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Criteria 3- Research, Innovations and Extension

3.4- Extension Activities

3.4.1 Extension activities are carried out in the neighbourhood community, sensitizing students to social issues, for their holistic development, and impact thereof during the last five years. (QIM)

LIST OF RESEARCH PAPERS PUBLISHED

ACADEMIC YEAR 2018-19

Sr. No.	Title of the Paper	Name of the Author	Subject	Name of the Journal	ISSN No.
1.	Synthesis, Characterization and Theoretical Study of 3-(4-bromophenyl) -5-(2,4-dichlorophenyl)-1-phenyl-4,5-dihydro-1H-pyrazole	Bapu Sonu Jagdale	Chemistry	Journal of Applicable Chemistry	2278-1862
2.	Nanocrystalline-modified nickel ferrite films: an effective sensor for industrial and environmental gas pollutant detection	Prof.Dr.K.H.Kapadnis	Chemistry	Journal of Nanostructure in Chemistry (springer publication)	2193- 8865
3.	Transition metal decorated Ferrosferric oxide (Fe ₃ O ₄): An expeditious catalyst for photodegradation of Carbol Fuchsin in environmental remediation	Prof.Dr.K.H.Kapadnis	Chemistry	Journal of Environmental Chemical Engineering(Elsevier publication)	2213-3437
4.	Modified Sn-doped LaCrO ₃ nanostructures: focus on their characterization and applications as Ethanol sensor at a lower temperature	Prof.Dr.K.H.Kapadnis	Chemistry	Journal of Nanostructure in Chemistry (springer publication)	2193- 8865
5.	Thermodynamic Interactions of binary liquid mixture of Anisole, Phenetole and Benzyl ether with 2- Pentanol at temperatures T= 298.15K and 308.15K	Prof.Dr.K.H.Kapadnis	Chemistry	Journal of Gujrath Research socity	0374-8588

6.	Teachers Role in Effective Teaching in Chemistry at Higher Education.	Thansing Bhavsing Pawar	chemistry	An International multidisciplinary Quarterly Research Journal Ajanta.	2277-5130
7.	Aqua-mediated rapid and benign synthesis of 1,2,6,7-tetrahydro8H-indeno[5,4-b]furan-8-one-appended novel 2-arylidene indanones of pharmacological interest at ambient temperature	Thansing Bhavsing Pawar	chemistry	Journal of the Chinese Chemical Society	2192-6549
8.	Microwave-assisted Eco-friendly synthesis of 1,5-Benzothiazepine Derivatives as potent antifungal agents via green approach, (2019)	Dr. Chobe Santosh S.	Chemistry	International Journal of Research and Analytical Review	2348-1269
9.	Structural, Vibrational and Chemical reactivity studies of (2-(4-chlorophenyl)-5-(4-methylphenyl)-1,3,4-oxadiazole	Mr.S.L.Dhonnar	Chemistry	International Journal of Reserch and analytical reviews	2348-1269
10.	Review on synthesis and biological activity of chalcone	Mr.S.L.Dhonnar	Chemistry	International Journal of Reserch and analytical reviews	2348-1269
11.	Antimicrobial Activity Of Mixed Schiff Base Ligand Complexes Of Ni(II), Cu(II) And Zn(II),	Mrs.S.P.Jadhav	Chemistry	Journal of advances and scholarship researches in allied education	2230-7540
12.	Review of Schiff Base ligands	Mrs.S.P.Jadhav	Chemistry	Journal of advances and scholarship researches in allied education	2230-7540

13.	Common Names of Coconut (Cocos nucifera L. Fam. Arecaceae; Some Indications on Its Nativity	Dr. S B Shisode.	Botany.	Think India Journal	0971-1260
14.	Medicinal plants of western parts from Nashik district (Maharashtra)	Dr.N B.Pawar	Botany.	International Journal of Research and Analytical Reviews (IJRAR)	2348-1269
15.	Study of Fluid using Matrix Analysis	D. R. Patil, A. P. Bhadane and M. S. Punia	Mathematics	International Journal of Scientific Research in Science and Technology	2395 – 602X
16.	A review on Impact of Crude oil and Natural Gases on Indian Economy	D. R. Patil and A. P. Bhadane And M. S. Punia	Mathematics	“Research Journey” International E – Research Journal	2348 – 7143
17.	New conformable fractional Elzaki transformation: Theory and applications	S. D. Manjarekar,A. P. Bhadane	Mathematics	Malaya Journal of Matematik	2321 – 5666
18.	On two dimensional new integral transformation and its applications	S. D. Manjarekar,A. P. Bhadane	Mathematics	Malaya Journal of Matematik	2321 – 5666
19.	New Generalized fractional Elzaki – Tarig and other fractional integral transforms with its applications to fractional differential equations	S. D. Manjarekar,A. P. Bhadane	Mathematics	International Journal of Mathematical Sciences	0972 – 754X

20.	Biochemical alterations due to heavy metals in different tissues of three species of freshwater bivalves at Chankapur reservoirs of Nasik district. (M.S), Vol 33 (1): 137-142. 2019	Resham Bhalla	Zoology	Journal of Environment and Biological Sciences	print ISSN 0973-6913 0976-3384 (online)
21.	Evaluation of effect of methomyl pesticide on glycogen content in different tissues of the freshwater bivalve, <i>Lamellidens marginalis</i> (Lamarck) from Nashik district (M.S Vol. VIII (1) Part 1, 120-126, 2019.	Resham Bhalla	Zoology	Ajanta- An International multidisciplinary Research Journal	ISSN 2277-5730
22.	Methomyl and lambda cyhalothrin induced alterations in the protein content and recovery due to L-ascorbic acid in different tissues of the freshwater bivalve, <i>Lamellidens marginalis</i> (Lamarck). Vol. 6 (1): 653-662.	Resham Bhalla	Zoology	International Journal of Global Science Research.	ISSN 2348-8344
23.	Effect of Blended Learning in Higher Education On Teaching Learning Process	Sunil D. Patil, Sangita Narawade	Zoology	An International multidisciplinary Quaternary research Journal Ajanta	ISSN 2277-5730
24.	Comparative haematological observations of <i>Gallus gallus domesticus</i> infected and uninfected by cestode parasite	Ziyaurrehman Z.H, Sunil D Patil, Ankita V. bhamare	Zoology	International Journal of Research and Analytical Reviews (IJRAR)	ISSN code:2348-1269
25.	Review on: Perovskite recent progress and synthesis, characteristic, Applications.	Prin. Dr. C. G. Dighavkar	Electronics	International Journal of Research and Analytical Reviews (IJRAR) Volume 6, Issue 1	(E-ISSN 2348-1269, P- ISSN 2349-5138)

26.	Computed Design and Developement of Model for Identification of Indian Citizen through unique ID.	Prin. Dr. C. G. Dighavkar	Electronics	Ajanta Publication	ISSN: 2277-5730
27.	Innovations in Teaching , Learningand Evaluation in Higher Education.	Prin. Dr. C. G. Dighavkar	Electronics	Ajanta Publication	ISSN: 2277-5730
28.	Study of CuO-ZnO Screen Printed Thick Films as LPG Sensor at Room Temperature	Dr. Arun Vittal Patil	Electronics	Ajanta Publication	ISSN: 2277-5730
29.	Basic of Biometry Feature- Fingerprint and Its Matching Algorithms	Dr. Arun Vittal Patil	Electronics	Ajanta Publication	ISSN: 2277-5730
30.	Physical Properties of Zinc Sulphide (ZnS) thin film by Electrochemical Deposition	Dr. Arun Vittal Patil	Electronics	JETIR	2349-5162
31.	Effect of firing temperature on structural and electrical parameters of synthesized CeO ₂ thick films	Dr. Arun Vittal Patil	Electronics	SN Applied Sciences	ISSN-2523-3971
32.	Study of In ₂ O ₃ and α -Fe ₂ O ₃ nano-composite as a petrol Vapor Sensor	Dr. Arun Vittal Patil	Electronics	Mater. Res. Express	ISSN-2053-1591

33.	Synthesis And Structural Characterization Of Cadmium Sulphide (CdS) Thin Film by Electrochemical Deposition Of Two Electrode System	Dr. Arun Vittal Patil	Electronics	JETIR Journal	ISSN-2349-5162
34.	RF Controlled Arduino Based Mine Detector and Position Spying Robot	Dr. Ugalal Pandit Shinde	Electronics	Ajanta Prakashan	ISSN 2277-5732
35.	Electrostatic Mechanism for Agriculture Sprayer- A Review	Dr. Ugalal Pandit Shinde	Electronics	Ajanta Prakashan	ISSN 2277-5731
36.	SWAYAM-A Digital Platform for Distance Learning in Higher Education	Dr. Ugalal Pandit Shinde	Electronics	Ajanta Prakashan	ISSN 2277-5730
37.	MATLAB: Advanced Teaching and Learning Tool	Mr. Anil Bhimarao Patil	Electronics	Ajanta Publication	ISSN 2277-5730
38.	Virtual Laboratory- An Innovative Teaching and Learning Method	Mr. Anil Bhimarao Patil	Electronics	Ajanta Publication	ISSN 2277-5730
39.	Impact of the Evolution of Smart Phones in Education Technology and its Applications in Learning Electronic Circuits	Mr. Anil Bhimarao Patil	Electronics	Ajanta Publication	ISSN 2277-5730

40.	A Review on E-Waste and its Management	Mr. Anil Bhimarao Patil	Electronics	Ajanta Publication	ISSN 2277-5730
41.	"The effect of Temperature on the Viscosity of Glycerine, Water, Paraffin Oil".	S. N. Sandhu, J. A. Borse, J. M. Shewale, K. B. Bhamare, C. G. Dighavkar	Physics	Ajanta International multidisciplinary quarterly research journal Vol. 8, Issue-I, Jan-Mar 2019 Pp 112-115	2277-5730
42.	"Comparative study of Viscosity variation with functional group of liquid molecules using FT-IR spectroscopy".	K. B. Bhamare	Physics	Journal of Emerging Technologies and Innovative Research, JETIR Vol. 6 Issue 1 2019	2349-5162
43.	Mental Health Among The College Players In Nasik Region	Dr. M.A. Bhardwaj	Psychology	International Multilingual Referred Journal	2319-9318
44.	Death Anxiety and Personality traits among Type-2 Diabetic Patients	Dr. M.A. Bhardwaj	Psychology	International Journal of Applied social Science	2394-1405
45.	Modi Rise and Consolidation of Hindu-Vote Bank	Prof. K N Wagh	Political Science	International Journal of Humanities and Social Science Invention (IJHSSI)	2319 - 7722

46.	Loksahity:Loknatya - Lawani	Dr. Minakshi Patil	Marathi	Reaserch journey	2348:7143
47.	sahitya Ani samajik shastre anubandh	Dr. Kiran Pingale	Marathi	Reaserch journey	2348:7143
48.	Strawberry cultivation: Horticulture Revolution in Maharashtra with reference to Surgana Tehsil.	Mr. S. P. Dhatrak	Geography	Research Journey	2348-7143
49.	Geographical Study of Trends in Area, Production & Productivity of Major Crops in Ahmednagar District	Dr. P. Y. Vyalij	Geography	Research Journey multidisciplinary International E- Research Journal	2348-7143
50.	The Global Villagers	Dr. P. Y. Vyalij	Geography	Scholars World, International Refereed Multidisciplinary Journal	2319-5789
51.	Economics of Strawberry Cultivation & Marketing: A Study of Surgana Tehsil	Dr. N. N. Gadhe	Economics	Research Journey	ISSN2348-7143
52.	A Study of Use of Mobile Phone in College Students (Marathi)	Dr. N. N. Gadhe	Economics	Research Journey	ISSN2348-7143

53.	A Study of Mobile Assisted Learning (MALL)	Dr. Kishore R. Nikam	English	Ajanta	2277-5730
54.	New Trends in History Teaching	Dr. Pragati B. Marakwar	History	Ajanta An International Multidisciplinary Quarterly Research Journal	2277-5730
55.	aadhunik shishan padhhttitil sabalturn Vichar Pravhache YOGDAN	Dr. Pragati B. Marakwar	History	Vidyavarta Multidisciplinary Referred Journal	23199318
56.	Basics of E-Learning	Mr. Sambhaji P. Vyalij	Library	An International Multidisciplinary Quarterly Research Journal. Ajanta	2277-5730
57.	Shendriya Sheti- Kalachi Garaj	Prof. S. V. Aher	Economics	Research Journey	ISSN - 2348-7143
58.	भूमिजा खंडकाव्य में प्रगतिशीलता	Dr.Yogita A. Hiray	Hindi	Vidyavarta Multilingual Research Journal	2319-9318



Synthesis, Characterization and Theoretical Study of 3-(4-bromophenyl)-5-(2,4-dichlorophenyl)-1-phenyl-4,5-dihydro-1H-pyrazole

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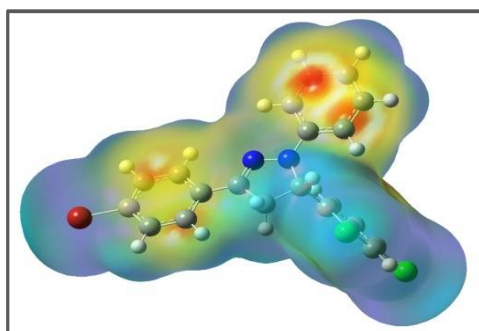
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Accepted on 30th November, 2018

ABSTRACT

The 3-(4-bromophenyl)-5-(2,4-dichlorophenyl)-1-phenyl-4,5-dihydro-1H-pyrazole (BCPP) was synthesized from chalcone. The optimized geometrical parameters and vibrational spectra of BCPP have been investigated by Density Functional Theory (DFT) using B3LYP method at 6-311++G(d,p) basis set with Gaussian-03(W) package. Structural parameters such as atomic charges, bond lengths, bond angles, dipole moment, molecular electrostatic potential, HOMO-LUMO energies and various thermochemical parameters of titled compound also investigated with same level of theory. Experimental FT-IR vibrational frequencies have been analyzed and compared with theoretically predicted vibrational frequencies.

Graphical Abstract



MEP diagram for BCPP

Keywords: Chalcone, DFT, HOMO-LUMO, FT-IR.

INTRODUCTION

Pyrazolines are important nitrogen containing 5-membered heterocyclic compounds. Numerous pyrazoline derivatives have been found to possess a broad spectrum of biological activities [1-3]. Pyrazolines have been reported to show biological activities including anti- bacterial [4], antifungal



Nanocrystalline-modified nickel ferrite films: an effective sensor for industrial and environmental gas pollutant detection

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Abstract

The inverse spinel nanocrystalline pure and doped nickel ferrite particles were synthesized by co-precipitation method. The thick films of both pure and doped nickel ferrite nanoparticles were prepared by coating the material on glass substrate via screen printing method. The XRD was used to confirm cubic, crystalline nickel ferrites. The scanning electron microscopy confirms nanosized, cubic nanoparticles of nickel ferrite, and their morphology was investigated. The energy-dispersive spectroscopy was used to comprise elemental composition for pure and doped ferrites. Transmission electron microscopy was attributed for investigation of surface morphology, crystal structure identification of nickel ferrites. The FT-IR was used to find the vibrational frequencies, symmetric, asymmetric stretching and bending modes of metal oxide linkage. The thick films of nickel ferrite were employed for sensing phenomenon of gases such as LPG, NO₂, CH₃-OH, C₂H₅-OH, NH₃ and petrol vapours. The pure nickel ferrite showed excellent results for ammonia and nitrogen dioxide gases up to 90.42 and 86.42, respectively. Manganese- and cobalt-doped ferrites were excellent for ammonia and petrol vapours. Modified nickel ferrite effect of dopants cobalt and manganese was investigated. Pure and doped ferrites showed excellent response and recovery for ammonia, NO₂, petrol vapours and LPG gases.

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Transition metal decorated Ferrosoferric oxide (Fe₃O₄): An expeditious catalyst for photodegradation of Carbol Fuchsin in environmental remediation

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Abstract

In this research, we report the removal of Carbol Fuchsin dye by using doped Ferrosoferric oxide nanocatalyst. The nanocatalysts Fe₃O₄ and doped Fe₃O₄ was characterized by various methods. The structural properties of the prepared Fe₃O₄ doped Fe₃O₄ were investigated by using X-Ray Diffractometer (XRD), which confirmed the single-phase Fe₃O₄ nanoparticles. The surface, texture, morphology of nanoparticles was identified, from SEM. The crystal lattice confirmed from TEM. The magnetic property of Fe₃O₄ was confirmed by VSM analysis. The elemental composition of prepared pure and doped Ferrosoferric oxide was confirmed by EDS study. The zeta potential was investigated for the stability of iron oxide nanoparticles. XPS spectrum of doped Fe₃O₄ was analysed to find the surface characteristics and elemental composition of doped Fe₃O₄ nanocatalyst. Here undoped Fe₃O₄ and doped Fe₃O₄ were comparatively investigated for the Carbol Fuchsin dye degradation study. Different parameters like initial catalyst dose, the effect of pH, contact time, dye concentration, effect of dopants, catalyst recycling have been studied to optimize degradation study. The optimum conditions for the removal of the Carbol Fuchsin dye are found to be initial concentration 20 mg/L, photocatalyst dose 8 gm/L, pH 8.0. In kinetics study, Pseudo First order kinetics has been investigated for both pure and doped Ferrosoferric oxide catalyst. Almost 97% of dye degradation has been observed for doped iron oxide.

Graphical abstract

Schematic presentation of a workflow.

[Home](#) > [Journal of Nanostructure in Chemistry](#) > [Article](#)[Download PDF](#)Original Research | [Open Access](#) |[Published: 13 August 2019](#)

Modified Sn-doped LaCrO_3 nanostructures: focus on their characterization and applications as ethanol sensor at a lower temperature

[Vrushali Shyamrao Shinde](#) , [Chatur Pundalik Sawant](#) & [Kailas Haribhau Kapadnis](#)[Journal of Nanostructure in Chemistry](#) **9**, 231–245 (2019)**1331** Accesses | **12** Citations | [Metrics](#)

Abstract

The present work emphasizes the effect of the use of Sn, with different concentrations, over the structural properties and sensing applications of LaCrO_3 . In this work, LaCrO_3 nanostructures were modified with different concentration of Sn (0.2 M %, 0.4 M %, 0.6 M % and 0.8 M %). Different modified Sn-doped LaCrO_3 was synthesized by sol–gel method and followed by preparation of thick films via a conventional screen printing approach. The characterizations done by means of X-ray diffraction (XRD), energy-dispersive X-ray (EDX), scanning

[Home](#) > [Binary Liquids](#)

Article [PDF Available](#)

"Thermodynamic Interactions of binary liquid mixture of Anisole, Phenetole and Benzyl ether with 2-Pentanol at temperatures T= 298.15K and 308.15K."

