317	14.7

Surface Morphology Study

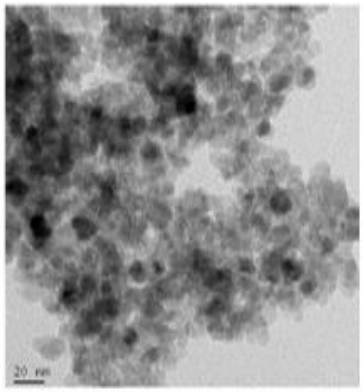
Fig. 3 shows TEM images of $Ni_xCo_{1-x}Fe_2O_4$ ($1.0 \geq x \geq 0$) ferrites system with different compositions. It is evident that microstructure is affected due to substitution of Ni^{2+} ions in $CoFe_2O_4$. The particle size goes on decreasing with increase in substitution of Ni^{2+} ions. It is evident from these micrographs that all the synthesized samples have spherical particles ranging from 10 to 20 nm. The average crystallite size of all ferrites taken from X-ray data was in the range of 14 to 23 nm (Table 1). During substitution of Ni^{2+} ions the lattice constant and crystallite size (XRD analysis) showed decreasing trend. This is in close agreement with the average crystallite size obtained from XRD (Table 1).



x = 0.0



x = 0.5



x =1.0

Fig.3. Typical TEM image of $Ni_xCo_{1-x}Fe_2O_4$ system

Magnetic properties

Magnetic property of nickel substituted cobalt ferrite powders was carried out by using vibrating sample magnetometer (VSM) and it is depicted in **Fig. 4.** All the compositions showed ferrimagnetic nature with fairly high value of coersive field (Hc) which may be due to presence of anisotropy in these compounds. The high value of Hc may also due to smaller grain size which is obtained because of polyol technique used for synthesis. The increase in value of saturation magnetization, coercive force and remanent magnetization is summarized in **table 2.** Data indicates that all the values are increases with increase in substitution of Ni^{2+} ions.

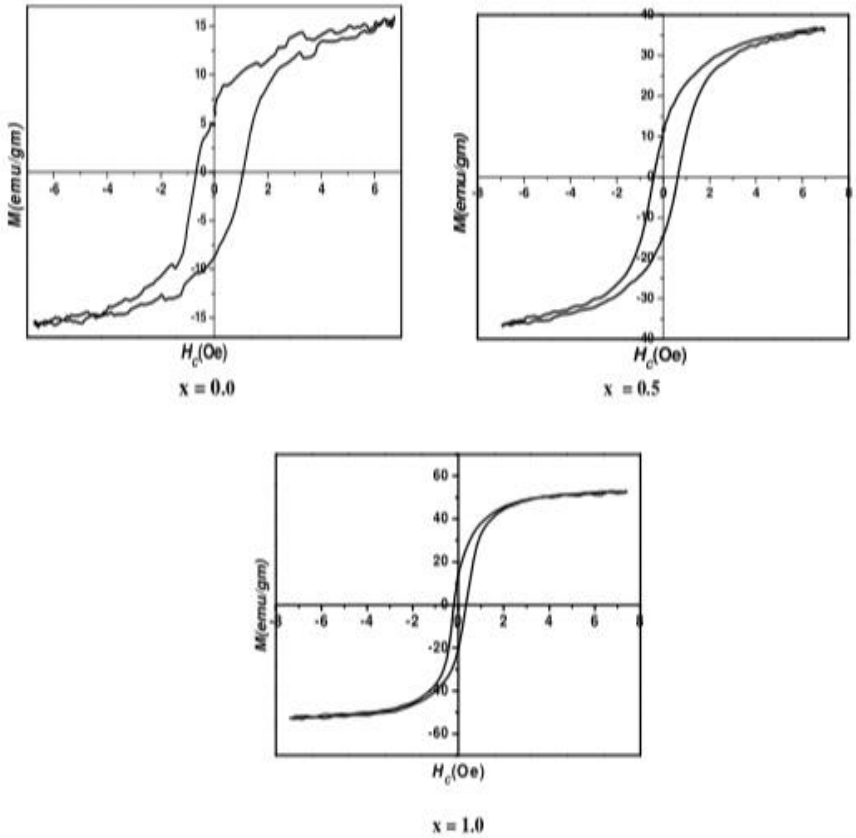


Fig.4. Typical VSM loops of $Ni_xCo_{1-x}Fe_2O_4$ system

Table 1 Data on Coercive force, Saturation magnetization and Remanent magnetization of $Ni_xCo_{1-x}Fe_2O_4$ system