November 2019

Authors:



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[References \(22\)](#)

Abstract

Abstract:- The present study gives an interpretation of density, viscosity and ultrasonic velocity and their deviation of binary liquid mixtures containing Anisole, Phenetole and Benzyl ether with 2-Pentanol at temperature 298.15K and 308.05K over the entire range of compositions of mole fractions from 0.1 to 1.0. From these parameters, excess volumes, deviation in viscosity and isentropic compressibility have been taken into account. These data have been substituted in Redlich-Kister equation to get the coefficients and standard errors. Molecular interactions and the effects of methoxy, phenyl and benzyl group of ethers present on benzene ring have been interpreted by these parameters of liquid mixtures. Key words: - Excess molar volume, Deviation in viscosity, Molecular interactions, Isentropic compressibility, Mole fractions. (PDF) "Thermodynamic Interactions of binary liquid mixture of Anisole, Phenetole and Benzyl ether with 2-Pentanol at temperatures T= 298.15K and 308.15K.". Available from:

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1. Teachers Role in Effective Teaching in Chemistry at Higher Education

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This paper discussed the role of a chemistry teacher towards improving the quality of education. By identifying and justifying the need for innovation in the methods used to teach chemistry in higher education to deal with challenges arising from the rapidly changing nature of higher education. The innovation is considered to offer opportunities for enhancing the student learning experience in higher level chemistry education. The role of a chemistry teacher is to change the method of classroom instruction from lecture method to innovative learning strategy such as Use of multi-media/AV (Audio-Visual)/ICT (Information and Communication Technology) based learning techniques, use of teaching models, laboratory work with experimental techniques, to make use of improvised materials in the absence of standard equipments and exemplifying the theoretical concepts covered in lectures. Teachers are the main determinant of quality in education, so the government should provide the adequate funds to train science teachers.

Keywords: Teachers role, effective teaching, chemistry.

1. Introduction

Chemistry is the central part of all science subjects, to make it easy, funny to learn, important and applicable we always need to find strategies that make to enhance the interest of students. The art of teaching is continuously evolving and advancing, making chemistry teachers re-evaluate their methods of instruction every year. The quality of any educational program depends on the quality of those who teach it, this emphasizes the importance that should be attached to the production of high quality teachers. Chemistry teaching is supposed to be result oriented and students centred, and this can only be achieved when students are willing and the teachers are favourably disposed, using the appropriate methods and resources in teaching the students[1]. Universities and colleges have been experiencing increased pressure to offer innovative programs that meet the changing demands of students, government, and accrediting organizations[2]. Today's students are more technologically capable and expect the educational experience to acknowledge this.

Aqua-mediated rapid and benign synthesis of 1,2,6,7-tetrahydro-8H-indeno[5,4-b]furan-8-one-appended novel 2-arylidene indanones of pharmacological interest at ambient temperature

Vishnu A. Adole ✉, Thansing B. Pawar, Bapu S. Jagdale

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Citations: 24

Abstract

In the present investigation, a green aqua-mediated protocol for the synthesis of novel 2-arylidene indanone derivatives from 1,2,6,7-tetrahydro-8H-indeno[5,4-b]furan-8-one was unveiled. The application of water in organic reactions as a solvent is one of the incredible tools of green chemistry as reactions can be carried out under benign conditions minimizing environmental hazard and chemical waste. A library of novel 2-arylidene indanone derivatives are synthesized in good to excellent yield by utilizing the green potential of water as a solvent. The structures of all novel 2-arylidene indanone derivatives reported herein are confirmed using Fourier-transform infrared spectroscopy (FTIR), ^1H NMR, ^{13}C NMR, ^{19}F NMR, distortionless enhancement by polarization transfer (DEPT), and High Resolution Mass Spectrometry (HRMS) techniques.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

Citing Literature



Supporting Information



MICROWAVE ASSISTED ECO-FRIENDLY SYNTHESIS OF 1,5- BENZOTHAZEPINE DERIVATIVES AS POTENT ANTIFUNGAL AGENT VIA GREEN APPROACH

Santosh S. Chobe * and Vinayak V. Kadam

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Abstract:

A Microwave assisted greener synthesis of biologically active benzothiazepine derivatives prepared by using poly(ethylene glycol-400) as an green reaction media at 130–140° C temperature for about 10 min. The reaction is clean with excellent yield, shorter reaction time and reduces the use of volatile organic compounds (VOCs). The structure of the newly synthesized compounds was confirmed by IR, ¹HNMR and Mass spectral data. Furthermore, all the synthesized compounds were evaluated for their antifungal activity against several pathogens.

Keywords: Polyethylene glycol (PEG-400), Microwave, Benzothiazepine derivatives.

INTRODUCTION:

The facile and rapid synthesis of biologically active molecules has stimulated synthetic chemists to explore and develop novel strategies which could be certainly useful to the researchers, academia and industry people. Benzothiazepine class are calcium channel blockers and have been widely used as cardio-vascular drugs. 1, 5-benzothiazepine is a seven member ring heterocyclic compound containing sulphur and nitrogen as hetero atoms. Benzothiazepines have received lesser attention in the past and only few clinically proven drugs are known from this class. Previous studies indicated the fused bicyclic structure and the amine nitrogen on the side chain of benzothiazepines as the essential pharmacophoric elements¹ and their derivatives have drawn considerable research attention because of their wide range of pharmacological activities, such as antiviral²⁻⁴ anticancer⁵⁻⁶ antimicrobial⁷⁻⁸ Ca²⁺ channel antagonist and vasodilator⁹⁻¹⁰ AChE inhibition¹¹ CNS depressant¹² angiotensin converting enzyme (ACE) inhibitor¹³ antiplatelet aggregation¹⁴ and anticonvulsant agent¹⁵.

We herein report, the synthesis of 1,5-benzothiazepines reactions were carried out using microwave irradiations in 10 min., whereas same reactions under conventional condition gave poor yields and time period required for the completion of reaction was comparatively longer. Therefore, the microwave assisted synthesis offers clean and cheaper alternative path to that of conventional heating, demonstrating that the microwave irradiation facilitates the polarization of molecules causing reaction to occur in shorter reaction times in excellent yield¹⁶. In addition, the role of PEG-400 as green reaction solvent in microwave assisted organic synthesis is increased dramatically due to its also acts as phase transfer catalyst. The use of microwave irradiation in present investigation gave 86–90% yields of product, whereas low yields were obtained by conventional method. Polyethylene glycol (PEG) solvent is preferred over other polymers because they are inexpensive, completely non- halogenated, easily degradable, and of low toxicity. To avoid the use of volatile organic solvents can minimize the generation of waste, which is a requirement of one of the principles of green chemistry^{17,18}.

ANALYTICAL PROCEDURES:

Melting points were uncorrected and determined in open capillary tubes. The purity of the products was checked by thin layer chromatography (TLC) on precoated sheets of silica gel-G of 0.25 mm thickness. IR spectra were recorded (in KBr pellets) on FTIR Shimadzu spectrometer. ¹H NMR spectra were recorded in DMSO-d₆ in Avance 300 MHz spectrometer using TMS as an internal standard. The mass spectra were recorded on Ei-Shimadzu-GC-MS mass spectrometer. Elemental analyses were performed on a Carlo Erba 106 Perkin-Elmer model 240 analyzer.

Synthesis of 2, 4-(substituted-aryl)-2, 3-dihydro-1, 5-benzothiazepines

An equimolar mixture of 2-aminothiophenol (0.001 mol) and substituted 2'-hydroxy chalcone (0.001 mol) in 10 ml of PEG-400 was stirred well and subjected to the microwave irradiation at 130–140° C temperature for about 10 min. The progress of reaction was monitored by TLC. After the completion of reaction, the reaction mixture was cooled, dissolved in ethyl acetate, the organic layer was separated, dried by using sodium sulfate and the solid left after the evaporation of solvent was crystallized from ethanol.

STRUCTURAL, VIBRATIONAL AND CHEMICAL REACTIVITY STUDIES OF (2-(4-CHLOROPHENYL)-5-(4-METHYLPHENYL)-1,3,4-OXADIAZOLE

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ABSTRACT:

2-(4-chlorophenyl)-5-(4-methylphenyl)-1,3,4-oxadiazole (CPMPO) has been synthesized and characterized by spectroscopic techniques. The structural properties of the molecule in the ground state have been calculated using DFT employing B3LYP/6-311++G(d,p) basis set. The fundamental vibrational wavenumbers, as well as their intensities, were computed with same level of theory. The observed and scaled wavenumbers were found to be in excellent agreement. In addition, the frontier molecular (highest occupied molecular orbital (HOMO) and lowest unoccupied molecular orbital (LUMO) orbital were analyzed. The calculated HOMO and LUMO energies show that charge transfer occurs within the title molecule. Using Molecular electrostatic potential plot and Mulliken charges, we have investigated potential reactive sites in the title molecule. Negative electrostatic potential regions are mostly clustered over the nitrogen atoms of oxadiazole ring, and they may be candidates for an electrophilic attack.

KEYWORDS:

DFT, FT-IR, UV-Visible, HOMO-LUMO

1. INTRODUCTION

The scientific community has been drawn to 1,3,4-oxadiazole derivatives, which have special structural characteristics among the five-member heterocyclic compounds. It has been reported that 1,3,4-oxadiazole derivatives have antimicrobial [1,2], anti-inflammatory [3-4], antitubercular [5], antidiabetic [6], analgesic [3,7], anticonvulsant [8] and anticancer activities [9]. In addition, they have attracted significant interest in polymer science and pesticide chemistry [10]. In the fields of chemical, biological, and material sciences, computational chemistry is becoming increasingly importance. Recently, the density functional theory (DFT) has made considerable advances in organic synthesis and is used for computing the electronic and geometrical properties. Density functional theory is now widely used to estimate molecular properties such as molecular structures, spectral bands, dipole moment, etc. The B3LYP functional have been found to be the most typically used level of theory for DFT simulations in order to analyze various optical, spectral, and charge density properties of large and small molecules [11-14]. In present study, we wish to report, synthesis and theoretical study of 2-(4-chlorophenyl)-5-(4-methylphenyl)-1,3,4-oxadiazole. For theoretical study, the DFT method with the B3LYP functional and 6-311++G (d,p) basis set have been used. The ground state optimized geometries, vibrational wave numbers and molecular reactivity parameters of title molecule investigated and studied.

REVIEW ON SYNTHESIS AND BIOLOGICAL ACTIVITY OF CHALCONE

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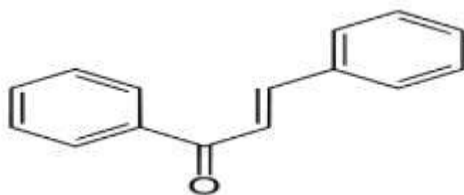
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Abstract : Chalcones are a natural product obtained from the S flavonoid family. More chalcones derivatives are synthesized by researchers due to their convenient synthesis. Chalcones is central core for synthesis of different heterocyclic compounds like pyrazoline, Oxazoline, etc. showing broad spectrum of biological activities like antitumor, antifungal, antimicrobial, anti-inflammatory, antimalarial etc.

Keywords – chalcone, claisen-schmidt condensation, antimicrobial, antifungal, antimalarial.

Introduction

Chalcone is an aromatic ketone that forms the central core for many biological compounds. Chalcones are chemically 1, 3-diphenyl-2-propene-1-one which consists of two aromatic rings that are linked by an aliphatic three carbon α , β -unsaturated carbonyl system. Chalcones possess a completely delocalized π electron system on both the phenyl ring and a conjugated double bond [1]. There is relatively low redox potential for the molecules that possess such system and also they have the greater probability of undergoing electron transfer reaction. Chalcones are also known as benzalacetophenone or beta-phenyl-alpha-benzoyl-ethylene.1, 2



Natural and synthetic chalcone derivatives have shown promising biological activity Chalcones having an, β unsaturated carbonyl group are versatile synthons for various chemical transformations. Chalcones are well known intermediates for synthesizing various heterocyclic compounds and flavones... The compounds with the backbone of chalcones have been reported to possess various biological activities such as antimicrobial, anti-inflammatory, analgesic, antiplatelet, antiulcerative, antimalarial, anticancer, antiviral, antileishmanial, antioxidant, antitubercular,

Article Details

Antimicrobial Activity of Mixed Schiff Base Ligand Complexes of Ni(II), Cu(II) and Zn(II) | Original Article

— Sheetal Punjaram Jadhav*, Dr. K. H. Kapadnis, in *Journal of Advances and Scholarly Researches in Allied Education* | *Multidisciplinary Academic Research*

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ABSTRACT:

The ability of Schiff bases to form complexes with transition metal ions makes them a particularly significant family of organic molecules. Complexes of nickel(II), copper(II), and zinc(II) with a variety of Schiff base ligands. The Schiff bases coordinate via the deprotonated phenolic oxygen or azomethine nitrogen atoms, making them bidentate monobasic ligands. Reflux screening was used to examine ligands and mixed ligand complexes for antibacterial activity. Antimicrobial activity of metal complexes is shown to be greater than that of the free ligand.



Review of Schiff Base Ligands

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Abstract - Schiff bases & their metal complexes are a heavily researched area of chemistry because of innovative structural characteristics, distinctive spectral and magnetic properties, and their wide variety of applications in numerous scientific fields. For the advancement of coordination chemistry, a lot of Schiff base ligands have been employed. This article looked closely at the biological actions of metal complexes of Schiff base ligands. Given that the current study focuses on the complexes of Schiff base ligands, a quick basic overview of the chemistry of Schiff bases is necessary.

Keywords - Schiff base ligand, DNA binding agents, Metal Complexes.

-----X-----

INTRODUCTION

It is obvious that many organic chemicals employed in medicine do not have a completely organic mode of action; some are activated or bio converted by metal ions metabolism. Inorganic elements play significant roles in biological & biological medical processes. Numerous medications have altered toxicological and pharmacological characteristics in the form of metal complexes, and they likely also The inclusion of metals in the form of complexes demonstrated some level of antibacterial, antifungal, anticancer, and anti-inflammatory action in schiff bases, which are

Additionally, the decreased Schiff base metal complexes' antibacterial and analgesic efficacy assessed and compared to industry norms. However, aliphatic aldehydes are unstable & tend to polymerize, while aromatic aldehydes, particularly those with a strong conjugation system, produce stable Schiff bases. The formation of Schiff base ligands from aldehydes is easier than from ketones. Many distinct structural forms may be attained with Schiff bases. Because of the malleability and a diversity of the Schiff base structure, a large variety of compounds & their behavior have been investigated. Most Schiff bases are either bi-, tri-, tetra-, or penta- chelate ligands that form mono-, di-, or

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Common Names of Coconut (*Cocos nucifera* L. Arecaceae): Some Indications on Its Nativity.

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Abstract: Common or vernacular names of plants are christened in vernacular language by common people over a long past. These names emerge out from the mist of times and are passed by word of mouth over generations. Such names are therefore enriched with the experiences, observations and wisdom of the concerned human society. These hidden secrets are hardly earthed by the scientific community, particularly by botanists, as they have perforce been forced to follow the rules of ICBN. Coconut palm is widely distributed and hence received a vast array of names worldwide. Moreover, its nativity has remained a subject of debate and object of many investigations they are hence analyzed etymologically in this communication. Its nativity, history and migration apart from the root words for coining names are high lightened. Some hard evidences have been also comparatively discussed to lend support while arriving at its nativity as Indo-Pacific *vis-a-vis* Asian.

Key Words: Common names, Coconut, *Cocos nucifera*, Etymology.

1. Introduction: Coining of common names for objects in human associations is a natural instinct. This activity of mankind obviously helps in their identification and future communications. However, this is not the only functions of common names. They can serve for many more functions which have been largely ignored by us. The subject matter is rendered more interesting and even intriguing when an object like coconut palm or fruit has migrated country to country, continent to continent touching the hearts of many human societies in the Old as well as New

“Medicinal Plants of Western Parts from Nashik District (Maharashtra)”

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ABSTRACT

Present paper deals with 109 medicinal plant species belonging to 97 Genera 52 Families with their Botanical name, Local name, Family, Plant part used and ethnobotanical uses. Mostly the medicines are used in crude form after crushing, heating or extracting juice. Most of the preparations include a single plant species and in rare cases, the combination of two or more species is used. The tribal's administered these medicines in the forms of Kadhas (Decoction), Bhasmas (Dry Ash), Powder, Poultice, Paste, Oil, Infusion, Juice, Latex etc. Different parts of single plant are used to cure different diseases. External applications as well as internal consumptions are involved in the treatment of diseases.

Key words: - Crude, Administered, Kadhas, Infusion

INTRODUCTION

Ethnobotany deals with the total natural and traditional interrelationships between man and plants and mans domesticated animals, gathering Jungle fruits or tubers or hunting animals for food by earliest man on this earth was the birth of Ethnobotany and Ethnozoology. The term Ethnobotany was first coined by an American botanist John Harshburger (1896) to study the plants used by the primitive and aboriginal people. Since it has been defined as the traditional knowledge on indigenous communities, about surrounding plant diversity and as the study of how the people of a particular culture and region making the use of plants and their products for food, shelter, medicine, clothing, hunting and religious ceremonies. It is the relationship between a society and its environment and a particular plant world. The bioscience researchers working on ethnobotanical investigations to fulfill the increasing demand of plant art and crafts and herbal products. Indian subcontinent virtually excels with the diverse flora having number of plants with ethnobotanical and ethnomedicinal importance. An organized study of Ethnobotany in India was started by Atkinson in 1882 by publishing 12 volumes of the Gazetteer of Northwest provinces of India. The pioneering works of Jain (1963a, 1963b, 1963c, 1965, and 1967) earned India an important place in the world map of Ethnobotanical Studies. Anuradha et.al (1994) carried out Ethnobotanical studies on the tribal's like Kokana, Katkari, Mahadeo koli, Thakur and Warli of Western Maharashtra.

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Study of Fluid Flow Using Matrix Analysis

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ABSTRACT

Fluids are either gases or liquids. Mathematical methods in Chemistry are one of the core subjects of mathematics. Fluid dynamics is one of the important branches of Mathematical Chemistry that deals with the study of fluids i.e. liquid, gases and vapors. Fluid flows as a continuum. It is considered as a single entity in motion. Electricity, heat transfer, light propagation are various forms of energy and some of the examples of fluid flow. The all equations of motions of fluid are very important to study and it is to be noted that all these equations are expressed in mathematical tools such as differential equations, partial differential equations. In present paper, we are converting the Navier-Stokes equations in matrix form. The motion of fluid is studied using properties of matrix such as determinant, rank, eigen values and properties are used to study path of the motion of fluid.

Keywords : Fluid Flow, Chemistry, Navier-Stokes Equations, Matrix Analysis



A Review on Impact of Crude oil And Natural Gases on Indian Economy

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Abstract:

Recently within few years, there is 15 to 20 % increase in crude oil and gases prices every year that result into hike in wages and prices of all products have been increased rapidly. That is affecting negatively on Indian economy. In the present paper, we are discussing the rate of rising prices of crude oil and natural gases and relating it with national GDP.

Keywords: Crude Oil, Natural Gases, Indian Economy, Gdp.

Introduction:

India is the 3rd largest consumer of crude oil and natural gases in the world and nearly imports 80 % of total crude oil and 20% of total natural gases from other countries. The process of subsidizing the prices of petrol, diesel, LPG, natural gases is very complex and that results into fiscal deficit in current account of government.

Review:

Literature review shows that the oil prices affect economy of every country. Bruno (1982) shown that the oil prices increases wages prices of product while decreases real productivity. Burbidge and Harrison(1884) studied the impact of fuel prices on countries economy and come up with result that even in developed countries the economy changes significantly. Cristini (1998) shown that there is strong correlation between the macroeconomics and fuel prices. Rangarajan (1981) and Shastry (1982) studied the hike in oil prices that leads to cost-push in output product. Now just consider the Indian economy.

The table below shows how the petrol prices have been increased within last few decades.

Year	Delhi Price (in Rs)	Mumbai Price (in Rs)
1989	8.5	8.5
1992	15.71	15.71
1997	22.84	22.84
2000	28.7	28.7
2003	32.49	37.25
2005	40.49	45.93
2010	47.93	52.2
2012	73.18	78.00



New conformable fractional ELZAKI transformation: Theory and applications

Manjarekar Shrinath^{1*} and Ashok Bhadane²

Abstract

In this paper, we have introduced new 1 – D and 2 – D conformable fractional Elzaki transformation with the properties and its applications to new fractional derivative with Non – Singular Kernel and conformable differential equation has been solved and results were compared. Also new generalized fractional Elzaki – Tarig Transformation has been defined with existence of inverse and convolution property being proved.

Keywords

Conformable derivative, fractional integral transformation, fractional derivative.

AMS Subject Classification

26A24, 26A33, 26A99.

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1. Introduction

The idea of fractional derivative and fractional integral transformation are going in hand and hand since long ago [14] Fractional integral transform have applications in signal processing, quantum mechanics, fluid dynamics and stochastic processes [2, 29] rediscovered mainly in quantum mechanics, fluid dynamics, Signal Processing and Stochastic Processes. In recent years, many fractional linear and nonlinear [27] initial value problems and boundary value problems are effectively solved by using different integral transforms.

The generalization of integral transforms and fractional integral transforms [3, 22, 24] including Elzaki – Tarig,

Laplace, Mellin, L_2 , Abel's, Weirstrass, Hilbert, Fourier, Laplace – Carson, Laplace – Stieltjes Transformations has been established in well manner. All these Transformations have tremendous applications [14, 27, 29] in fractals, Bio- Mathematics, Computational Fluid Dynamics. There are several types of fractional derivative definitions including Riemann – Liouville, Caputo, Atangana – Baleanu Riemann (ABR), Atangana – Baleanu Caputo (ABC) [1, 2].

The term conformable fractional derivative [4] who has lots of advantages for getting the solutions of fractional differential equations in analytical form while conformable Laplace [20] were introduced to solve such kind of conformable fractional derivative to get the analytical solutions instead of numerical approximations to the solutions.

The aim of the paper is to solve various kinds of fractional differential equations by using newly defined conformable fractional integral transformation. This paper has been organized as follows. In section 2, we have given some basic definitions which were required for further calculations. In section 3, definition of new generalized fractional integral transformation along with existence of inverse, convolution property has been proved.

In section 4, The 1 – D conformable fractional Elzaki Transformations has been defined with convolution property and some examples are given along with its rela-



On two dimensional new integral transformation and its applications

Manjarekar Shrinath^{1*} and Ashok Bhadane²

Abstract

In this paper, we have find out the relationship of generalized Elzaki transformation with new integral transformation and defined two dimensional new integral transformation and its relationship with two dimensional Laplace Transformation. Also, we have find out the conditions for convergence and uniform convergence of two dimensional new integral transformation. Also, as an application we have solved new integral transform of fractional derivative.

Keywords

Elzaki – Tarig Transform, Two – dimensional Laplace Transform, fractional derivative .

AMS Subject Classification

35A22, 44A10, 26A33.

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1. Introduction

The theory of modern integral transform [4], [9], [10], [11], [14] which includes Fourier, Mellin, Laplace, Wavelet, Hilbert, Weirstrass, Chirplet, Abel's, Laplace-Steiltjes, Laplace-Carson, L_2 - transform and zz transformation which plays an important role in the theory of fractional calculus.

Recently, the fractional differential equation and hence fractional partial differential equation were solved by Manjarekar and Bhdane [16], [17] for non – local and non – singular kernel with new definition of fractional derivative [2], [3]. The generalized definition of integral transform [18] has been defined in well manner under new conditions with its inversion and convolution property, relationship with other integral transform.

The paper mainly divided into three parts, in the first part the generalized definition and its relationship with one – dimensional new integral transformation were given. Second part consist definition of two dimensional Generalized Elzaki transformation and its relationship with two dimensional new integral transformation and find out new integral transformation of some functions. In the last part, we have proved the conditions for convergence and Uniform convergence of new integral transformation.

2. Preliminaries

We present some basic definitions needed in proving the main results.

2.1 Laplace type Integral Transform

Consider a function $f(x)$ which is piecewise continuous and of exponential order then the Laplace type integral [4] transform

NEW GENERALIZED FRACTIONAL ELZAKI – TARIG AND OTHER FRACTIONAL INTEGRAL TRANSFORMS WITH ITS APPLICATIONS TO FRACTIONAL DIFFERENTIAL EQUATIONS

Shrinath Manjarekar¹, A. P. Bhadane²

Abstract: In this paper we have defined new generalized fractional Elzaki – Tarig Transformation with its properties and its relations to other fractional Integral Transformations, as an application we have solved fractional order differential equation and find analytic solution of it.

Keywords: Elzaki – Tarig Transform, fractional Derivatives

AMS (2010): 26A33; 44A10

1. INTRODUCTION

Though the idea of fractional transformations, fractional derivatives have long back history the idea of fractional partial differential equation in different spaces has been rediscovered mainly in quantum mechanics, fluid dynamics, and stochastic processes. In recent years many linear boundary value and initial value problems in applied mathematics, mathematical physics and engineering science are effectively solved by Laplace, Fourier and other Transforms. It has been studied by many researchers and contributed. The partial differential equations has applications in the field of mathematics as well in real life situations, such as Abel's integral equation, visco – elasticity, capacitor theory, conductance of biological systems [4, 5]

Transformations generally used for shifting the given problem into another domain which is simple to calculate rather than the previous domain and by applying inverse it gives back to the given situation . There are different kinds of Transformations having different kernels like Laplace, Fourier, Mellin, Hartley, Yang – Fourier Abel, Continuous Wavelet, Weirstrass, Hilbert, Randon, Whittakar, Hankel, L_2 – Transform, finite Legendre Transform, and many more to solve the real life problems [4, 5] mainly in signal processing, computational fluid dynamics, fractals, Bio – mathematics, railway Engineering and in fractional calculus [4]. The Elzaki – Tarig transform recently defined [9] having tremendous applications in the fractional calculus [10, 11]. The generalized versions [3, 7] have been defined with its properties and applications to fractional differential equations.



BIOCHEMICAL ALTERATIONS DUE TO HEAVY METALS IN DIFFERENT TISSUES OF THREE SPECIES OF FRESHWATER BIVALVES AT CHANKAPUR RESERVOIRS OF NASHIK DISTRICT. (M.S)

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The present study deals with the effect of heavy metals Zn, Cu, Pb and Cd on the Protein, Ascorbic acid, DNA, RNA content from different soft body tissues like mantle, gills, digestive glands and whole soft body tissue of bivalve species, *Lamellidens corrianus*, *Lamellidens marginalis* and *Parreysia cylindrica* collected seasonally (summer, monsoon and winter seasons) from different places of Chankapur reservoir during June 2010 to May 2011. The results revealed the lowest Protein, Ascorbic acid, DNA and RNA concentrations in different soft body tissues in three species of bivalves sampled during summer season, might be due to bivalves were exposed to higher concentration of heavy metals in summer than winter and monsoon seasons. The results revealed highest concentrations of heavy metals Zn, Cu, Pb and Cd in surface water and three bivalve species sampled from Chankapur reservoir.

Key words: Heavy metals, Protein, Ascorbic acid, DNA, RNA, freshwater bivalve species, Chankapur reservoir, seasonal variations

Metals have the ability to bio accumulate in organisms directly from the water, and biomagnified heavy metals within food chains, cause higher trophic organisms to become contaminated with higher concentrations of chemical contaminants than their prey (Hargrave *et al.*, 2000 and Lee *et al.*, 2000; Boran and Altinok, 2010; Shariati *et al.*, 2011). The most important metals from the point of view of water pollution are As, Zn, Cu, Pb Cd, Hg, Ni and Cr (Li *et al.*, 2002). Some of these metals (e.g. Cu, Ni, Cr and Zn) are essential trace metals to living organisms but become toxic at higher concentrations (Albergoni and Piccinni, 1983). Several studies reported that accumulated heavy metal stress causes biochemical alterations in organism (Verlecar *et al.*, 2008; Zhang *et al.*, 2010; Rajkumar and Milton, 2011). A wide range of metal pollution or stresses are responsible for the secretion or suppression of the proteins (Iwata *et al.*, 1998 and Kohler *et al.*, 2001) in the body of organism. Ascorbic acid acts against the toxic, mutagenic and carcinogenic effects of environmental pollutants by stimulating liver detoxifying enzymes (Sweetman *et al.*, 1997; Kronhausen *et al.*, 1989). Number of researchers reported changes in DNA content due to heavy metal stress (Black *et al.*, 1996; Bolognesi *et al.*, 1999; Gulbhile, 2006; Nawale, 2008; Patil, 2010; Andhale and Zambare, 2011; Ali and Shakoori, 2011). The seasonal variation in RNA content in *Austrovenus stutchburyi* at different sites was studied by Norkko and Thrush (2006).

Study Area: Chankapur reservoir is earthen reservoir,

constructed in 1911 on Girna river at Kalwan in Nashik district of Maharashtra state, India.

MATERIALS AND METHODS

The Protein, Ascorbic acid, DNA, RNA contents were estimated from different soft body tissues like mantle, gills, digestive glands and whole soft body tissue of bivalve species, *Lamellidens corrianus*, *Lamellidens marginalis* and *Parreysia cylindrica* collected seasonally (summer, monsoon and winter seasons) from Chankapur reservoir during June 2010 to May 2011. Mantle, gills, digestive glands and whole soft body tissues were removed and dried at 70° to 80°C in the oven till the constant weight of dry tissues were obtained. From each powder estimation of Protein is done by Lowry's method (Lowry *et al.*, 1951) by using Bovine Serum Albumin (BSA) as standard, Ascorbic acid by Roe (1967). DNA content of the tissue was estimated by using Diphenylamine method of Burton (1956). RNA content of the tissue was estimated by following Orcinol method of Volkin and Cohn (1954). The Protein, Ascorbic acid, DNA, RNA contents in different tissues were calculated by referring standard graph value and it was expressed in terms of mg /100 mg of dry tissue.

RESULTS AND DISCUSSION

The result show (Table 1-6) that the mean concentrations of Pb and Cd in surface water of Chankapur reservoir were higher than the WHO recommended limits for drinking water standard.

22. Evaluation of Methomyl Pesticide Effect on Glycogen Content in Different Tissues of the Freshwater Bivalve, *Lamellidens Marginalis* (Lamarck) from Nashik District (M. S.)

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Abstract

The present study investigates the effect of carbamate pesticide Methomyl induced alterations in glycogen level of gills, gonads and digestive gland tissues and its possible recovery by treating with L-Ascorbic acid in the fresh water bivalve, *Lamellidens marginalis* after chronic exposure. The freshwater bivalve *Lamellidens marginalis* were exposed to chronic dose of Methomyl (35 PPM $LC_{50/2}$ values of 96 hours) alone and in combination with 50 mg/L L-ascorbic acid for 21 days. Glycogen contents in the gills, gonads and digestive gland of Methomyl and Methomyl with 50 mg/L L-ascorbic acid exposed bivalve, *Lamellidens marginalis* showed remarkable increase as compared to control. The marked increase in glycogen level was observed in digestive glands as compared to other tissues. Exposure to pesticide Methomyl in combination with 50 mg/L of L-ascorbic acid showed considerable increase in the glycogen levels.

Key words: Bivalve, *Lamellidens marginalis*, Methomyl, L- Ascorbic acid, glycogen content.

Introduction

Pesticide such as Methomyl is a potential problem for aquaculture in developing countries. Methomyl is highly toxic to aquatic invertebrates, when absorbed through the mucous membrane of the respiratory tract, resulting in systemic intoxication. Freshwater bivalves



Research Paper

Methomyl and lambdacyalothrininduced alterations in the protein content and recovery due to L-ascorbic acid in different tissues of the freshwater bivalve, *Lamellidensmarginalis*(lamarck).

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Abstract: The freshwater bivalve *Lamellidensmarginalis* were exposed to acute and chronic dose of lambda cyalothrin (0.75 PPM $LC_{50/2}$ valuesof 96 hours) and methomyl (35 PPM $LC_{50/2}$ valuesof 96 hours) upto 96hours and 21 days alone and in combination with 50mg/L and 100mg/L L-ascorbic acid for 21 daysrespectively. Percent protein contents in the mantle, foot, gills, digestive glands, gonad and whole body of bivalve, *Lamellidensmarginalis* on methomyl and lambda cyalothrin intoxication and in combination with 50mg/L and 100mg/L L-ascorbic acid were observed. Protein contents in all soft body tissue of methomyl and lambda cyalothrin exposed bivalve, *Lamellidensmarginalis* showed remarkable decreasein protein content as compared to control.The higher depletion of protein was observed in digestive glands as compared to other tissues. Animal exposed to methomyl and lambda cyalothrin intoxication in combination with 50 mg/L of L-ascorbic acid showed considerable reduction in the depletion of protein levels which further improved on treatment with methomyl and lambda cyalothrin intoxication in combination with 100 mg/L of L-ascorbic acid. Fast recovery of percent protein contents was observed in presence of L-ascorbic acid than the recovery in the normal freshwater. This study indicates the protective and curative property of the L-ascorbic acid against methomyl and lambda cyalothrininduced damage.

Keywords: *Lamellidensmarginalis*, methomyl, lambda cyalothrin, protein, L-ascorbic acid

INTRODUCTION:

The biochemical changes occurring in the body gives a first indication of stress. During the stress, to overcome the altered situation extra energy is needed. Bivalves are potential biomonitoring organisms for toxicity evaluation by being sedentary organisms, reflect local condition, an efficient filter feeder(Ullven 1993; Huang *et al.*, 2007). They have a long-life span (Farrington *et al.*, 1983). In addition, their ability to bio-transform accumulated toxicants is generally lower than many other aquatic organisms (Borchert *et al.* 1997). They are sturdy enough to survive in laboratory and field studies, provides a time integrated indication of environmental contamination hence fulfilling the criteria as good bioindicators

6. Effect of Blended Learning in Higher Education on Teaching Learning Process

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Abstract

This research work based on the experimental work which based on the comparison of traditional learning with blended learning for under graduate science students. The methodology used based on the use of power point presentations, ICT, e-book and videos for teaching. The purposive sampling, control and sample group of students evaluated for subject examination including tests, assignments, group discussions. Null hypothesis is used, and we concluded that there is significant differences between mean of blended learning group (experimental) and control group.

Keywords: Blended learning, Null Hypothesis, Experimental group, e-learning, Control group.

Introduction

At the beginning of e-learning (digitally delivered learning) programs are favored by educational institutions over single mode programs (Harvey Singh, 2003). Student outlining is key factor in the blended learning programs. It is the bridge for learning and programmer expect to walk it. Ten minutes video requires 30-45 minutes to outline by students. They modify their initial video-based outline by adding other course components and write in their own words (William R. Slomanson, 2014). In blended education context, Learning Management System (LMS) can be integrated collaboratively and interactive learning activities which require a strong institutional and strong support. It includes studying learner profile and optimization feedback-like process to Learning Management System to adopt effective blended learning (Sofia Balula et. al., 2014). In blended learning the internet act as an instrument in addition to traditional forms of teaching. It is incorporation of new information and communication technologies which lead to more efficient and effective education. The student attendance, interest in subject may variable

22. Evaluation of Methomyl Pesticide Effect on Glycogen Content in Different Tissues of the Freshwater Bivalve, *Lamellidens Marginalis* (Lamarck) from Nashik District (M. S.)

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Abstract

The present study investigates the effect of carbamate pesticide Methomyl induced alterations in glycogen level of gills, gonads and digestive gland tissues and its possible recovery by treating with L-Ascorbic acid in the fresh water bivalve, *Lamellidens marginalis* after chronic exposure. The freshwater bivalve *Lamellidens marginalis* were exposed to chronic dose of Methomyl (35 PPM $LC_{50/2}$ values of 96 hours) alone and in combination with 50 mg/L L-ascorbic acid for 21 days. Glycogen contents in the gills, gonads and digestive gland of Methomyl and Methomyl with 50 mg/L L-ascorbic acid exposed bivalve, *Lamellidens marginalis* showed remarkable increase as compared to control. The marked increase in glycogen level was observed in digestive glands as compared to other tissues. Exposure to pesticide Methomyl in combination with 50 mg/L of L-ascorbic acid showed considerable increase in the glycogen levels.

Key words: Bivalve, *Lamellidens marginalis*, Methomyl, L- Ascorbic acid, glycogen content.

Introduction

Pesticide such as Methomyl is a potential problem for aquaculture in developing countries. Methomyl is highly toxic to aquatic invertebrates, when absorbed through the mucous membrane of the respiratory tract, resulting in systemic intoxication. Freshwater bivalves

Comparative haematological observations of *Gallus gallus domesticus* infected and uninfected by cestode parasites

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Abstract

The study focused on the observation of haematological parameters in *Gallus gallus domesticus* which is naturally infected with cestode parasites belonging to genus *Raillietina sp.*, *Cotugnia sp.*, *Thaparea sp.*, *paruterina sp.*, Avian cestode in India has been poorly studied by means of haematological studies of their host. The significant increase in size of RBC, however reduction in the count of RBC, Hb, PCV, and MCV in infected *Gallus gallus domesticus* as compared with normal. The haematological parameters of the infected bird *Gallus gallus domesticus* shows high infection cause anaemia and lymphocytosis due to deficiency of related intrinsic factors.