Composition (x)	Coercive force (Oe)	Saturation magnetization (emu/gm)	Remanent magnetization (emu/gm)
0.0	877.94	15.98	14.62
0.25	934.22	18.55	15.44
0.5	991.67	21.78	18.10
0.75	1027.37	34.21	21.86
1.0	1077.25	43.98	24.33

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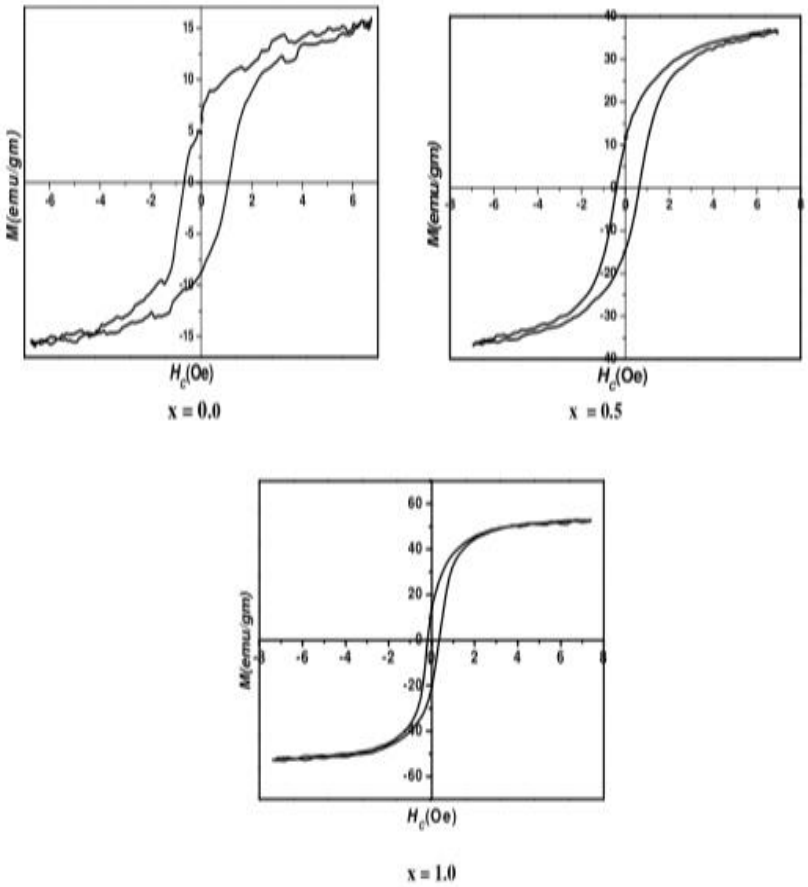

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Conclusion

$Ni_xCo_{1-x}Fe_2O_4$ ($1.0 \geq x \geq 0$) ferrites system was synthesized by polyol method. X-ray diffraction showed single-phase cubic structure with varying lattice constants from 8.379 to 8.317Å. Transmission Electron Microscopic (TEM) images showed all samples is nanoparticles. Magnetic studies showed that the compounds are ferrimagnetic and saturation magnetization indicated increasing trend with increase in nickel content.

Acknowledgement

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References

[1] Blasse G., Magnetic properties of some oxides with spinel structure *Philips Res.Rept.* (Netherlands), **20,** 528, (**1965**)

[2] Goodenough J. B., Magnetism and the Chemical Bond. Interscience Publishers. New York, London, (**1963**)

[3] Hankare P.P., Patil R.P., Jadhav A.V., Garadkar K.M., Sasikala R., Enhanced photocatalytic degradation of methyl red and thymol blue using titania–alumina–zinc ferrite nanocomposite *Applied Catalysis B: Environmental,* **107**, 333– 339, (***2011***)

[4] Patil R. P., Nikam P. N., Delekar S. D., Patil D. R., Hankare P. P., Cr-Substituted Zn–Mn Ferrospinel Thick Film Gas Sensors, *Sensor Letters*, **12**, 1– 5, (**2014**)

[6] Hankare P.P., Patil R.P., Garadkar K.M., Sasikala R., Chougule B.K., Synthesis, dielectric behavior and impedance measurement studies of Cr-substituted Zn–Mn ferrites, *Mater. Res. Bull.*, **46**, 447, (**2011**)

[7] Hankare P.P., Sankpal U.B., Patil R.P., Lokhande P.D., Sasikala R., Synthesis, characterization and catalytic activity of chromium substituted cobalt ferrospinels, *Mater. Sci. Eng.: B,* **176**, 103, (**2011**)

[8] Mane C.B., Khobare R.V., Patil R.P., Pawar R.P., Photocatalytic Degradation of Methyl Red using CeO_2, TiO_2 and CeO_2-TiO_2 Nanocomposite, *International J. of Applied Engineering Research*, **13,** 14372-14377, (**2018**)