Key Words: *Gallus gallus domesticus*, Haematological parameters

Introduction

Haematology is the part of medication worried about the investigation of the reason, treatment, and aversion of sicknesses identified with blood. Haematological investigations are essential in diagnosing the structural and functional status of the body. Haematology is the investigation of blood, and its diverse components. In most recent couple of years numerous researchers are chipping away at haematological parameters of vertebrates in related with toxicology however very little work done on haematological part of vertebrates which is related with parasitic disease. Tapeworm contamination is a noteworthy medical issue in *Gallus gallus domesticus* in light of the fact that it influences the typical blood parameters. The investigation of

haematological Parameters is critical in ongoing time. Just little data is accessible to the haematological parameters of aves and fishes.

In the present correspondence, endeavors have been made to break down and connect the haematological parameters of normal and infected *Gallus gallus domesticus*.

Materials and Methods

Blood test was gathered aseptically with sterile syringe and needles either from heart or wing vein. Following accumulation the blood was exchanged to sterile collecting tubes containing Ethylenediamine tetra acidic corrosive (EDTA) as anticoagulant. Estimation of HGB, MCV, MCH and RBC was carried out by utilizing the normal strategies

Review on: Perovskite recent progress and synthesis, characteristic, Applications.

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Abstract: Excessive use of conventional, non-renewable fossil fuels resources has been a major cause behind degradation of the environment such as global warming, acid rains, increase in carbon dioxide content in the environment, smog, etc. Green energy resources such as solar, wind and tidal, and hydropower offer replacement to the fossil fuels so that the usage of conventional source of energy can be constricted. Metal halide perovskites have emerging field of photovoltaic technology. Within last decade, With the predicted parameters such as thickness (0.6 μm), defect density of absorber layer (10^{14} cm^{-3}), band gap (1.50-1.6 eV) the encouraging result of maximum power conversion efficiency (PCE) 25.2%, the short-circuit current density (J_{sc}) is 25.67 mA/cm^2 , and fill factor (FF) is 78.14% and open circuit voltage (V_{oc}) is 1.0413V are predicted. Lead halide perovskites have emerged as one of the leading photovoltaic materials due to their long carrier lifetimes, high absorption coefficients, high tolerance to defects, and facile processing methods. Which makes them now already comparably efficient to silicon-based photovoltaics. High efficiency, flexibility, and cell architecture of the emerging hybrid halide perovskite have caught the attention of researchers and technologists in the field. Perovskite solar cells are becoming dominant alternative for the traditional solar cells. This article provides a comprehensive review on characteristics of perovskite materials; perovskite material preparation and synthesis method and recent progresses are reported.

Index Terms - Perovskite material, characteristics, applications, synthesis method, specific surface area.

I. Introduction:

Every day, conventional, non-renewable fossil fuels energy consumption rapidly increases which causes humiliation of the environment through global warming, acid rains, increase in carbon dioxide content in the environment, smog etc. Eco-friendly energy resources such as solar, wind and tidal, and hydropower make best replacement for the fossil fuels so that, the utilization of conventional energy source can be avoided. Solar photovoltaic technology is one of the emerging renewable technologies. Recently, emerging Photovoltaic solar cells based on organometal halide perovskite materials which provide high efficiency and stability with low cost becomes attractive alternative to conventional photo voltaic Solar cell. The perovskite material has ability to achieve power conversion efficiency close to Cadmium Telluride (CdTe). The efficiency of methyl ammonium lead halide perovskite sensitized solar cells advancement from 3.8% to 22.1% within a very short period of research and development [1].

Perovskites shows diversity of electric, optical, and magnetic properties. Perovskite oxides show variety of electrical properties and a variety of solid-state phenomena from insulating, semiconducting, metallic, and superconducting characters. Therefore, they are very interesting to be studied and applied in a large scale. The family of perovskite material consists large number of oxide forms, such as transition metal oxides with the general formula of ABO_3 . The oxide perovskite materials are broadly synthesized and studied for wide applications in different technological fields.

Perovskite was initially discovered by German geologist Gustav Rose in 1839 in Ural Mountains, and named after Russian mineralogist Lev A. Perovski, Lev Perovski had discovered a cubic crystal structure with chemical composition CaTiO_3 . This structure was named calcium titanium oxide (CaTiO_3) which had calcium ion (Ca^{2+}) at the corners, titanium ion (Ti^{2+}) BCC (body cubic-centred) and oxygen (O^{2-}) at the FCC (face cubic-centred) in a cubic crystal. Between both the cation, i.e. calcium and titanium, calcium ion was bigger in size. Perovskites exhibit general configuration ABX_3 which represents A as cation of bigger size, B as cation of smaller size, whereas X represents negative ion mostly of oxygen or halogens. In perovskites crystals, cation A is located between BX_6 octahedron connected through apex angle while cation B, possessing six fold coordination, is surrounded by an octahedral of anions [2, 3]. In 1926, V. M. Goldschmidt, who was the first which synthesize and study perovskites materials, which were CaTiO_3 , NaNbO_3 , SrTiO_3 , and BaTiO_3 . In 1986, high temperature superconductivity in ceramics and perovskites was discovered by J. G. Bednorz and K. A. Muller [4, 5].

II. Overview of Perovskite materials :

The chemical formula of perovskite material must have neutral balanced charge; therefore, the sum of total charges at A and B sites cations must be equal to total charges at O site (oxygen) of anion(s). A suitable charge distribution is to be achieved in the forms of $\text{A}^{3+} \text{B}^{3+} \text{O}^3$ or $\text{A}^{4+} \text{B}^{2+} \text{O}^3$ or $\text{A}^{1+} \text{B}^{5+} \text{O}^3$.

Based on ionic size limitations for the required cations and anions, a stability and formability range for ABX_3 perovskite with a cubic crystal structures can be achieved by following fundamental requirement, which are given as: The average ionic radii of A- and B-sites cations must be greater than 0.90 Å and 0.51 Å, respectively, and The value of tolerance factor must be lies in the range of 0.88–1.09. If the tolerance factor equal to unity i.e., $t = 1.0$ then it is indication of ideal perovskite crystal [6, 7].

To form a perovskite structure, radius of ions A, B and X must obey the following rules:

7. Computed Design and Development of Model for Identification of Indian Citizen through Unique ID

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Abstract

‘Unique Identification System’ gives us the information about the citizen in any country. A Citizen has unique Id to find out the personal information in each and every department or service wherever a citizen goes. This information can be found out by the unique Id of the citizen. If any citizen wants to utilize the services or utilities by the Government or Private organizations, he has to go to each and every department with different Id for that particular department. Instead, a citizen card helps in having all the utilities and services under one unique Id. This system not only helps us to know the information about the services or utilities but also it gives the information about the character of the citizen in credit rating. Credit rating tells the behavior of the person whether citizen’s character is good or bad. Computed Design Model for Identification of Indian Citizen through unique ID is used to maintain relationship between user of the system and general people of his related area. This system will help to all type of organization who kept the data about Indian Citizen, who has to maintain large number of people data. System mainly contain people details, infrastructure details, institute details, various government policies etc.

Keywords : Unique ID; Indian Citizen; data; utilities; services; Credit rating

Introduction

Computed Design Model for Identification of Indian Citizen through unique ID is used to maintain relationship between user of the system and general people of his related area. This system will help to all type of organization who kept the data about Indian Citizen, who has to maintain large number of people data. System mainly contain people details, infrastructure details, institute details, various government policies etc. Computed Design Model for Identification of Indian Citizen through unique ID is used to maintain relationship between user of the system and general people of his related area. This system will help to all type of organization who kept the data about Indian Citizen, who has to maintain large number of people

2. Innovations Teaching, Learning and Evaluation in Higher Education

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Abstract

The India is a developing country. The education market is one of the most significant elements of the national innovation system. In the world of higher education system is backbone of every country. The contemporary employment market requires graduates ability to operate such technologies and knowledge that meet the needs of the information society, prepare young people for new roles in this society.

The conventional teaching, learning and evaluation methodologies in higher education are increasingly under the highlight and it is uncertain in certain circles, if traditional methods are in fact as valuable as they are believed to be. Since the quality of education is critical to a nation's success, it is significant to interrogate a number of strategies and methods. The application of innovative teaching and learning methods is critical if we are to motivate and engender a spirit of learning as well as enthusiasm on the part of students, for learning while at universities and indeed for permanent learning. The role of education is to ensure that while academic staff does teach, what is taught should also be understandable to students emanating from culturally and linguistically different backgrounds and that they rapidly become familiar with the expected standards. It is more often than not the case that students underachieve because of the fact that they have not grasped an awareness of the level of evaluation or what it is that the lecturer expects from them. Lecturers should thus apply themselves to utilizing innovative methods so that the students' learning process is as free-flowing as possible and that the method they implement is conducive to learning. Innovative teaching and learning methodologies such as short lecture, simulation, role-playing, portfolio development, Power Point Presentation (PPT) and problem-based learning (PBL) are very useful in addressing the rapid technological advances and developing workplaces that will be required in the foreseeable future. This research paper

20. Study of CuO- ZnO Screen Printed Thick Films as LPG Sensor at Room Temperature

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Abstract

Using a screen printing technique, thick films of pure ZnO and CuO-doped ZnO were prepared on glass substrates with various concentrations of CuO viz 1 wt. %, 3 wt. %, 5 wt. %, and 7 wt. %. The film samples were fired at 450°C temperature for two hours in the air atmosphere. The films were taken under the Scanning Electron Microscopy (SEM), X-ray diffraction and Energy Dispersive Spectroscopy (EDS) for the study of morphological, structural and compositional properties. Under the normal temperature conditions, the LPG gas sensing study of each sample was carried in a static gas sensing system. It was seen that surface resistance of thick films went on decreasing when exposed to LPG gas. The CuO doped films showed significant sensitivity to LPG gas than pure ZnO film. 5 wt. % CuO-doped ZnO film was found to be more sensitive (88.88%) to LPG gas when exposed at room temperature (50°C) than other doping concentrations with fast response and recovery time.

Keywords: ZnO; CuO; LPG; XRD; SEM;

1. Introduction

From all the gas sensing solid state materials, metal oxides were one of the first considered [1, 2] and are still the most widely used gas sensing materials. Gas sensors based on metal-oxides are commonly used in the monitoring of toxic pollutants, highly inflammable gas and can provide the necessary sensitivity, selectivity required by such systems [3]. Commonly used oxides include, zinc oxide, titanium dioxide, iron oxide, tungsten oxide and tin oxide. These materials have successfully been employed to detect a range of gas particularly ethanol, NO₂,

12. Basics of Biometry Feature–Fingerprint and Its Matching Algorithms

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Abstract

Today's life is full of trouble due to crime and corruption. So, for safety we should have kind of Identification system. Biometry is seen by many as a solution to a lot of the user identification and security problems in today's networks. Biometry removes human errors. Biometry have a wide area of application. One of the applications is fingerprint identification. In this paper, we have studied basic representation, classification and matching algorithms of fingerprint identification system.

Keywords: Biometry, Algorithm, Fingerprint, Networks, Identification

Introduction

“Biometrics is the identification or verification of human identity through the measurement of repeatable physiological and behavioral characteristics

There are two types of traits for biometric.

1) Physiological- In this type physiological features of the individual are considered and has physiological features like Iris, Fingerprint, Hand, Face, Voice, Retina, DNA.

2) Behavioral- In this type the behavioral aspects of the body of the individual are considered. which is Signature, Keystroke, Gait.

Out of these difference traits, we are going to utilize physiological trait because they are unique. They are not changeable or destroyed by any one. also eliminate the problem of reminding any code or number. In this paper we concentrate on physiological feature fingerprint.

FINGERPRINT REPRESENTATION:

1. Friction ridges.
2. Crossover.
3. Delta.
4. Island
5. Ridge Ending.

Physical Properties of Zinc Sulphide (ZnS) thin film by Electrochemical Deposition

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Abstract

ZnS thin films deposited by two electrode electrochemical deposition using the two electrode system on stainless steel substrates from aqueous solution containing 0.3 N Zinc sulphate ($\text{ZnSO}_4 \cdot 2\text{H}_2\text{O}$) and 0.2 N sodium thiosulphate ($\text{Na}_2\text{S}_2\text{O}_3$). The 2 % Triethanolamine was used as a complex agent for complex form of ZnS materials. The Thickness of ZnS thin film was increases up to certain time after that it was found fall by co- deposition with deposition time. The voltage for deposition corresponding current density was optimized by polarization curve method. The good quality adherent films of ZnS were obtained at 1700 mv in two electrode system. The thickness of film was measured by mass difference method. The chemical bonding of functional group of deposited material was studied by IR spectral analysis. The Chemical Composition of ZnS analysed by EDAX. The Structural characterization and surface morphology was studied by XRD, SEM respectively.

Keywords: ZnS, Electrochemical Deposition, IR, EDAX, SEM

Introduction:

Thin films have attracted much interest because of their varied application such as semi conducting devices, photovoltaic, optoelectronic devices, radiation detectors, laser materials, thermoelectric devices, solar energy converters [3]. The Interest in the use of solar cells for low-cost energy conversion has lead to an extensive research in the field for novel and suitable thin film semiconductor materials. Recent investigation has shown that layered type semi conducting cadmium chalcogenide group (CdSe , ZnS , CdTe) which absorb visible and near [6]. IR light are particularly promising materials for photo electrochemical solar energy conversion. The ZnS thin film is used as window layer for CdS/CdTe solar cell because band gap energy of window layer should be less [1]. The band gap energy of ZnS material is 3.92 eV [8]. Many workers investigated the ZnS crystal. The structural, optical and Electrical characterization of electrodeposited ZnS thin films have been investigated [7]. Many workers have been succeeded in depositing thin film of ZnS by electrochemical deposition technique by two electrode system on stainless steel.

Material and Method:

The thin films of ZnS were deposited by pulsed electrochemical deposition technique by two electrode system on stainless steel substrate. The stainless steel plates were used as the working electrode in two electrodes system with graphite as the counter electrode and stainless steel plate was the working electrode. The electrolyte was prepared by mixing solution of ZnSO_4 (0.3M), $\text{Na}_2\text{S}_2\text{O}_3$ (0.2M), the ratio of 1:1 respectively. The Triethanolamine of 2% was used for complex form of ZnS materials and well polycrystalline in nature [7]. The pH of electrolyte solution was varied by dilute HCL. double distilled water was used for preparation of aqueous solution of above precursor chemicals. Before deposition the substrate were thoroughly cleaned with double distilled water. The distance between the working electrode and counter electrode way kept constant as 1 cm during deposition of materials. From visual observation it was observed that a formation of uniform and well adherent reddish yellowish film of ZnS take place. [8] The detailed growth kinetics was studies by changing the deposition parameters such as the pH of electrolytic bath and deposition time (min). The chemical bonding of functional groups were analysed by FT-IR technique. The Thin film of ZnS was further characterized by XRD, SEM.



Research Article



Effect of firing temperature on structural and electrical parameters of synthesized CeO_2 thick films

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Abstract

In this work, the Ceria (CeO_2) was synthesized by co-precipitation method. The thick films of synthesized CeO_2 were prepared by screen printing technique. Films were fired at 350 °C, 400 °C, 450 °C for 2 h in muffle furnace. These films were characterized by XRD to investigate the structural properties of prepared material. The XRD confirmed the single phase cerium oxide nanoparticles. Scanning electron microscopy was utilized for the morphological parameters of prepared cerium oxide nanoparticles. The cubic shaped cerium nanoparticles with various diameters were observed from SEM images. The elemental composition of ceria was studied by EDS, where the perfect elemental composition of ceria was confirmed. The Fourier transform infra red spectroscopy was employed to find out metal-oxide vibrational bands in the cerium oxide nanoparticles. The effect of firing temperature was studied for cerium oxide calcined at 350 °C, 400 °C and 450 °C nanoparticles to study the various parameters such as Grain Size, Temperature Coefficient (T_C), Stacking Fault Probability (α), Dislocation Density (ρ), Surface area, Activation Energy and RMS Microstrain (ϵ).

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PAPER

Study of In_2O_3 and $\alpha\text{-Fe}_2\text{O}_3$ nano-composite as a petrol vapor sensor

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Keywords: $\alpha\text{-Fe}_2\text{O}_3$, In_2O_3 , XRD, SEM, EDS, petrol vapors

Abstract

In this experiment we studied morphological, structural and gas sensing properties of the In_2O_3 - $\alpha\text{-Fe}_2\text{O}_3$ nanocomposite films prepared by mechanical mixing. Iron oxide ($\alpha\text{-Fe}_2\text{O}_3$) was prepared by co-precipitation method. We added 1 wt%, 3 wt%, 5 wt% and 7 wt% of In_2O_3 in synthesized iron oxide by mechanical mixing. Films of In_2O_3 additive and iron oxide were prepared using screen printing method. XRD study was employed to find out content and structure of the films. SEM analysis was carried out to understand film morphology. EDS analysis was carried out to understand elemental constituents of the films. Static gas sensing apparatus was used to study response of films for various gases. Properties like sensitivity, selectivity, response and recovery time were calculated. Petrol vapor sensors are not reported yet. At 250 °C these In_2O_3 - $\alpha\text{-Fe}_2\text{O}_3$ nano-composite films showed good response of 50% for petrol vapors as compared to other four gases. We discussed probable mechanisms for gas sensing.

1. Introduction

Iron oxide has been studied for various applications as lithium ion battery [1, 2], water treatment [3, 4], photo-electrochemical cell [5], electrochemical capacitor electrodes [6], photo catalysis [7, 8], magnetic resonance imaging [9], biomedicine [10], drug delivery [11], pigmentation [12], magnetic resonance imaging [13], gas sensing of LPG [14], ethanol [15], ammonia [16, 17] etc. Out of these, gas sensing is the field where it has been moderately studied. In most of the studies iron oxide has been used as a dopant. Very few studies have used alpha phase of iron oxide as the base metal oxide material for gas detection.

Iron oxide has various phases like α , β , γ , δ and ϵ . It is well established fact that out of these phases alpha phase is the most stable phase [13]. Iron Oxide phases can be altered by change in temperature, environment and aging. So it is better to use the less responsive but more stable base material and dope it with other material to improve the response of the films.

In_2O_3 has been experimented as a base material with various dopant for sensing of various gases like NO_2 , O_3 and $\text{C}_2\text{H}_5\text{OH}$ etc [18, 19]. But here we used In_2O_3 as an additive to create defects in stable $\alpha\text{-Fe}_2\text{O}_3$ (Hematite), which in turn will increase the response of the films to various gases.

In current work we studied effect of addition of (1%, 3%, 5%, and 7%) of In_2O_3 on morphological, gas sensitivity variations in Iron Oxide films. At 250 °C 3% In_2O_3 added Fe_2O_3 films showed good response (50%) to petrol vapors. While at 300 °C, 7% In_2O_3 added Fe_2O_3 films showed good response (56%) to petrol vapors. This addition of In_2O_3 has caused films to act as petrol vapors sensor. Metal oxide heterojunctions with different properties has contributed immensely for the improved sensitivity. Easy decomposition of Hydrogen in longer carbon chains of petrol vapor also enhanced sensitivity.

Synthesis And Structural Characterization Of Cadmium Sulphide (CdS) Thin Film by Electrochemical Deposition Of Two Electrode System.

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Abstract:

Cadmium sulphide thin films have been deposited by electrochemical deposition using the two electrode system on stainless steel substrates from aqueous solution containing 0.5 N cadmium sulphate ($\text{CdSO}_4 \cdot 2\text{H}_2\text{O}$) and 0.1 N sodium thiosulphate ($\text{Na}_2\text{S}_2\text{O}_3$). The 0.1 N Triethanolamine was used as a complex agent for complex form of CdS materials. The Thickness of CdS thin film was found to increases up to certain time after that it was found fall by co- deposition with deposition time. The depositing voltage corresponding current density was optimized by polarization curve method. The good quality adherent films of CdS were obtained at 1200 mv in two electrode system. The thickness of film was measured by mass difference method with different PH of electrolytic bath was studied. The chemical bonding of functional group of deposited material was studied by FT-IR spectral analysis. The weak intensities stretching band transmission was found at 2950 cm^{-1} of CdS material..The Structural characterization and surface morphology was studied by XRD, SEM respectively.

Keywords: Electrochemical Deposition, CdS, FT-IR, XRD, SEM.

Introduction:

For the last couple of decade's interest in the use of photo electrochemical solar cells lead to large amount of research in the search for thin film polycrystalline material with acceptable efficiency. Some time approaching that of single crystals [9]. Thin films have attracted much interest because of their varied application such as semi conducting devices, photovoltaic, optoelectronic devices, radiation detectors, laser materials, thermoelectric devices, solar energy converters [9]. The Interest in the use of photo electrochemical (PEC) solar cells for low-cost energy conversion has lead to an extensive research in the field for novel and suitable thin film semiconductor materials. Recent investigation has shown that layered type semi conducting cadmium chalcogenide group (CdSe , CdS , CdTe) which absorb visible and near [6].IR light are particularly promising materials for photo electrochemical solar energy conversion. The CdS thin film is used as window layer for CdS/CdTe solar cell because band gap energy of window layer should be less [2]. The band gap energy of CdS material is 2.42 ev [18].The polycrystalline electrodes are economically desirable for solar cell applications. Hence this study has been directed towards obtaining CdS thin film in polycrystalline nature. Many workers investigated the photo electrochemical property of CdS single crystal. The structural, optical and Electrical characterization of electrodeposited CdS thin films have been reported [7]. Many workers have been succeeded in depositing thin film of CdS by electrochemical deposition technique by two electrode system. In this report an attempt is made to prepare CdS films through electrochemical deposition technique by two electrode systems on stainless steel substrate which enables the film to be used for characterization studies like structural, surface composition, surface morphology and Electrical properties.

15. RF Controlled Arduino Based Mine Detector and Position Spying Robot

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Abstract

In defense, the underground mines are used to destroy the force of enemy. To beware of those underground mines, this work demonstrates the problem and effects of landmines in defense fields. We are proposing a robot that has the aptitude to detect the buried mines and lets user control it wirelessly to avoid human casualties. We are trying to make the smart robot with interfacing metal detector, ultrasonic sensor as mini RADAR system and GPS for showing metal is detected or not, object plotting graph in the path of moving robot and for showing its current position after mine detection by GPS on LCD screen respectively.

In this paper, we focus on the safety of humans and the robot. A wireless RF module is added to the robot, which increases the operation length of the robot. This technique has the practical benefit of reducing the number of casualties, after the implementation of this technique. This robot can be controlled efficiently and it robustly determines the position of the obstacle.

Keywords: GPS, Zigbee, position spying robot, RADAR system, arduino UNO.

1. Introduction

A robot is a virtual or mechanical artificial intelligence electro-mechanical machine which is guided by computer or electronic programming, and is thus able to do tasks on its own [1].

The main aim of this project is designed to develop RF controlled arduino based mine detector and position spying robot. This project consists of two sections- Transmitter section (Remote) and Receiver section (Robot). This Robot contain various types of electronic devices

1. Electrostatic Mechanism for Agriculture Sprayer - A Review

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Abstract

In agricultural industry, spray applications are an important tool for the protection of crops. In commercial agriculture, plant protection chemicals are vital for profitability, low food prices and for maintaining adequate food supply. Without them, crop losses could be as high as 50 per cent for field crops and up to 100 per cent for fruit crops and greenhouse ornamentals. The demand for plant protection machinery in India is increasing every year. The introduction of electrically charged sprays for agricultural application can provide greater control of droplet transport with impending reduction of wastage. The use of electrostatic spraying can increase the application efficiency by about 80 per cent with 60 per cent less spray chemical ingredients. It has significant potential on application of agricultural liquid formulations, since charged particles can perform uniform spray coverage with considerably less quantity.

Keywords: Electrostatic, Spray, Agriculture, plant, droplet

1. Introduction

In commercial agriculture the plant protection equipment are plays very important role. There are different types of sprayer available for protection of plant from the insect with the help of sprayer. In India, the powered knapsack mist blower is one of the most popular and versatile pesticide application equipment because of its simplicity, ease of operation and inexpensiveness. But still these sprayers have to overcome the problems of low target deposition, distribution and penetration into the plant canopies. The introduction of electrically charged sprays for agricultural application can provide greater control of droplet transport with impending reduction of wastage. The use of electrostatic spraying can increase the application efficiency by about 80 per cent with 60 per cent less spray chemical ingredients (Lane and Law, 1982). Electrostatics,

24. SWAYAM - A Digital Platform for Distance Learning in Higher Education

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Abstract

Education is that the method of assist learning, gaining of data, skills, values, beliefs, and habits. Science and technology growing rapidly and consequently the content of all disciplines is quick increasing. The utilization of innovative strategies in instructional establishments has the potential not solely to enhance education, however additionally to develop ability, empower individuals, strengthen governance and impress the trouble to attain the human development goal for the country. Steps have been taken to enrich the learning with video lecture, specially prepared reading material, self-assessment tests through tests and quizzes and an online discussion forum for clearing the doubts. SWAYAM is a programme initiated by Government of India which is a digital platform for distance learning in higher education. This is a bridge between the digital divide for students who have till now remained untouched by the digital revolution and haven't been able to join the conventional way of the knowledge.

Keywords: Education, Strategies, learning, video , SWAYAM

Introduction

Our education system is fitted with gears towards teaching and testing knowledge at each level as a level teaching skill. With simplex or one-way communication system professor delivering a lecture while standing behind a dais in a huge lecture hall and students sit gently implementation his or her words, busy taking down notes[1]. Those days have been replaced with more innovative and creative ways of circulating, distributing and facilitating skill

12. MATLAB: Advanced Teaching and Learning Tool

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Abstract

Mathematical calculations is the tedious and time consuming task before invention of computers. Because of the high speed and accuracy of computers, the scenario is changed dramatically. But still we have to do the lengthy programming and graphical data representation have some limitations. For effective teaching and learning, we must have a programming language or software which is easy from programming point of view, have best graphical data representation ability and has user friendly graphical interface. The answer is MATLAB, a software and programming language. The strength of the MATLAB is that it has rich collection of functions and specialized toolboxes. For innovative teaching and learning as well as research work, data interpretation and representation is the most important task. Along with chalk and board method, if teacher demonstrate subject topic using figures, tables, graphs etc. learner can easily understand the subject. Using MATLAB this can be possible not only in mathematics but also in all the subjects. This paper reviews application of MATLAB for effective and innovative teaching in field of Science, Engineering and social science. e. g. different subjects like Electronics, Biology, Chemistry, Arts, History and Library Science etc.

Keywords: MATLAB, Simulink, Toolbox, Teaching, Learning.

Introduction

MATLAB® - MATrix LABoratory is a both high-level technical computing language and interactive environment for algorithm development, data visualization, data analysis, and numerical computation. The main advantages of MATLAB are 1. Pre-defined Functions – functions that are available with MATLAB package, 2. User-defined Functions – Functions that

4. Virtual Laboratory - An Innovative Teaching and Learning Method

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Abstract

Emerging technologies challenge the traditional process of teaching and learning and is a key aspect of higher education in order to prepare students for the real world and their employment where they will most likely be using digital devices. To incorporate the technology into the curricula has become necessary in the digital era which allows us to communicate faster to make the exchange of information in an instant rather than delayed. The intention is to prepare graduates for both local and international employment through the application of several methods in the course of their higher education at the university and professional institutions to use the techniques, skills, and modern scientific tools necessary for scientific practice. Use of modeling and simulation tool in virtual laboratory such as Xilinx, MATLAB, Origin, Keil, 8051 IDE, Arduino IDE, MPLAB, AVR Studio, WinAVR, OrCAD, Proteus, FreePCB, PSPICE, CircuitMaker, YENKA for simulation, Xcircuit for digital IC simulation, C and C++ programming and other software tools be made which reduce cost, no need to repair and maintain the costly instruments, no use components and circuit boards, fast execution speed to obtain results, analysis of result done easily.

Keywords: digital era, software tools, Xilinx, MATLAB, PSPICE Simulation

Introduction

In the pre-technology education context, the key role of a teacher is to teach some target curriculum and deliver the message via the “chalk-and- talk”. The use of innovative methods in educational institutions has the potential not only to improve education, but also to empower people and stimulate the effort to achieve the social development goals.

3. Impact of the Evolution of Smartphones in Education Technology and its Applications in Learning Electronics Circuits

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Abstract

M-Learning or mobile learning is playing very important role in the present educational scenario. It has potential to change the whole education system. Information and Communication Technology has opened a new sky for the experiments on teaching-learning methods to make education more interesting, flexible and broader. M-learning is the combination of technology and specially designed learning material. Learning material must be according to the medium so special design is required. The m-learning also play a vital role in study of electronics because for the practical study of electronics circuit required different types of components and instruments and they are very expensive, so we can study different types of electronic circuits properly using simulation process on smart phone.

We need to install electronics application those are easily available in play store so using this applications we can study virtually various circuits of electronics.

This paper represents the study of electronic circuits using smart phone applications.

Keywords: *M-learning, Smartphones, Mobile Applications, Electronic Circuits, Simulation.*

Introduction

The rapid development of information and communication technology has influenced many aspects of human life including education. Nowadays, smartphones have become a part of every person life. People around the world have adopted this new and exciting technology as one

10. A Review on E - Waste and its Management

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Abstract

Electronic waste, e-waste, e-scrap, or waste Electrical and Electronic Equipment (WEEE) describes discarded electrical devices. There is a lack of consensus as to whether the term should apply to resale, reuse, and refurbishing industries, or only to product that cannot be used for its intended purpose. Informal processing of electronic waste in developing countries may cause serious health and pollution problems, though these countries are also most likely to reuse and repair electronics. Some electronic scrap components, such as CRTs, may contain contaminants such as lead, cadmium, beryllium, or brominated flame retardants. Even in developed countries recycling and disposal of e-waste may involve significant risk to workers and communities and great care must be taken to avoid unsafe exposure in recycling operations and leaching of material such as heavy metals from landfills and incinerator ashes. Scrap industry and Environmental Protection Agency officials agree that materials should be managed with caution, but many believe that environmental dangers of used electronics have been exaggerated. India enacted its first comprehensive environmental law namely environmental protection act (epa) in 1986. Ministry of Environmental and Forest (MOEF) is the national authority responsible for legislation regarding waste management and environmental protection. A national working group has been constituted for formulating a strategy for e-waste management. This paper highlights the various sources of e-waste, disposal methods and management strategies for e-waste management.

Introduction

In the 20th Century, the information and communication revolution has brought enormous changes in the way we organize our lives, our economies, industries and institutions. Most of the IT products, especially computers and mobile phones, have a short lifespan. Further, the availability of choices, changing pace of life, rapid urbanization, and increased purchasing capacity of the middle class have all contributed to the growth of the electrical and consumer durable industry. Therefore, new technologies and 'upgrades' come into the market almost every 18 months influencing consumption patterns. This has been compounded by the change in the

18. The Effect of Temperature on the Viscosity of Glycerine, Water, Paraffin Oil

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Abstract

The Viscosity of liquids such as glycerine, water, paraffin oil, ethyl alcohol and acetone was determined by simple co-axial cylinder type rotational viscometer. The pH of given solution was measured. All solution was of acidic in nature and directly filled in cylinder for measuring viscosity. It was observed that the viscosity of solution decreased with their temperature. The viscosity of glycerin was found 3.93 pas. at room temperature and it was found 2.79 pas. at 80°C. Similarly the viscosity of water, paraffin oil was found to decrease i.e. 2.745 pas, 2.648 pas at 80°C respectively. As per FT-IR analysis the functional group was more in glycerin as compared to water so viscosity of glycerin was found higher than water.

Keywords: Co-axial cylindrical viscometer, Viscosity, Temperature, FT-IR.

Introduction

The Viscosity is very important property for any liquid that opposes the relative motion between two surfaces of liquid [2]. The viscosity is a measure of fluid resistance to flow it along the motion. It describes the internal friction of moving liquid. A fluid with large viscosity resists motion because its molecular makeup and no. of functional group present gives it a lot of internal friction. A fluid with low viscosity flows easily because its molecular make up and less no. of functional group present in sample [3]. A good example of viscosity is liquid flowing through a straw. Water with low viscosity will flow more easily than honey which has a high viscosity. Because honey consists of more complex molecular structure while water consists of

COMPARATIVE STUDY OF VISCOSITY VARIATION WITH FUNCTIONAL GROUP OF THE LIQUID MOLECULE USING FT-IR SPECTROSCOPY

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Abstract: The Viscosity of glycerin, water, paraffin oil, ethyl alcohol, and acetone was determined by coaxial cylinder type rotational viscometer. The viscosity at 28°C for glycerin, paraffin oil, ethyl alcohol, water and acetone was found 600, 100, 1.5, and 0.92 respectively in mPa.s. At temperature 80°C, viscosity is less for a given liquid which is equal to 60, 5.5, 0.592 and 0.32 mPa.s respectively. The aim of this study is to show relation between number of functional group of the fluid molecules and viscosity of fluid. The pH value was measured for given solution by FT-IR analysis and they are found to be acidic in nature.

Keywords: Viscosity, Co-axial cylindrical viscometer, FT-IR

I. INTRODUCTION:

Viscosity, which is also called a viscosity coefficient, is a measure of the resistive flow of a fluid under the influence of gravity. It is the property of a fluid which opposes the relative motion between two surfaces of the fluid that are moving at different velocities. It is the friction between the molecules of fluid hence it denotes opposition to flow. The reciprocal of the viscosity is called the fluidity, a measure of the ease of flow [1, 2]. Fluids with large viscosity resist motion because its molecule possesses greater number of functional group which gives lot of internal friction. A good example of viscosity is liquid flowing through a straw. Water which has low viscosity will flow more easily than honey because honey consists of more complex molecular structure while water consists of simple hydrogen and oxygen bond. When liquid heat up its molecule becomes excited and begins to move. The energy of movement is enough to overcome the forces that bind the molecules together, allowing the liquid to become more fluid and decreasing its viscosity [3-5].

Knowing the value of viscosity, fluidity of fluid easily measured. It plays an important role in the quality control and in various research and development stages of a wide range of industries, including Food, Chemical, Pharmaceutical, Petrochemical, Cosmetics, Paint, Ink, Coatings, Oil and Automotives [6]. For example, the viscosity of a liquid is an important parameter for constructing the piping in a plant or transporting crude oil or chemical agent through a pipeline. In the electronic engineering industry, photo resist fluid is used in the production processes of the printed circuit board, cathode-ray tube, and flat liquid crystal display. Controlling the viscosity of photo resist fluid is a crucial factor to determine the qualities, performance, and yields of finished products. In industry production cost could be lowered if viscosity of working substance maintain at optimum value [7].

For example, when rotating a drum container filled with water on its vertical central axis, the water that was at rest in the beginning starts moving as it is dragged by the container inside wall and then whirls completely together with the container as if it were a single rigid body. This is caused by the force (resistance) generated in the direction of the flow (movement) on the surfaces of the water and the container's inside wall. A fluid that generates this kind of force is regarded as having viscosity.

Viscous fluid is divided into two broad types: Newtonian fluid, in this type viscosity is constant regardless of the flow of fluid and non-Newtonian fluid, in this type viscosity changes according to the flow.

Types of viscometers

- Sine-wave Vibro Viscometer
- Rotational Viscometer
- Capillary viscometer
- Falling-Ball Viscometer

II. EXPERIMENTAL WORK:

Dr. G. F. C. Searle developed co-axial cylindrical viscometer as shown in figure 1. The dimension of various parts of viscometer is tabulated in Table 1.

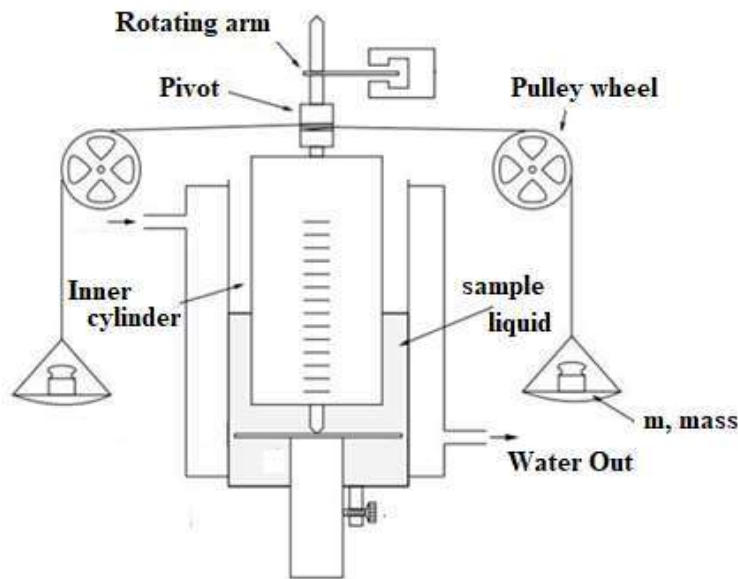


Figure 1: Rotating Cylinder Viscometer

Table 1: Dimensions of viscometer

Constant	Description	Value
a	Outer cylinder radius	(1.96 ± 0.030) cm
b	Inner cylinder radius	(1.21 ± 0.015) cm
D	Spool radius	(0.96 ± 0.025) cm
m	Total mass of pan	(10.779 ± 0.001) gm
h	Height of the sample liquid	3 cm

Glycerin is poured in outer cylinder. Inner cylinder partially immersed in the glycerin. It should be submerged carefully in sample to avoid bubbles forming under its bottom surface. Torque is acting on inner cylinder which is provided by two weights connected to a spool on the inner cylinder via a pair of pulleys. When the weights are released, the angular velocity of the inner cylinder increases until it reaches a stage where the resistive force due to the viscosity of the glycerin equals the force due to the weights in pan. At this stage angular velocity reaches to constant value. By measuring this velocity, viscosity of the glycerin can be found. Water of varying temperatures could be circulated to maintain a constant temperature [8].