[9] Hankare P.P., Patil R.P., Sankpal U.B., Jadhav S.D., Lokhande P.D., Jadhav K.M., Sasikala R., Investigation of structural and magnetic properties of nanocrystalline manganese substituted lithium ferrites *J. Solid State Chem.*, **182,** 3217, (**2009**)

[10] Thompson S., Shirtcliffe N.J., O'keefe E., Appleton S., Perry C.C., Structural and magnetic study on $Mg_{0.3}Zn_{0.7}Ni_xFe_{2-x}O_4$ ferrite system synthesized by sol-gel method, *J. Magn. Magn. Mater.***292**, 100, (**2005**)

[11] Wang J., Prepare highly crystalline $NiFe_2O_4$ nanoparticles with improved magnetic properties *Mater.Sci.Eng.B*, **127**, 81, (**2006**)

[12] Hankare P.P., Jadhav S.D., U.B. Sankpal, S.S. Chavan, K.J. Waghmare, B.K. Chougule, Synthesis, characterization and effect of sintering temperature on magnetic properties of MgNi ferrite prepared by co-precipitation method, *J. Alloys Compd.* **475**, 926,(**2009**)

[13] Hankare P.P., Sankpal U.B., Patil R.P., Mulla I.S., Lokhande P.D., Gajbhiye N. S., Synthesis and characterization of $CoCr_xFe_{2-x}O_4$ nanoparticles, *J. All. Comp.* **485**,798, (**2009**)

[14] Zhang S. C., Messing G. L., Borden M. Synthesis of Solid, Spherical Zirconia Particles by Spray Pyrolysis, *J .Am.Ceram.Soc.***73**, 61, (**1990**)

[15] Patil R. P., Nikam P. N., Delekar S. D., Patil N. M., Patil D. R., Hankare P.P., Room Temperature H_2S Gas Sensing Application of Polyol Route Synthesized Nanosized Nickel Ferrite, *Sensor Letters,* **13,** 1–4, (**2015**)

[16] Patil R. P., Nikam P. N., Patil S. B., Talap P. D., Patil D. R., Hankare P. P., Structural, Magnetic and Gas Sensing Application of Novel Polyol Route Synthesized Cobalt Ferrite, *Sensor Letters,* **13,** 1–6, (**2015**)

[17] Shannon R. D. Revised effective ionic radii and systematic studies of interatomic distances in halides and chalcogenides, *Acta Crystallographica*, **A32**, 7 5 1 – 767, (**1976**)

[18] Shannon R. D., Prewitt, C. T. Effective ionic radii in oxides and fluorides. *Acta Crystallographica,* **B25**, 925-946, (**1969**)

Magnetically Separable Sustainable Nanostructured Catalysts Pd/ $Mg_{(1-x)}Mn_xCo_2O_4$ used in Heck coupling reaction

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Abstract

Mixed metal oxides have attracted significant attention as catalysts for various organic reactions. In this study, we have synthesis Pd/$Mg_{1-x}Mn_xCo_2O_4$ catalyst for organic transformation. While Mg substituted magnesium cobaltite prepared by sol-gel auto combustion technique. This synthesized material is characterized by different spectroscopic techniques such as XRD, SEM, EDAX and VSM analysis. The XRD studies show the formation of cubic spinel phase with average crystallite size of 33 nm. SEM shows spherical interlinked fibrous morphology. The purity of the material analyzed by EDAX analysis. A room temperature magnetization result shows a ferromagnetic behavior decreases with increase in Mg content. With Palladium is supported on these characterized materials and catalytic performance were studied over Heck coupling reaction it is found that 10% Pd supported $Mg_{0.5}Mn_{0.5}Co_2O_4$ shows ameliorate result.

Key words: - Sol-gel synthesis, XRD, SEM, EDAX.

1. Introduction

During the last decades, there has been an increasing attention inmixed metal oxides because of their remarkable dielectric, magnetic and optical properties, owing to both the broad applications in various technological areas. Number ofdifferent methods have been discovered to prepare mixed metal oxides such as, citrate precursor [1], forced hydrolysis [2],spray pyrolysis [3], co-precipitation[4], hydrothermal [5],ceramic method [6] and sol–gel[7].

The vinylation and arylation of olefin with aryl or vinyl halides was developed independently by Mizorokiand Heck[8-9] about 50 years ago and universally known as Heck

reaction. Palladium catalyzed Heck reaction between aryl halide and alkenes is a dignified reaction in modern organic synthetic chemistry [10-12]. The reaction is generally catalyzed by either Pd(II) complexes or Pd(0) [13-14]. In order to entrap the problems, like air sensitivity and catalyst recovery associated with reactions under homogeneous conditions, heterogeneous catalytic systems were developed. In recent years, Heck reaction has been catalyzed by palladium supported on mesoporous Carbon [15],grapheme oxide[16], zeolites[17], palladium/Nb-MCM-41[18],charcoal[19], polyionic resins[20], polymers[21].