To find the viscosity, η of the glycerin at room temperature, sample liquid (glycerin, paraffin oil, water, ethanol and acetone) was added up to length 3 cm height and time for ten rotations was noted and period T for rotation was noted. At 80°C, periodic time was recorded for each liquid except acetone as it is easily volatile liquid.

To find the value of viscosity we have to apply Newton's law of viscous flow to a rotating cylinder and after mathematical analysis the formula derived to calculate viscosity (η).

$$\eta = \frac{G(a^2 - b^2)}{4\pi\Omega ha^2b^2} \dots \dots \dots (1)$$

Here $G = Dmg$ is the torque produced by the weights on the spool and $\Omega = 2\pi/T$ is the angular velocity, where T is the time for one rotation in seconds. Equation (1) modified as,

$$\eta = \frac{Dg(a^2 - b^2)}{8\pi^2 a^2 b^2} \times \frac{mT}{h} \dots \dots \dots (2)$$

For respective liquid, T was measured and viscosity was calculated by above equation. The results are tabulated in Table 2:

Table 2: Summary of Viscosity of different liquids with temperature variation

Liquid	Viscosity (mPa.s)	
	at 28°C	at 80°C
Glycerin	600	60
Paraffin oil [9]	100	5.5
Ethyl alcohol	1.5	0.592
Water	0.92	0.32
Acetone	0.28	...

Fourier Transform Infrared Spectroscopy (FTIR)

FT-IR stands for Fourier Transform InfraRed, the preferred method of infrared spectroscopy. In infrared spectroscopy, IR radiation is passed through a sample. Some of the infrared radiation is absorbed by the sample and some of it is transmitted. FTIR analysis measures a sample's absorbance of infrared light at various wavelengths to find out the molecular composition and structure of liquid.

Infrared spectrum gives replica of molecular structure. Molecular structure of different molecule never matches. This makes infrared spectroscopy useful for several types of analysis. The resulting spectrum represents the molecular absorption and transmission, creating a molecular fingerprint of the sample [10]. The working principle of FTIR is based on Michelson interferometer; it is a method of obtaining infrared spectra. With the help of interferometer interferogram of a sample signal have been collected and then performing a Fourier Transform (FT) on the interferogram we get spectrum [11, 12]. An FT-IR spectrometer collects and digitize the interferogram, perform the FT function, and display the spectrum as shown in figure 2.

Intensity of infrared spectra is plotted along the x-axis. The peaks are actually absorbance bands which correspond to the various vibrations of the sample's atoms when it's exposed to the infrared region of the electromagnetic spectrum. The y-axis represents the amount of infrared light absorbed or transmitted by the material being analyzed by FT-IR spectroscopy.

The IR spectrum can be segregated into four regions [13, 14]:

If the spectrum has a characteristic peak in the range of 4000 cm^{-1} to 2500 cm^{-1} , the absorption caused by single bonds e.g. N-H, C-H and O-H.

For triple bond IR spectrum has a characteristic peak in the range of 2500 cm^{-1} to 2000 cm^{-1} .

If the spectrum has a characteristic peak in the range of 2000 to 1500, the peak corresponds to absorption caused by double bonds such as C=C, C=O and C=N.

And in the range 1500 to 400 that account for a large variety of single bonds.

Table 2: FT-IR data of Glycerin

Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
673.16	74.23	9.53	775.38	582.5	4244.386	1179.308
856.39	81.75	6.1	891.11	827.46	954.594	192.377
921.97	81.43	9.02	950.91	891.11	831.711	259.47
1043.49	46.69	30.24	1085.92	1006.84	2964.342	1128.899
1109.07	67.19	13.61	1153.43	1085.92	1449.437	336.789
1419.61	78.07	7.53	1575.84	1359.82	3118.69	549.751
1651.07	89.03	5.69	1851.66	1575.84	1627.161	401.895
2883.58	72.48	4.18	2906.73	2567.25	3925.273	-1011.74
2937.59	70.38	8.28	2999.31	2906.73	2181.838	362.441
3344.57	30.15	0.31	3346.5	2999.31	15104.21	448.2

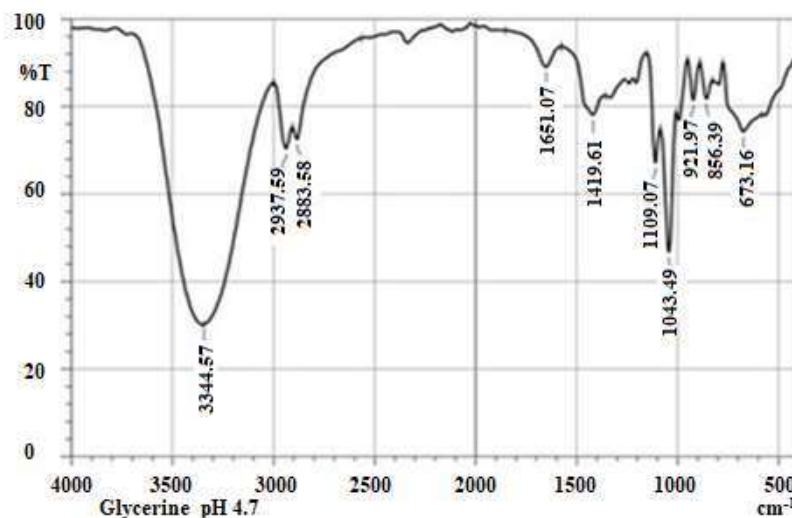


Figure 2: IR chart of Glycerin

The infrared absorption bands identify the various functional groups of the molecule from the data tabulated in Table 2 and graph of transmittance in % against wave number (cm^{-1}) of glycerin plotted shown in following figure 2. The pH value was also measured for given solution. Acidic nature of glycerin is confirmed from pH value. pH for glycerin found to be 4.7. There is a sharp intensity absorption in the absorption areas of 3000 and 3500 cm^{-1} . It confirms the compound contain an oxygen related group, such as alcohol or phenol [15-17]. In the FTIR analysis procedure, glycerin is subjected to contact with IR radiation. The atomic vibrations affect the IR radiations. The absorption of energy is found to be in the range of 3000 and 3500 cm^{-1} having stronger intermolecular forces. Higher the intermolecular forces more difficult to slide the molecules one another which results in more viscous nature of liquid.

Table 3: FT-IR data of water [18, 19]

Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
624.94	70.47	0.11	626.87	603.72	670.948	0.563
798.53	78.49	12.64	1014.56	773.46	3194.644	1230.208
1641.42	71.39	2.8	1726.29	1633.71	1798.544	149.206
3390.86	25.35	0.14	3392.79	3381.21	861.947	1.127

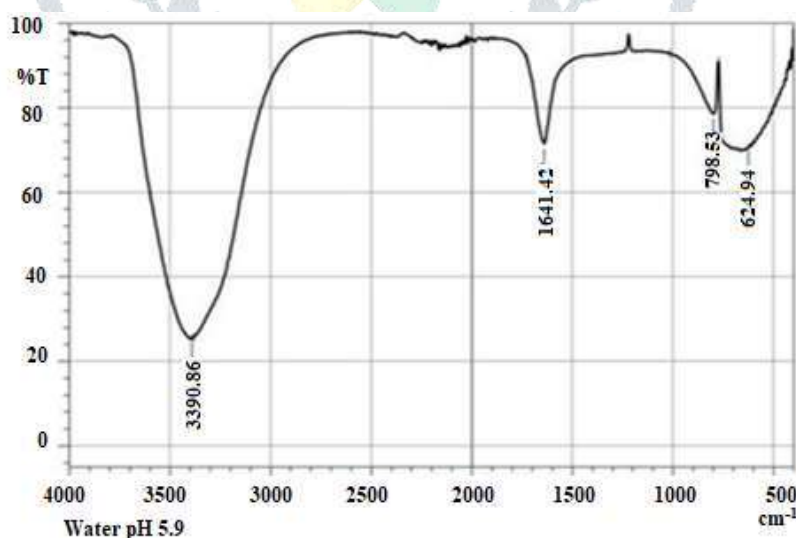


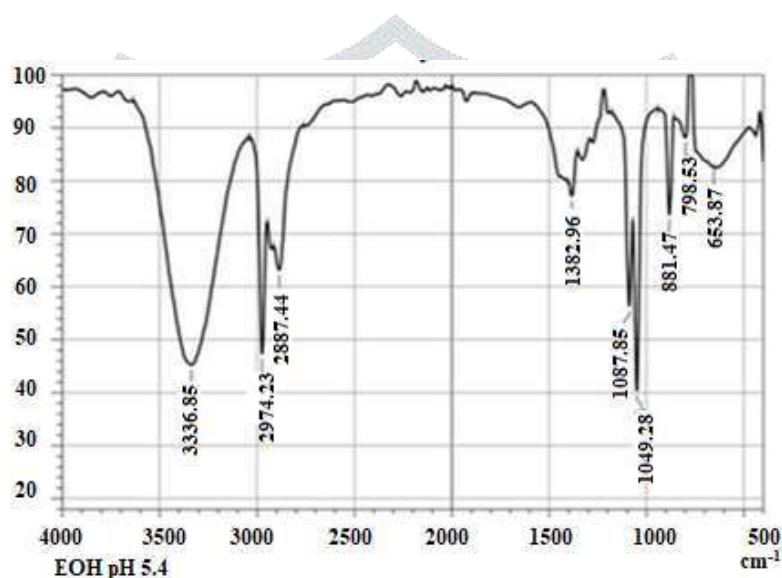
Figure 3: IR chart of water

Graph of T % against wave number (cm^{-1}) of water plotted shown in following figure 3. There is a sharp intensity absorption in the absorption areas of 3300 cm^{-1} .

Water (H_2O) contains less number of hydrogen bond as compared to glycerin ($\text{C}_3\text{H}_8\text{O}_3$) which affects the absorption area as shown in figure 3.

Table 4: FT-IR data of C₂H₅OH

Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
653.87	82.56	0.42	771.53	651.94	1619.176	1071.184
798.53	88.16	15.04	858.32	771.53	363.721	646.275
881.47	73.65	18.76	941.26	858.32	1036.899	436.574
1049.28	40.39	35.53	1070.49	941.26	2574.547	378.569
1087.85	56.35	19.35	1180.44	1070.49	1979.759	81.76
1382.96	77.1	5.45	1406.11	1354.03	1025.353	132.566
2887.44	63.17	8.54	2914.44	2760.14	3318.337	96.796
2974.23	47.34	29.65	3037.89	2947.23	2486.249	691.718
3336.85	45.19	46.44	3637.75	3043.67	18045.02	13104.20

Figure 4: IR chart of C₂H₅OH

The infrared absorption bands identify the functional groups of the ethanol molecule from the data tabulated in Table 4 and graph of transmittance in % against wave number (cm⁻¹) of ethanol plotted shown in following figure 4. The absorption band at a wave number of roughly at 3000 cm⁻¹ confirms the ethanol test.

IV. RESULT AND DISCUSSION

The Viscosity of liquid was found to decreased with increasing temperature. The viscosity of Glycerine was measured 600 Pa.s at room temperture 28°C and glycerine was heated at 80°C and viscosity was fall down at 60 mPa.s.[20, 21] This changed in viscosity is due to bond stretching in functional group by increasing temperature dipcted in figure 2.

In case of water the viscosity was found to 0.92 Pa.s at room temperature and it decreased to 0.32 Pa.s value by increasing temperature due to bond stretching and bending vibration of molecules.

It is also confirmed that the viscosity of liquid is influenced by number of functional group present in the liquid.

In the FTIR analysis procedure, glycerin is subjected to contact with IR radiation. The atomic vibrations affect the IR radiations. The absorption of energy for glycerin is found to be in the range of 3000 and 3500 cm⁻¹ having stronger intermolecular forces. Higher the intermolecular forces more difficult to slide the molecules one another which results in more viscous nature of liquid [22-24].

V. CONCLUSION

Glycerin is more viscous than water, paraffin oil, ethyl alcohol, and acetone.

Viscosity is the property of fluid which is temperature dependent phenomenon.

It is confirmed that viscosity of liquid was found to decrease with increasing temperature of solution. FT-IR analysis reveals that functional group was more in glycerin as compared to other liquid. Viscosity of liquid having more functional group is greater as compared to liquid having less functional group.

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Mental health among the college players in Nasik region

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ABSTRACT.

The present research aimed to study the Mental health among the college plyars in nashik region.to examine the mental health checklist by Pramodkumar were administered to 40 college plyars.

The finding indicate that Boysand girls difference with respect to mental health.Boys and girls difference with respect to mental health.Boys have better mental health than Girls.

Keywords:Boys and Girls,Mental health.

INTRODUCTION.

Mental health is an also important as physical health. A positive mental health would be achieved by sharpening of perception of information arriving to the brain through our entire special, better analytical faculty, sharper memory and on the overall improvement in personality characteristics. Mental health is a term used to describe ether a level of cognitive or emotional wellbeing or absence of positive psychology or holism. Mental health may include on individuals

ability to enjoy life and procedure a balance life activities and efforts to achieve psychological resilience.

Mental health is a term used to describe either a level of cognitive or emotional well-being or an absence of mental disorder. From perspectives of the discipline of positive psychology or holism mental health may include an individual's ability to enjoy life and procure a balance between life activities and efforts to achieve psychological resilience. In the mid-19th century, William Sweeter was the first to clearly define the term "mental hygiene", which can be seen as the precursor to contemporary approaches to work on promoting positive mental health. Isaac Ray, one of thirteen founders of the American Psychiatric Association, further defined mental hygiene as an art to preserve the mind again incidents and influences which would inhibit or destroy its energy, quality or development.

Definition

"Mental Health is the adjustment of human beings to the world and to each other with a maximum of effectiveness." (The World HealthOrganization-1942)

"Mental health is an, represents a psychic condition which is characterized by mental peace, harmony and content. "It is identified by the absence of disabling and debilitating symptoms both mental and somatic in the person.- (Schneider's, 1964)

"Mental health is an index which shows the extent to which the person has been able to meet his environmental demands- social, emotional or physical."

Defined health as a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity.

Hilgard-(19570) argued a mentally healthy person is an adjust person. This statement means that he is duly distressed by the conflicts he faces.

When person find himself trapped in

Death Anxiety and Personality Traits among Type-2 Diabetic Patients

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ABSTRACT

Objectives: The present research was framed to investigate the relationship between death anxiety and personality traits (Neuroticism and Psychoticism) among type-2 diabetic patients and to study the difference regarding death anxiety. **Method:** The sample included a total of 30 type-2 diabetic patients. Two measures were used i.e. Hans Eysenck personality questionnaire (EPQ-R) and Upinder Dhar, Savita Mehta and Santosh Dhar Death Anxiety Scale (DAS). Pearson product moment correlation was applied to check the relationship between personality traits and death anxiety among type-2 diabetic patients. The t-value was calculated to study the gender difference. **Result:** The correlation score between neuroticism personality trait and death anxiety it is significant. The correlation score between psychoticism personality trait and death anxiety it is significant. The research finding shows that there is a gender difference in terms of death anxiety it means male and female experiencing the different level of death anxiety. **Conclusion:** The result revealed that relationship was found in neurotic and psychotic tendencies with death anxiety among type 2 diabetic patients. On the basis of obtained result researchers can conclude that personality (neurotic and psychotic tendencies) leads to significant alleviation of death anxiety.

Key Words : Death Anxiety, Personality traits and type -2 Diabetic Patients

INTRODUCTION

Death anxiety:

Death anxiety is a form of anxiety which caused by persistent thought of death. It is also known as Thanatophobia is the Greek word and the meaning of that is fear of death (Thanatos means Death and Phobia means Fear).

Death anxiety is associated with severe illness. This type of anxiety is mostly observed in a people those who are suffering from severe illness or those who are physically unfit. They constantly worried about their health. Death anxiety is often diagnosed as general anxiety because it is common in people those who are suffering from illness they worried about their life and most of the time they are fearful about their life. Fear of death is not

only related with own health sometimes it is related with close ones health also. People those who are dependent on someone they always fearful about their death because they can't imagine their life without them.

Some common symptoms are observed in people who are experiencing death anxiety – frequent panic attack, irregular heart palpitations, nausea, sensitivity of body temperature, anger, guilt feeling, sadness, avoidance of family and friend, ignoring the conversions, busy in same thoughts etc.

Fear of death is related with people's habits, behavior, age, gender, health issues and types and traits of personality

Personality:

The word 'Personality' has its origin in Latin word

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Modi Rise and Consolidation of Hindu-Vote Bank

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ABSTRACT: *The Project of consolidation of Hindu-Vote Bank commenced from the formation of Muslim League after the partition of India in 1905. The extremists of Indian National Congress thought that as Muslims have their own party but Hindus don't have their own party thus the concept of full-fledged Hindu party germinated and first Hindu Party was formed in Lahor, Punjab Hindu Sabha. But because of mass appeal of Moderates like Gopal Krishna Gokhale and Mahatma Gandhi before independence and Pandit Jawaharlal Nehru after Independence resisted the mushrooming of Hindu Vote bank but because of the absence of strong secular leader at the national level and strong leadership and muscular image of Mr.Modi all the Hindu voters, across the caste united under the umbrella of BJP.*

KEY WORDS: *Hindu-Vote Bank, Extremist, Moderate, Caste based Parties.*

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I. INTRODUCTION

Proving everyone wrong people of India have given their full mandate to Mr.Modi, because all the political analysts and intellectuals were under the illusion that there was no Modi-wave like of 2014 and Modi would not cross 200 marks, in India a Party requires 272 seats to form a government at the centre and Mr.Modi had 282 seats in 2014. But the Indian people or Hindi heartland (Hindi speaking states of India) were thinking differently. Congress Party, the main opposition party in India, had snatched three Hindi heartland states (Rajasthan, Madhya Pradesh, and Chhattisgarh) from BhartiyaJanata Party (BJP) in the state's elections held December 2018 and not so well performance of BJP in Gujarat Assembly election, home turf of Mr.Modi, a year ago in December 2017 was a sort of, wakeup call for the BJP. Afterward, BJP started their age-old and tried and tested formula of "Consolidation of so-called Hindu-Vote bank".

As Mr.Modi himself has confessed that 'He is a Hindu-Nationalist' and very overtly does a Hindu-Vote bank politics. By Hindu-Nationalist, he self-claims that he is a Hindu by birth and believes in Hindu religion, culture and philosophy and loves India and ready to sacrifice, if required, his life for the country, which he has said the number of times through his speeches.

The roots of Hindu politics can be traced to the Extremist camp of Indian National Congress. Indian National Congress was formed by a British Civil servant, Allan Octavian Hume, in December 1885, along with some educated elites (DadabhaiNaoroji, DinshawWacha and Womesh Chandra Bannerjee) of India for their rights in British Government and administration. By 1905 there was a divide in INC: Moderates and Extremists, regarding the methods. Moderates like DadabhaiNaoroji and Gopal Krishna Gokhale, who believed in constitutional means and worked within the framework of law and conveyed their disagreement to the British Raj through passing resolution and sending petition and appeal. On the other hand Extremists like BalGangadharTilak, LalLajpatRai, AurobindoGhosh believed in strong protest and boycott and need of a mass movement against the British and believed that British would not leave by making an appeal to them. Therefore, to attract the people, especially Hindus, they took refuge in Hindu Religion and to unite Hindu people BalGangadharTilak started Ganesh Jayanti and Shiv Jayanti.

The real Hindu-Vote bank politics commenced after the Partition of Bengal in 1905, on the line of Hindu and Muslim and formation of Muslim League or All India Muslim League in 1906 to safeguard the rights of Muslims. The Extremist camp of INC also felt that there should be a party which would specifically look after the Hindu rights, as they felt that Congress was ignoring Hindu rights, hence, LalLajpatRai formed, Punjab Hindu Sabha, in 1909 and criticized the policies of Indian National Congress and failing to defend the Hindu Interest and demanded that Indian politics should be Hindu centric as Hindus are in majority. Punjab Hindu Sabha, which later on become, a full-fledged Hindu organization, Hindu Mahasabha, in 1921. But both, Muslim League and Hindu Mahasabha failed to attract people because by then Mahatma Gandhi had arrived in India from South Africa and had joined the Moderate camp, led by Gokhale, of Indian National Congress and had appealed for Hindu-Muslim unity. KeshavBaliramHegdewar, a former Congressman, who was part of Extremist camp, led by BalGangadharTilak, of Indian National Congress and a member of Hindu Mahasabha

लोकसाहित्य : लोकनाटय-लावणी

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पंचवटी, नाशिक-४२२००३.
मो. ९४२२०३१४०९

मराठी लावणी वाङ्मयात जोतीराम, अनंत फंदी, राम जोशी, होनाजी, परशुराम, प्रभाकर सगनभाऊ यासारख्या लावणीकारांनी लावणी विकसित केली. त्यानंतरच्या कालखंडात पठ्ठे बापूरावांनी ही परंपरा पुढे नेली. स्वातंत्र्योत्तर काळात ग. दि. माडगूळकर, जगदीश खेबूडकर, शांता शेंढेकर, मा. दा. देवकाते, राम उगावकर यांनीही लावणीवाङ्मयात भर घातली. लावणी वाङ्मयाकडे बघता लावणीची प्रामुख्याने जोपासना पुणे व पुण्याच्या आसपासच्या परिसरात झाली असावी असे मानले जाते. लावणीला शिवकाळात विशेष स्थान नव्हते मात्र लावणीला खरे महत्त्व पेशवाईचा उत्तरार्धातच प्राप्त झाले.

प्रस्तावना :

मानवी जीवन जगत असताना आपण ज्या प्रदेशात राहतो त्या प्रदेशातील व आजूबाजूच्या प्रदेशातील स्थानिक लोकपरंपरांचा, लोकवाङ्मयाचा आपल्या जीवनशैलीवर व विचारधारांवर अप्रत्यक्षपणे परिणाम होत असतो. स्थानिक बोलीतील लोकगीते, लोककथा, म्हणी, वाक्यप्रयोग हे देखील कानावर पडत असतात. त्यातून एक लोकसंस्कृती तयार होते व ती आपल्या जीवनाचा अविभाज्य भाग बनते. महाराष्ट्रातीलच नव्हे तर भारतातील लोककलांची परंपरा फार प्राचीन आणि वैभवशाली आहे. लोक म्हणजे आम जनता, सर्वसामान्य समाज आणि कला म्हणजे माणसाच्या अंगी असलेले वेगळेपण ज्या वेगळेपणाचा संबंध नृत्य, नाटय, चित्र, संगीत यासारख्या बाबींशी येतो. "लोकांकरिता असलेल्या लोकांच्या म्हणजेच समाजाच्या सुख दुःखाचे योग्य दर्शन घडविणाऱ्या अनिष्ट चालीरितींवर बोट ठेवून सुविचारांची देवाणघेवाण करीत समाजप्रबोधन करणाऱ्या वेगवेगळ्या भाषेत असणाऱ्या कला म्हणजे लोककला होय."^१ लोकगीते, लोककथा, लोकनाटय, लोककला हे लोकवाङ्मयीन अविष्कार व मौखिक लोकसाहित्य संपदा हे लोकसाहित्याचे अंग आहेत.

लोकसाहित्य स्वरूप :

लोकसाहित्यात पौराणिक वाङ्मय आणि स्थानिक लोकसाहित्यातील मिथके यांचाही समावेश असतो. स्थानिक जीवनरीत, रूढी, परंपरा, लोकसमजुती या तत्त्वज्ञानाचाही समावेश असतो. लोकसाहित्य हे त्या त्या समाजातील कुटुंबसंस्था, विवाहसंस्था, जातिसंस्था, धर्मसंस्था, अर्थव्यवहार अशा विविध सामाजिक संस्थांचे दर्शन घडविते. अनेक बालगीते, म्हणी, वाक्प्रचार, गोष्टी बालपणापासून आपण वडिलधाऱ्यांकडून ऐकतो व त्या वापरूही लागतो. एका पिढीकडून दुसऱ्या पिढीकडे हा मौखिक वारसा आपोआप पुढे जात राहतो. आपल्या व्यावसायिक जीवनात किंवा सांसारिक प्रसंगातही आपण म्हणी, वाक्प्रचारांचा वापर करीत असतो. गाणी गोष्टी यांच्या सोबतच गावात जत्रा उत्सवाच्या प्रसंगी सादर होणारी नृत्ये, नाटकेही आपण पाहतो. तमाशा, बोहाडा कलापथकांमध्येही आपण ते पाहतो. आकाशवाणी, दूरचित्रवाणीवर अनेक सामाजिक, सांस्कृतिक, धार्मिक आणि राष्ट्रीय कार्यक्रमातून आपण हे पाहतो. हे लोकपरंपरेने चालत आलेले कलाप्रकारांचे माध्यम वापरीत असतात.

लोकसाहित्य व्याख्या :

"विधी कर्माच्या वेळी, सण उत्सवाच्या प्रसंगी, लोकांनी पिढ्यान्पिढ्या अंगीकारलेली रीत म्हणूनही लोककला सादर होतात. या साहित्याचा कोणी एक कर्ता नसतो. लोकांनी परंपरेने सांभाळलेला वारसा असेच त्याचे स्वरूप असते. म्हणून या साहित्याला लोकसाहित्य म्हणतात"^२ लोकसाहित्य हा शब्द इंग्रजीतील Folk Iore या शब्दासाठी वापरला जातो.



साहित्य आणि सामाजिक शास्त्रे : अनुबंध

डॉ. किरण नामदेव पिंगळे

मराठी विभागप्रमुख,
 लोकनेते व्यंकटराव हिरे महाविद्यालय,
 पंचवटी, नाशिक - ३.

९९२२२२७४४४

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मानवी जीवनाला पूर्णत्व येण्यासाठी आपण अनेक शास्त्रे आणि कलांचा शोध लावला. मानवी जीवनाला पूर्णत्व येण्यासाठी शास्त्रांबरोबर कलांचीही आवश्यकता असते. कला अनेक आहेत. 'साहित्य' ही त्यापैकी एक महत्त्वाची कला आहे. साहित्य आणि समाजशास्त्र यांचा परस्परसंबंध अतूट, पूरक आणि पोषक असतो.

"वाङ्मय ही समाजाची नाडी आहे. कोणत्याही समाजाच्या वाङ्मयीन स्वरूपावरून तो समाज संस्कृतीच्या कोणत्या पायरीवर आहे, ते समजते. "देशाच्या घटनेचे आणि प्रगतीचे वाङ्मय हे एक प्रभावशाली शस्त्र आहे. जीवनाची जी जी चिरंतनमूल्ये आज मानवजातीच्या प्रगतीपथावर धुवताऱ्याप्रमाणे अढळ तेजाने तळपत आहेत, ती मूल्ये आणि सत्ते ही मानवजातीला साहित्याने दिलेली लेणी आहेत. आजच्या युगात मानवी जीवनाला आवश्यक असणारे साहित्य हे सहावे महाभूत आहे. ("पंचमहाभूते - साहित्य हे सहावे महाभूत - आचार्य प्र. के. अत्रे, १९४२, नाशिक येथील अ. भा. साहित्य संमेलन, अध्यक्ष)

"साहित्य म्हणजे मानवी जीवनाचे पडसाद आहे, पण तो माणसांच्या जीवनाचा पडसाद असतो. जे आलेख लेखकांनी आजवर काढले आहेत, ते मानवजातीचे महान संचित म्हणून आपण उराशी बाळगीत आलो आहोत."

"जे सहित चालते ते साहित्य" - साहित्याची व्याख्या.

"साहित्य हा समाजाचा आरसा आहे, साहित्यात समाजाचे प्रतिबिंब असते." - साहित्याची व्याख्या

शब्द हे साहित्याचे मूलद्रव्य आहे.

माणूस हा साहित्याचा केंद्रबिंदू आहे.

माणूस हा सामाजिक प्राणी आहे.

साहित्य हे सांस्कृतिक घटित मानले जाते, पण त्या अगोदर ती एक सामाजिक कृती असते. साहित्याला सामाजिक कृती मानल्यामुळे त्याला थोडाही कमीपणा येत नाही.

साहित्यनिर्मिती समाजातच निर्माण होणे शक्य असते. समाजाच्या हजारो वर्षांपासूनच्या विकासाबरोबर अनेक सामाजिक व्यवस्थांची आणि संस्थांची निर्मिती झाली. उदा. विवाहसंस्था, धर्मसंस्था, कुटुंबसंस्था, वर्ण-आश्रम-जातीव्यवस्था इत्यादी.

मानवाच्या भौतिक गरजांवर त्यांच्या मानसिक गरजांचा प्रांत सुरू होतो. त्यालाच सांस्कृतिक गरजा असे म्हणतात. माणसाने समाज घडविला आणि समाजाने माणूस घडविला, माणसाने भाषा घडविली आणि भाषेने माणूस घडविला.

Strawberry Cultivation: Horticulture Revolution in Maharashtra with Reference to Surgana Tehsil

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Abstract :

The paper highlights the strawberry cultivation in Maharashtra, a product of horticultural revolution in the state which was initiated by the technology Mission for Integrated development of Horticulture in the state of Maharashtra. The Surgana Tehsil of Maharashtra is the study area of the paper and also focuses upon the problems faced by the farmers in production and, marketing of strawberry. The revolution in the strawberry cultivation has brought major transformation in the socio-economic conditions of people engaged in cultivation of strawberry crop. The strawberry cultivation began with the help of agricultural department taking farmers of Daab to Surgana Tehsil in Nashik District on an Agricultural educational Programme. Mahabaleshwar is also famous for strawberry cultivation like Surgana. Nowadays, the farmers are only growing two varieties of strawberry; the Chandler and sweet Charlie. Chandler is a dessert-quality fruit with bright Colour, this variety is most found in Surgana.

Keywords : Horticulture, Revolution, Development, Socio-economic, Marketing, Surgana.

Introduction :

Strawberry is one of the most popular soft fruit and is cultivated in plains as well as hilly areas. It is widely grown in sub-tropical countries with maximum temperature 22°-25°C. Strawberry gives quickest return in shortest period. In India, strawberries are mainly grown, in the states like, Himachal Pradesh, Jammu and Kashmir, Maharashtra, Meghalaya and Mizoram etc.

Strawberry is a reddish delicious fruit which contains proteins, minerals, fair source of vitamin A, B, C and it is regarded as one of the best anti-oxidant. Besides, strawberry can be processed for making wine, Jam, Jelly, Ice-cream and soft drinks.

The United States is the best producer of strawberry in the world (Borisset a/2006). In Maharashtra Satara District contributes 85 %, mainly because of Mahabaleshwar. In 2015, it has grown in an estimated area of 3000 areas with about 30000 metric tons of fruits being produced.

Study Area :

Surgana is located at 20° 37'E / 20° 57' N to 73° 62'E it has average elevation of 533 meters. Surgana is a Tehsil in Nashik District and it is about 90 km from Nashik. The climate of Surgana Tehsil is moderate average range from 12° c to 30° c. Rainfall in Surgana Tehsil is about 1500 to 2500 mm. Lateritic soil covers roughly in Surgana Tehsil. Majority of Surgana's population is Tribal. The main crops of Surgana Tehsil are Rice, Nachani, and Jawar and horticulture crops like strawberry.

Nashik District Map :



<https://nashik.com/nashik-district/>

Aims and Objectives :

Present study intends the following objectives

1. To study the cultivation of strawberry in Surgana Tehsil.
2. To study the marketing of strawberry in Surgana Tehsil
3. To study the problems and prospects of strawberry growers in Surgana Tehsil.
4. To suggest some remedies to improve production system of strawberry

Methodology :

This paper is mostly based on primary and secondary data collected from the visit of strawberry growing farmers and material provided by the Horticulture Department of Agricultural Department in Surgana Tehsil and simultaneously from books and journals and magazines and newspaper articles and debates. Chodambe, Sukapur, Burganon, Gadpada and Aamder, these five villages of Surgana had been selected for the study of this paper and more than 25 samples were collected through random sampling method.



Geographical Study of Trend in Area, Production and Productivity of Major Crops in Ahmednagar District.

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Mrs. Kavita M. Ghate
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Abstract

The present study is conducted with view to analyse growth and trend in area, production and yield of major crops of Ahmednagar district in Maharashtra. It is situated in central part of Maharashtra state. In this paper has been made to highlight changing land use, production and yield for the year 2011-12 to 2015-16. The Agriculture use of land of major crops is change according to changing need of human being. Rapid growth of population affecting agriculture land use pattern, their production and productivity of crops. The present study is determined changing pattern in district of area under crops, production and productivity of major crops. During the period of 2011-12 to 2015-16 total area under the major 10 crops has been decreased 30.35 per cent and the production is decreased up to 45.74 per cent.

Keywords: Ahmednagar district, Agriculture area, Crops production, Crops productivity.

Introduction:

Agriculture is most important sectors of Indian economy, agriculture is known as backbone of Indian economy. Indian agriculture account for 18% gross domestic product. India is large produce rice, wheat, pulses, spices in the world. Agriculture it is science, art, or practice of soil producing crops and raising livestock and varying degree the preparation and marketing of resulting product cleared the land to use agriculture. In Maharashtra, the annual share of gross values added of crops sub-sector in State Value added from 2011-12 to 2016-17 is about 7.8 per cent while average annual growth is 1.7 per cent.

Agriculture is most important and more accepted occupation in Ahmednagar district. Now a day not only taken food crops through the agriculture practices but also take the cash crops. There are three basic needs of human being out of these food and cloth need fulfilled from agriculture occupation. Agriculture also important sectors in India Maharashtra as well as Ahmednagar district because to provide raw materials for agro-based industries.

In this paper an attempt has been made to explain changing area under crops, production, and productivity of Ahmednagar district. While comparing Ahmednagar district with western Maharashtra in the sense of agriculture development it is supposed to be very low development due to inadequate rainfall, lack of irrigation facilities, poverty of farmer, and view of subsistence agriculture etc. In Ahmednagar district along riverside to present fertile Regur soil that's why cash crops like sugarcane, cotton, oilseeds have become common crops are found it. But far away from river there are not irrigation facilities available to sustain crops still occurring drought. When we focus current factors of agriculture in district like as agriculture area under crop, crop production and productivity, we found that changes, because agriculture in Ahmednagar district is very complex phenomenon.

Do to various problem (natural /manmade) to continuously decrease agriculture area under crops and also decrease production and productivity of crops in Ahmednagar district from 2011-12 to 2015-16.

The Global Villagers

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Introduction:

Our view of the world is related to the means of communication. Our knowledge of the world is mediated by the technical means of information exchange. When we are limited by word of mouth our horizons are limited to the very local and distant events remain distant. With the development of print, messages can travel further and quicker and more reliably. Benedict Anderson (1983) considers the connections between the rise of print capitalism and the way nationalist sentiments are fostered. He uses the term 'imagined communities' to refer to the way that a newspaper discourse can establish a community of interest.

With the development of electronic media the world is brought into our living rooms. At the flick of a button we can see events on the other side of the world as they happen. Indeed some events happen because they are seen on television screens around the world. We now live in what Marshall McLuhan referred to as the global village. We turn on the television and see riots in South Korea, revolutions in the Philippines, a general election in Germany, a disaster in Mexico, a war in Kuwait, an uprising in Iraq. With electronic media the world is brought into the perception of our everyday lives. In an age of electronic mass media knowledge of world events is no longer restricted to a select few?

There is now more of immediacy to our experience of distant events. And there is a sharing of this experience. Radio and television has helped to create a shared world view and brought into play a major new force in world affairs— world public opinion. World public opinion can be mobilized to release political prisoners, undermine governments, legitimize opposition groups and give hope and help to beleaguered groups. For the first time in the world history the collective opinion of ordinary people has a role to play in global events.

This world opinion is as yet still very much restricted to the rich core. In North America there are two television sets to every household, in central Africa there is one set for every fifty households. The information presented on television is filtered and selective. Coverage of international stories is biased and patchy, subject to national stereotyping. Some groups are delegitimized by being called terrorists; others are lauded as liberation movements. Much of the Third World is only seen as newsworthy in the West if revolution, famine or natural disasters occur. Little attention is given to the everyday life of the majority of ordinary people. The foreign news of most national television news broadcasts concentrates on the highly unusual, the bizarre and the dramatic rather than the routine of mundane life. There are important differences in the way television news covers the local, the national and the international.

Despite this bias the last half of the twentieth century has seen a world brought much closer together, a world where more people now know much more about the rest of the planet, where world public opinion has emerged as a powerful force.