In present work, we have prepared Pd /$Mg_{1-x}Mn_xCo_2O_4$ by solution reduction method, while $Mg_{1-x}Mn_xCo_2O_4$ were prepared by using simpleSol-gel auto combustion method and used as a support for preparation of palladium heterogeneous catalyst. This Pd/$Mg_{1-x}Mn_xCo_2O_4$were studied for heck coupling reaction.

2. Experimental details

2.1. Chemicals

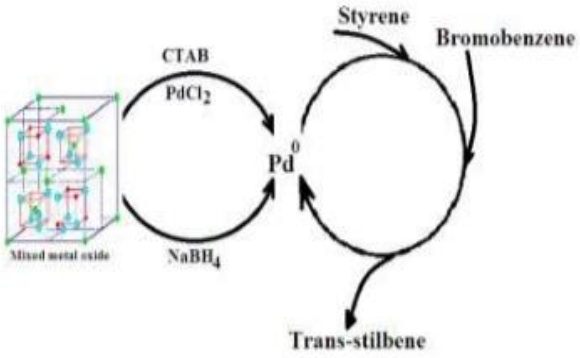
The support $Mg_{1-x}Mn_xCo_2O_4$(x = 0.0, 0.25, 0.50,0.75, 1.0) were synthesized by simple sol–gel auto combustion method. The A. R. Grade cobalt nitrate [$Co(No_3)_36H_2O$], manganese nitrate [$Mn(No_3)_24H_2O$], magnesium nitrate [$Mg(No_3)_26H_2O$],citric acid [$C_6H_8O_72H_2O$] and ammonia solution[NH_4OH] were used as precursor materials and experimental detail were reported in our previous paper[22].While Pd/$Mg_{1-x}Mn_xCo_2O_4$were prepared by solution reduction method. The A.R. grade $PdCl_2$, $NaBH_4$, CTAB and prepared $Mg_{1-x}Mn_xCo_2O_4$were used as precursor for catalyst.

2.2. Preparation of catalyst

The catalyst was prepared as, Sodium borohydride,$Mg_{1-x}Mn_xCo_2O_4$ and 50 ml distilled water was taken in a beaker and stirred for 10 min. In another beaker prepares CTAB solution. These two Solutions were mixed and calculated quantity of $PdCl_2$ solution were added drop wise under constant stirring. The resulting gel was stirred for next 1 hr. for homogenization and solid material were separated by centrifugation technique and solid particles were washed several times with water & acetone till the filtrate was neutral to litmus and dried.

2.3. Reaction procedure

The Heck reaction of styrene with bromobenzene was carried out using these catalysts. A typical reaction was carried out in the air, Styrene 0.68 mL(6 mmol),Bromobenzene 0.42 mL (4 mmol), K_2CO_3 1.646g (12 mmol), Pd/$Mg_{1-x}Mn_xCo_2O_4$ 5wt% (0.074g) with respect to reactants and solvent 5 mL was taken in a round bottom flask connected to water condenser and heated in an oil bath at 100 °C with constant stirring. The reaction was mentored regularly by TLC. After 9 hr, the reaction was completed with 5 mL of water and the catalyst was filtered. Next 50 mL of water was added to the filtrate and the product was extracted with ether. The final product was purified by column chromatography using silica gel (60-120 mesh) with petroleum ether as eluent.



The influence of changing the composition of $Mg_{1-x}Mn_xCo_2O_4$ which was loaded with 2% of Pd has been studied under standardized conditions and the results are given in Table 2.The catalysts with higher yield are remarkably active and selective for the product formation. The higher yield catalyst, i.e. $2\%Pd/Mg_{0.5}Mn_{0.5}Co_2O_4$ was studied to find its effect on Heck cross-coupling reaction at different temperature and results are tabulated in table 3.

Characterization

Trans-stilbenem.p. 124°C; IR (KBr): 2926, 1597, 1457, 962, 762, 693, 524; 1H NMR (CDCl3): δ 7.28 (t, 2H), δ 7.39 (t, 4H), δ 7.55 (d, 2H), δ 7.15 (s, 2H).

3. Result and Discussion

3.2. XRD studies

The X-ray diffraction pattern of prepared material of the system $Mg_{(1-x)}Mn_xCo_2O_4$(x = 0.0, 0.25, 0.50, 0.75, 1.0) carried out byPhilips PW-1710 X-ray diffractometer with CuKa radiation and sintered at 600° for 5 hr are shown in **Fig.1.**The XRD pattern shows the characteristic peaks at 31.3°, 36.9°, 44.8°, 55.7°, 59.4° and 65.3° according to JCPDS Card No. 23-1237, which can be indexed to (220), (311), (400), (422), (511) and (440) planes of the cubic spinel with Fd3m space group. The sharp peaks observed in the XRD pattern demonstrate a crystalline phase of the samples. Lattice constants, Crystallite size, X–ray density and physical density are shown in **table 1.**

3.2 SEM studies

The SEM images of the $Mg_{(1-x)}Mn_xCo_2O_4$ ($0 < X < 1$)samples are shown in **Fig.2**(SEM Model JEOL-JSM 6360).Aggregate spherical particle morphology was observed for x=0.0, 0.5 and 1. All the SEM images have similar aggregate shape but their sizes are markedly different. The $MgCo_2O_4$ has smaller particle size as compared to the $MnCo_2O_4$. This is due to the differences in ionic radii of Mg^{2+}(0.65Å) and Mn^{2+} (0.80Å).

3.3 EDAX studies

EDAX analysis was performed to investigate the chemical composition of the synthesized $Mg_{(1-x)}Mn_xCo_2O_4$ (where x = 0.0, 0.5 and 1.0) are shown in Fig.3. According to EDAX analysis Mg, Mn, Co and O were the major constituents of the samples an no any other peak is observed indicates pure of the desired material is high.

4. Conclusion

The manganese substituted magnesium cobaltites are prepared by simple sol-gel method with high purity and desired shape. The synthesized material with 33 nm in size. Palladium is supported on the synthesized material by solution reduction method. The 2% palladium supported on $Mg_{(1-x)}Mn_xCo_2O_4$are used as a catalyst for Heck coupling reaction of bromobenzene and styrene. It is observed the $Mg_{(1-x)}Mn_xCo_2O_4$is a better support for the palladium for Ecological heterogeneous catalyst. The 2% $Pd/Mg_{0.5}Mn_{0.5}Co_2O_4$shows better results as reported earlier.

References

[1]Pragnya P. Mishra, M. Manivel Raja, Rabi N. Panda. Enhancement of magnetic moment in Co substituted Nanocrystalline ε-$Co_xFe_{3-x}N$ ($0.2 \leq x \leq 0.4$) synthesized by modified Citrate precursor route. Materials Research Bulletin. Vol. 75, March 2016, P. 127-133.

[2]Bong Kyun Kang, Guh-Hwan Lim, Byungkwon Lim, Dae Ho Yoon. Morphology controllable synthesis and characterization of gallium compound hierarchical structures via forced -hydrolysis method. Journal of Alloys and Compounds. Vol. 6755, August 2016, P. 57-63.

[3]Luca GiacomoBettini, Maria VittoriaDozzi, Flavio Della Foglia, Gian Luca Chiarello, Paolo Milani. Mixed-phase nanocrystalline TiO2 photocatalysts produced by lame spray pyrolysis.Applied Catalysis B: Environmental.Vol. 178, November 2015, P. 226-232.

[4] Yeow Hong Yap, Mitchell S. W. Lim, Yee Lee, KarChiew Lai, T. Joyce Tiong. Effects of sonication on co-precipation synthesis and activity of copper manganese oxide catalyst to remove methane and sulphurdioxide gases ,UltrasonicsSonochemistry. Vol. 40, Part A, January 2018, P. 57-67

[5]ZhenpingQu, Rui Fan, Zhong Wang, Hui Wang, Lei Miao. Selective catalytic oxidation of ammonia to nitrogen over MnO_2 prepared by urea-assisted hydrothermal method.Applied Surface Science.Vol. 3511, October 2015,P. 573-579

[6]JannePatakangas, Yifu Jing, Muhammad Imran Asghar, Peter D. Lund. Investigation of LiNiCuZn-oxide electrodes prepared by different methods: Synthesis, characterization and properties for ceramic carbonate composite fuel cells. International Journal of Hydrogen Energy.Vol. 41, Issue 1818, May 2016, P. 7609-7613

[7]P.P.Hankare, R.P.Patil, U.B.Sankpal, S.D.Jadhav, P.D.Lokhande, K.M.Jadhav, R.Sasikala.Investigationofstructuralandmagneticpropertiesofnanocrystalline manganesesubstitutedlithiumferrites. Journal of Solid State Chemistry. Vol.182, September 2009, P. 3217–3221

[8]Richard F. Heck, Palladium-catalyzed reactions of organic halides with olefins.Accounts of Chemical Research. 1979, P. 146-151.

[9]Mizoroki Tsutomu, Mori Kunio, Ozaki AtsumuArylation of Olefin with Aryl Iodide Catalyzed by Palladium. Bulletin of the Chemical Society of Japan. 1971, Vol.44, Issue.2P. 581.

[10]P.P. Hankare, A.V. Mali, S.H. Burungale, S.D. Delekar and K.M. Garadkar.Synthesis, characterization and application of eco-friendly and recyclableheterogeneous palladium catalyst. Journal of Chemical and Pharmaceutical Research, Vol.6, Issue 2, 2014, P. 668-672

[11]NajmehNowrouzi, DariushTarokh, SomayehMotevalli. Amine-based ionic liquids (R3N+PPh2) as a reusable reaction medium and Pd(II) ligand in Heck reactions of aryl halides with styrene and n-butyl acrylate. Journal of Molecular Catalysis A: Chemical.Vol. 385, April 2014, P. 13-17.

[12]Suresh Iyer, Chinnasamy Ramesh, A. Ramani. Ni(0) catalyzed reactions of aryl and vinyl halides with alkenes and alkynesTetrahedron Letters.Vol. 38, Issue 498, December 1997, P. 8533-8536.

[13] Jacques Muzart. Pd0- and PdII-catalyzed oxaheterocyclization of substrates having both an allylic leaving group and a hydroxylated tether.Journal of Molecular Catalysis A: Chemical.Vol. 319, Issues 1–217, March 2010, P. 1-29.

[14]Suresh Thogiti, SaiPrathimaParvathaneni, SrinivasKeesara.Polymer anchored 3-benzoyl-1-(1-benzylpiperidin-4-yl)-2-thiopseudourea-Pd(II) complex: An efficient catalyst for the copper and solvent free Sonogashira cross-coupling reaction. Journal of Organometallic Chemistry.Vol. 8221, November 2016,P. 165-172.

[15]Lin Zhong, AnandChokkalingam, Wang S. Cha, Kripal S. Lakhi, AjayanVinu. Pd nanoparticles embedded in mesoporous carbon: A highly efficient catalyst for Suzuki-Miyaura reaction. Catalysis Today.Vol. 2431, April 2015,P. 195-198.

[16]Quanlu Yang, ZhengjunQuan, Shang Wu, Baoxin Du, Xicun Wang. Recyclable palladium catalyst on grapheme oxide for the C–C/C–N cross-coupling reactions of heteroaromaticsulfonates. Tetrahedron.Vol. 71, Issue 369, September 2015,P. 6124-6134.

[17]Manishaben Jaiswal, "COMPUTER VIRUSES: PRINCIPLES OF EXERTION, OCCURRENCE AND AWARENESS ", International Journal of Creative Research Thoughts (IJCRT), ISSN:2320-2882, Volume.5, Issue 4, pp.648-651, December 2017,

http://doi.one/10.1729/Journal.23273 Available at http://www.ijcrt.org/viewfull.php?&p_id=IJCRT1133396

[18]Manishaben Jaiswal "Big Data concept and imposts in business" International Journal of Advanced and Innovative Research (IJAIR) ISSN: 2278-7844, volume-7, Issue- 4, April 2018 available at: http://ijairjournal.in/Ijair_T18.pdf

[19]Manishaben Jaiswal " SOFTWARE QUALITY TESTING " International Journal of Informative & Futuristic Research (IJIFR) , ISSN: 2347-1697 , Volume 6, issue -2 , pp. 114-119 ,October-2018 Available at: http://ijifr.com/pdfsave/23-12-2019214IJIFR-V6-E2-23%20%20OCTOBER%202018%20a2%20files%20mergeda.pdf

[20]ArjunKumbhar, SantoshKamble, Anand Mane, RatneshJha, RajashriSalunkhe .Modified zeolite immobilized palladium for ligand-free Suzuki–Miyaura cross-coupling reaction**.** Journal of Organometallic Chemistry.Vol. 73815, August 2013,P. 29-34.

[21]MingzhongCai, QiuhuaXu, Jianwen Jiang. The first MCM-41- supported thioether palladium (0) complex: A highly active and stereoselective catalyst for Heck arylation of olefins with aryl halides. Journal of Molecular Catalysis A: ChemicalVol. 260, Issues 1–215, December 2006, P. 190-196.

[22]CybilleRossy, Jerome Majimel, Mona TreguerDelapierre, Eric Fouquet, Francois-Xavier Felpin.Palladium and copper-supported on charcoal: A heterogeneous multi-task catalyst for sequential Sonogashira–Click and Click–Heck reactions. Journal of Organometallic Chemistry.Vol. 7551, April 2014, P. 78-85.

[23]Mingming Zhang, Manman Jiang, Changhai Liang. Palladium supported on an ion exchange resin for the Suzuki-Miyaura reaction. Chinese Journal of Catalysis.Vol. 34, Issue 12,December 2013, P. 2161-2166.

[24]Xiang Liu, Xiaohua Zhao, Ming Lu. Nonel polymer supported iminopyridyl phosphine palladium (II)complexes: An efficient catalyst for Suzuki-Miyaura and Heck cross-coupling reaction. Journal of Organometallic Chemistry.Vol. 7681, October 2014, P. 23-27.

[25]A.V. Mali, T.M. Wandre, K.R. Sanadi, A.S. Tapase, I.S. Mulla, P.P. Hankare. Synthesis, characterization and electrical properties of novel Mn substituted $MgAl_2O_4$ synthesized by sol–gel method. Journal of Materials Science: Materials in Electronics. Vol. 27, Issue 1, 2016,P. 613–619.

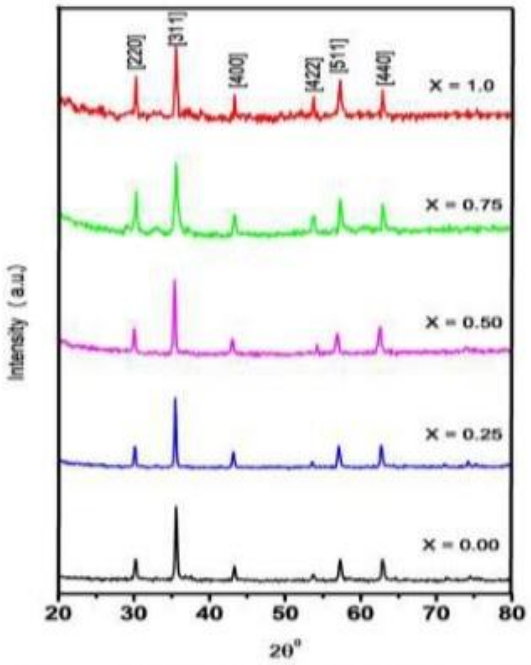
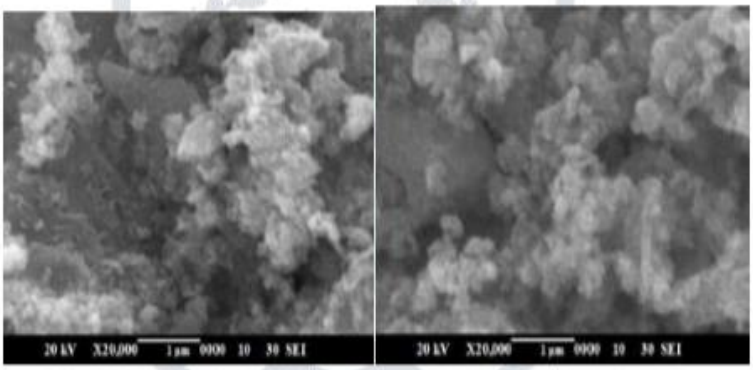
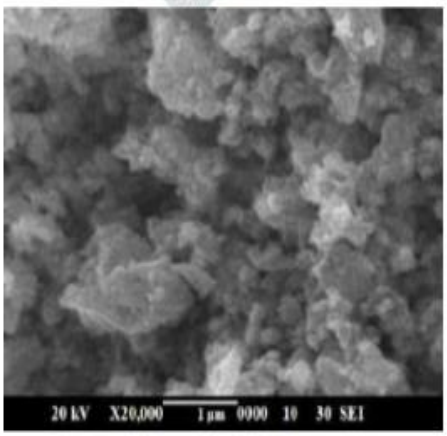


Fig. 1. XRD Patterns of $Mg_{1-x}Mn_xCo_2O_4$ ($0 \leq X \leq 1$).

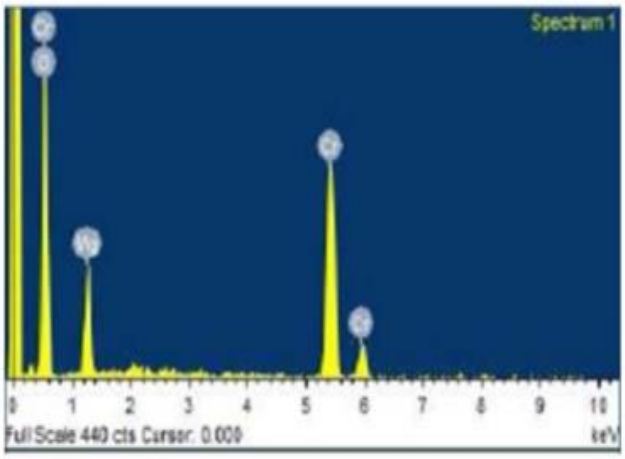


(a) (b)

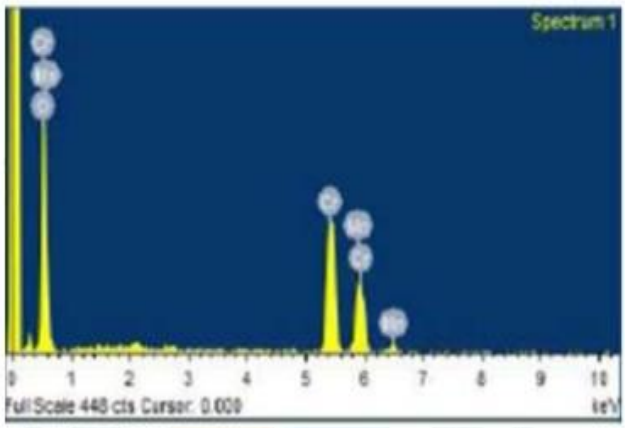


(c)

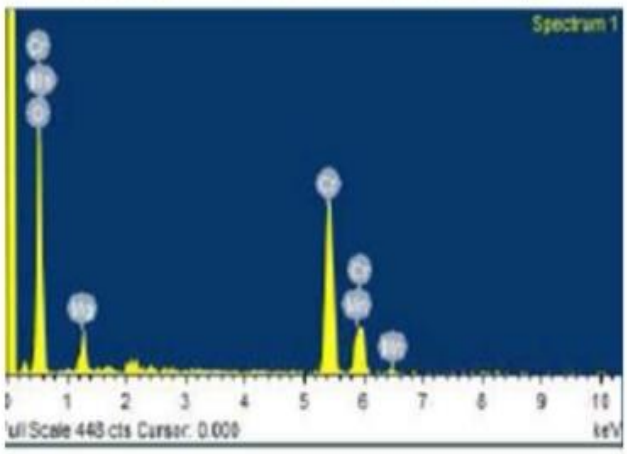
Fig. 2. Scanning Electron Micrographs of $Mg_{1-x}Mn_xCo_2O_4$,a) x =0.0, b) x= 0.5, c) x = 1.0



(a)



(b)



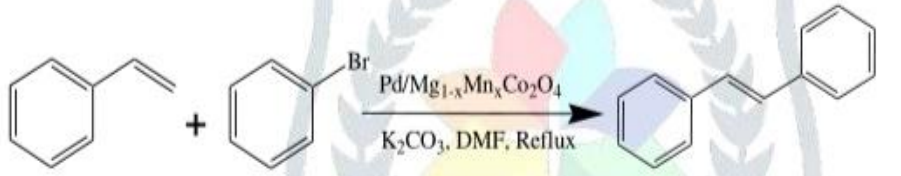
(c)

Fig. 3. Energy Dispersive Spectra of Mg_{1-x} $Mn_xCo_2O_4$,a) x =0.0, b) x= 0.5, c) x = 1.0

Table 1.Lattice constants, Crystallite size and X–ray density for $Mg_{1-x}Mn_x Co_2O_4 (0 \leq X \leq 1)$.

Sr.No.	Compound	Lattice Constants (Å)	Crystallite Size (nm)	X – ray density (d_x) g/cm^3
1	x = 0.0	8.197	34.41	3.72
2	x = 0.25	8.214	34.46	3.87
3	x = 0.5	8.221	34.62	3.89
4	x = 0.75	8.227	34.93	4.12
5	x = 1.0	8.238	35.14	4.27

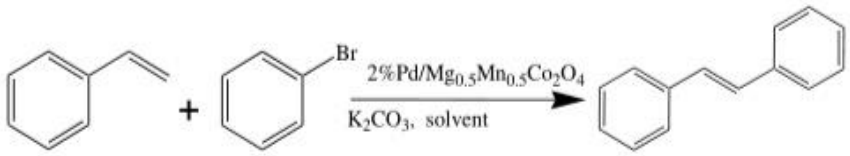
Table 2. Effect of catalyst on Heck coupling reaction



Styrene Bromobenzene trans-stilbene

Sr. No.	Catalyst	Conversion (%)
1	$MgCo_2O_4$	54
2	$Mg_{0.75}Mn_{0.25} Co_2O_4$	61
3	$Mg_{0.5} Mn_{0.5}Co_2O_4$	68
4	$Mg_{0.25} Mn_{0.75}Co_2O_4$	65
5	$MnCo_2O_4$	65

Table 3.Effect of temperature on Heck coupling reaction



Styrene Bromobenzene trans-stilbene

Sr. No.	Temperature	Yield (%)
1	60	35
2	70	39
3	80	43
4	90	57
5	100	68
6	110	69