The Global Village:

The twentieth century also saw the realization that the world was a very small place and what happened in one part had an effect elsewhere. When Chernobyl exploded in April 1986, radioactive dust fell on the hillsides of North Wales; when people used aerosols in the privacy of their homes they are affecting the atmosphere above all our heads; and when people cut down trees in the Amazon, flood more rice fields or raise more cattle they affect the climate of the whole world. We now know that although we may be separated into different states these boundaries are becoming more and more irrelevant. We have become global villagers, a term which captures the interdependency of the global and the local. Our everyday lives are lived at a local level; our actions are, on most days, bounded by a fairly tight spatial spread. And



Economics of Strawberry Cultivation And Marketing: A Study of Surgana Tehsil

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Abstract :

The present paper aims to depict the picture of strawberry cultivation and marketing of Surgana tehsil of Nasik district of Maharashtra state. The study was carried out to estimate per hectare production cost of strawberry. It is also focused on the problems occurring in production and marketing of strawberry in the study region.

For this research paper primary data were collected from 50 strawberry cultivators selected from various villages from the study area. The study reveals that Rs. 68230 was the average per acre production cost of strawberry and Rs. 6,010 was the average per quintal marketing cost. Average strawberry yield per acre was Rs. 180060. The total production was sold in different market. About 68% quantity sold in Surat, Vapi, Bilimora markets and rest of in the other markets. The major constraints faced by the strawberry cultivators were lack of sufficient capital, non-availability of new variety of saplings, lack of cold storage facility, lack of transportation facility, inadequate knowledge of marketing, etc. The data were referring to the year 2017-18.

Keywords: Cost of Cultivation, Selling Cost, Marketing, Yield.

Introduction:

Strawberry (*Fragaria* spp.) is one of the important fruits grown in ghat zone of India. It is native of California. British people brought strawberry to India. It is classified in rose category. Earlier, this crop was known as the forest plant. Its family is Rosaceae. In India strawberry is mainly grown in the states of Himachal Pradesh, Jammu and Kashmir, Maharashtra, and Mizoram etc.

Strawberry is the reddish, delicious and attractive heart shape fruit cultivates mostly in hilly area in India. Satara district contributes around 85 per cent of the total strawberry produce in the country. Recently this crop is being cultivates in Surgana tehsil of Nasik district of Maharashtra state. Surgana is a remote and underdeveloped pocket in Nasik district. Strawberry cultivation in Surgana tehsil has not only increased profit of the farmers manifold, it has generated jobs for the villagers, who no longer migrate in search of livelihood. The strawberry farming has changed the life of the tribal farmers. The strawberry plant life cycle is three years. This fruit has receives good price in the market so that the farming of strawberry is become highly profitable. It is the boon for the farmers in study region. Due to this farmers of Surgana tehsil are attracted towards the cultivation of strawberry. The study was carried out to estimate per hectare production cost of strawberry. It is also focused on the problems occurring in production and marketing of strawberry in the study area.



महाविद्यालयीन तरुणांमधील मोबाईल फोन वापराचे अध्ययन

डॉ. नारायण नामदेव गाढे

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शोध निबंधाचा गोषवारा (Abstract)

प्रस्तुत शोध निबंधात स्मार्ट मोबाईल फोनच्या वापरामुळे महाविद्यालयीन विद्यार्थ्यांवर काय परिणाम झाला आहे हे जाणून घेण्याचा प्रयत्न केलेला आहे. प्रस्तुत अभ्यासासाठी नाशिक शहरातील विविध वरिष्ठ महाविद्यालयातील विद्यार्थ्यांची नमुना निवड करून प्रश्नावलीच्या साहाय्याने माहितीचे संकलन करण्यात आलेले आहे. प्रस्तुत अभ्यासातून असे स्पष्ट झाले की, महाविद्यालयीन तरुणांकडे साधा मोबाईल फोन क्वचितच आढळून आला. अगदी ज्यांच्या कुटुंबाचे वार्षिक उत्पन्न 40,000 रुपयांपेक्षा कमी आहे अशा विद्यार्थ्यांकडेही स्मार्ट फोन आढळून आला. स्मार्ट फोनमुळे महाविद्यालयीन तरुण स्मार्ट तर बनला आहे यात शंका नाही, परंतु मोबाईलच्या अतिवापरामुळे त्याच्या अभ्यासावर, व्यायामावर आणि इतर कार्यांवर परिणाम झालेला दिसून येतो. विशेषतः स्मार्ट फोनचा वापर ज्ञान अपडेट करण्यासाठी, मित्रांशी चॅटिंग करण्यासाठी व मनोरंजनासाठी करीत असल्याचे विद्यार्थ्यांनी नमूद केले. मोबाईलच्या अतिवापराचे दुष्परिणाम विद्यार्थ्यांना जाणवू लागले आहेत. बरीच कामे मोबाईल फोनच्या साहाय्याने होत केली जातात.

सूचक शब्द:- साधा मोबाईल फोन, स्मार्ट मोबाईल फोन, ॲप्स, डेटा, युजर्स, व्हॉट्सॲप, फेसबुक, ट्विटर, इन्स्टाग्राम.

प्रास्ताविक:-

भारतात स्मार्ट मोबाईल फोनची बाजारपेठ खूप मोठी असून त्यात वेगाने वाढ होत आहे. सन 2019 मध्ये भारतातील एक चतुर्थांश लोकसंख्या स्मार्ट फोन युजर्स असणार आहे असा अंदाज व्यक्त करण्यात आलेला आहे. जगात स्मार्ट फोन वापराबाबत भारत चीन नंतर दुसऱ्या स्थानावर आहे. सन 2017 मध्ये भारतात स्मार्ट फोन युजर्सची संख्या 299.24 दशलक्ष एवढी होती त्यात वाढ होवून ही संख्या 2018 मध्ये 339.95 दशलक्ष एवढी झाली आहे. म्हणजेच एका वर्षात स्मार्ट मोबाईल फोन वापरणारांच्या संख्येत 40.71 दशलक्षांनी वाढ झाली आहे. सन 2022 मध्ये ही संख्या 442.5 दशलक्ष एवढी असेल असा अंदाज व्यक्त करण्यात आलेला आहे. 2017 ते 2022 या कालावधीत भारतातील स्मार्ट मोबाईल फोन वापरणारांचे प्रमाण 60 पेक्षा अधिक टक्क्यांनी वाढेल असा अंदाज आहे. वाढती लोकसंख्या, टक्कोसेव्ही तरुणांची वाढती संख्या, लोकांच्या उत्पन्न पातळीत होणारी वाढ, मोबाईल डिव्हाईसेसच्या कमी झालेल्या किमती, शिवाय स्वस्त डेटाची उपलब्धता यामुळे भारतात स्मार्ट मोबाईल फोनची मागणी प्रचंड वेगाने वाढत आहे.

एका अहवालानुसार आज 94 टक्के युवा वर्गाकडे स्मार्ट फोन आहेत. दर पंधरा मिनिटाला अनेक तरुण व्हॉट्सॲप, फेसबुक, ट्विटर, इन्स्टाग्राम, अशा अनेक समाज माध्यमांचा वापर करीत असतात असे आढळून आले आहे. एकंदरीत महाविद्यालयीन तरुणवर्ग मोबाईलच्या आहारी गेलेला दिसून येतो. आजचे युग हे मोबाईलचे म्हटल्यास वावगे ठरणार नाही. विशेषतः महाविद्यालयीन तरुण-तरुणी मोबाईलच्या आहारी गेलेले दिसून येतात. केवळ काही अपवाद वगळता सर्वच महाविद्यालयीन तरुण-तरुणीच्या हाती आज स्मार्ट फोन दिसतो. सतत मोबाईल मध्ये डोकं घातलेली तरुणाई सगळीकडे दिसते. कॉलेज कट्टयावर, कॅन्टीनमध्ये व महाविद्यालयाच्या परिसरात मोबाईल फोन वापरणारी मुले-मुली मोठ्या संख्येने दिसून येतात. जिओ फोन बाजारात आणून तर रिलायन्स कंपनी स्मार्टफोनचे संपूर्ण मार्केट काबीज करण्याच्या प्रयत्नात दिसून येते. मोबाईल सेवा पुरविणाऱ्या कंपन्यांमध्ये कमालीची स्पर्धा सुरु आहे. त्यामुळे ग्राहकांना कमीतकमी पैशात रोज एक ते दोन जीबी डेटा वापरायला मिळत आहे.

पूर्वी साध्या फोनवरून निरोप दिला आणि घेतला जात होता, तेवढेच काय संदेश वहनाचे काम पार पडत होते. फोनचा वापरही खूप कमी होता. परंतु स्मार्ट फोनच्या शोधामुळे तर संदेश वहन क्षेत्रात क्रांतीच घडून आली आणि हा हा म्हणता तरुण पिढी एखाद्या व्यसनाप्रमाणे मोबाईलच्या व्यसनात कधी गर्क झाली हे कळलेच नाही. रोजच्या स्वस्तात मिळणाऱ्या एक-दोन जीबी डेटामुळे तरुणवर्ग मोबाईलच्या व्यसनात

5. A Study of Mobile Assisted Language Learning (MALL)

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Abstract

In contemporary era, there has been an attempt by the UGC and Universities to augment more and more ICT enabled innovative teaching-learning and evaluation system in the country. It is manifested through UGC's major thrust upon its own initiative of motivating development of e-content for an effective teaching-learning in an age of Information and Technology. To encourage college and university teachers for e-content development, separate marks for it in the career advancement scheme (CAS) are assigned; it could be a part of flourishing movement of enhancing use of technology in the field of teaching-learning. In fact, quest for innovation in teaching, learning and evaluation has been continually exercised in the field of education over the years. It is because the contemporary methods become obsolete or outdated and the education fraternity needs to have some new techniques to deliver new content or the old content in a new form for better interpretation. These new techniques are acquired through an intense and wide research in the discipline concerned. As a part of it, present research paper will focus upon use of one of the innovative teaching-learning methods i.e. mobile assisted language learning (MALL). The researcher applied this method upon the students to find out up to what extent mobile phone can be used as an effective technological teaching tool to make easy the understanding of subject content. The learning outcome has been measured by the post-test and is compared with the pretest. The comparative analysis of both is used to find out the effectiveness of MALL.

Key words: UGC, Universities, teaching-learning and evaluation, e-content, age of Information and Technology, career advancement scheme (CAS), education fraternity, mobile assisted language learning (MALL), technological teaching tool

Introduction

Innovation in teaching-learning is an invertible task for the systems of education of any age, because, as generations pass, advanced knowledge is developed and new parameters of life are set. This puts a challenge before the educational systems to make learning easier for the



21. New Trends in History Teaching

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Abstract

Teaching is a dynamic profession. It changes year to year depending on the classes we teach and the students we have. However, the world of education has remained largely the same for the one hundred years. Our classrooms are still teacher-centered. In the teacher-centered classroom, the role of the teacher is to deliver information to students and test the students on their ability to remember and understand that information. The students are passive learners who understand and remember information but do not analyze, apply, evaluate, or create information.

Keywords

1. History in education is at a crossroads. History in schools, colleges and universities faces considerable challenges, despite the massive popularity of the past in the wider culture. There is abundant evidence to support Anthony Beevor's view that 'there is no sign that the great history boom is slackening', as any television schedule shows. Today and BBC History on the magazine racks. Dedicated TV channels cater for the specialist, while a constant stream of light weight historical and family origin publications cater to a wider public.

2. If there is a problem here, then this relates to the wider culture and the high profile of the Second World War. This is reflected in the high output of television programme which are war related. As History is not compulsory post 14, teachers are forced to teach what students will choose to opt for, and do not have the kind of control of the curriculum many commentators imagine they have. The response of teachers is likely to be it would be unfair to stop them offering what students want in an educational environment where recruitment is the key factor in sustaining classes. The dominance of war over much historical study is rarely debated, highlighting a debilitating tendency to divorce issues of school culture which is deeply unsatisfactory.

3. Despite the visibility of the subject, Charles Clarke may or may not have made the comments attacking mediaeval history attributed to him last spring, and there may be more funding going into research, but at undergraduate level history teaching may face pressures similar to those facing history in schools and colleges.

ही वाढ मंदावलीच आहे.

८. भुईमुग आणि सोयाबीन या पिकांसाठी वार्षिक उत्पादकता वाढीचा दर ०.७ टक्के इतका रहिला आहे. सोयाबीन खालील लागवड क्षेत्र वाढल्याने उत्पादन मोठ्या प्रमाणात वाढले आहे.

९. शेती संशोधनास जितका अधिकाधिक निधी दिला जाईल तितका लाभ, उत्पादकता, उत्पादने वाढविण्यास होतो, तसेच उत्पादन खर्च कमी करणे शक्य होवून त्यामुळे बाजारात शेतीमालाच्या किंमती स्थिर ठेवण्यास लाभ मिळत असल्याचे दिसून येत आहे.

सारांश:

वातावरणीय बदलांमुळे शेतीपुढे मोठे आव्हान उभे आहे. त्याचा सामना करण्याची क्षमता संशोधन कार्यातूनच मिळेल. तसेच कापूस आणि ऊस ही दोन पीके भारतासाठी महत्वाची आहेत. ही दोन पिके मोठ्या प्रमाणात भारतीय शेतकऱ्यास आर्थिक स्थैर्य देण्याचे काम करत आली आहेत. भविष्यातही या दोन पिकांची उत्पादकता वाढविणे, उत्पादनखर्च कमी करणे याबाबत संशोधनास दिशा देण्याची आणि संशोधनाची गती वाढविण्याची आवश्यकता आहे. तसेच पिक वैविध्य, क्रोपिंग पॅटर्न सध्या सुधारणा करणे, शेतीमालाचे मुल्यवर्धन करणे या क्षेत्रातही संशोधन वाढविण्याची गरज आहे. शेतीसंशोधनाच्या निधीत वाढ करण्याची गरज आहे. देशाची अन्नसुरक्षा साधण्यासाठी भारताला आपल्या कृषी धोरणात विशेषतः संशोधनात सुधारणा करण्याची नितांत गरज आहे. भारतीय शेतीत फार मोठी क्षमता आहे. पण आजवर या क्षमते इतके उत्पादन काढले गेलेले नाही. बाजाराच्या मागणीनुसार संशोधन केले, योग्य धोरण राबविले गेले तर भारत अन्नसुरक्षेचे आव्हान पेलू शकेल.

संदर्भ :

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२०१२, प्रशांतस.

आधुनिक शिक्षण पद्धतीतील सबाल्टन विचार प्रवाहाचे योगदान

डॉ. प्रगती बी. मारकवार

सहाय्यक प्राध्यापक, इतिहास विभाग,
एल.व्ही.एच.कॉलेज, पंचवटी, नाशिक

प्रस्तावना :

भारतीय इतिहास लेखन विविध स्तरावर झाले. राष्ट्रवादी विचार प्रवाहाने झालेल्या इतिहास लेखनात भारताचे विविध अंतरंग दिसत नाहीत. भारतीय समाजात विविध जाती, वर्ग, जातीविरोधी आंदोलने, सामाजिक, धार्मिक चळवळी, ब्राह्मणेतरांची चळवळ याकडे इतिहासकारांनी विशेष लक्ष दिले नाही. बहुतेक लेखन पुरुष प्रधानतेमधून झाल्याने संपूर्ण स्त्रीवर्गावर अन्याय झाला. इतिहास लेखनात फुले, आंबेडकर, मातृआपण नामशुद्ध चळवळ स्वाभिमानी चळवळ हे विचार आलेच नाहीत.

स्वातंत्र्योत्तर काळात १९५० ते ६० काळात भारतीय विचार परंपरेवर डाव्यांचा प्रभाव पडला. मार्क्सवादी विचाराने इतिहासाचे पूर्णलेखन करण्याचे प्रयत्न झाले. श्रीपाद अमृत डांगे, रजनी पथदश, ए.आर.देसाई, डी.डी.कोसंबी यांनी तसा प्रयत्न केला. पुढे राजकीय सुधारणांना महत्व आले. मार्क्सचा विचार मध्यभागी ठेवून अन्वयार्थ लावण्याची नवीन प्रक्रिया अस्तित्वात आली. भूत आणि वर्तमान ही पद्धत जर्नल्स हील थॉमसन यांच्या लिखानातून भारतीयांना दिशा मिळत गेली. जात प्रमुख मानून लिखाण केले. स्त्रीवादी लेखनाला याच काळात मान्यता मिळाली. या विविध विचार प्रवाहातून १९८२ पासून वंचितांच्या इतिहास लेखनास प्रारंभ झाला. परंपरागत इतिहास लेखनाला छेद देऊन इतिहास क्षेत्रात नवी आव्हाने उभी केली. इतिहास लेखनासाठी नवी क्षितीजे खुली केली व नव्या पर्वाचा आरंभ केला.

सबाल्टन इतिहास लेखन प्रवाहाचे उगमस्थान दक्षिण आशियाई राष्ट्रांच्या इतिहासाशी निगडित आहे. दक्षिण आशियातील विविध वसाहतीवर पाश्चात्य राष्ट्रांचे शासन होते. उदा.इंग्लंड या राष्ट्रांने भारतावर सुमारे १५० वर्षे राज्य केले तसेच पोर्तुगाल, फ्रान्स या राष्ट्रांच्याही विविध राष्ट्रात वसाहती होत्या. मोठ्या प्रमाणावर

23. Basics of E-Learning

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Abstract

E-Learning today to a large extent is seen as a means to plunge gaps inherent to the classroom system of learning but seeing how the entire domain is growing by leaps and bounds, let's all be open to the fact e-learning could be the alternative to classroom. Today e-learning is almost entirely based. Even the versions available offline a working internet connection for update and content.

Keyword-e-learning Management system.

Introduction

The speed at which human civilization evolves solely depends upon the knowledge of the people at that time. Educational needs and basic structure are not only capable of sustaining demand, and as a result thousands of researchers have left family because there is not enough information for everyone. Fortunately for them, there is enough solution here and there is a long way around. It is called e-learning and includes any kind of education through electronic media and broadcasting. This includes the use of CDs, DVDs, you tube videos and even a local internet. The education being offered is of some of the highest quality that was only accessible to those who could afford it. Some universities have started to offer online and offline offers in their video, audio or document form by offering their courses at their level.

E-Learning Advantages

1-E-learning really does score against the traditional system of learning and education in many aspects and the many gaps present in the traditional system of education are neatly filled by e-learning.

2-Another set of people who can really benefit are the working professionals. Significant benefits of e-learning can be used by those interested in developing skills. set of their employees.

3- Second and definitely the biggest limitation that e-learning has to its name is the fact that you need to be connected to the internet if you really want to get anywhere. Sure you can



सेंद्रिय शेती - काळाची गरज

प्रा. सुजाता आहरे

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मोबा. ९४०३४६६९५३

प्रस्तावना :

आज जगाची लोकसंख्या दिवसेंदिवस वाढत चालली आहे आणि या वाढत्या लोकसंख्येला अन्न, धान्य पुरवठा करण्यासाठी शेतीतून भरघोस उत्पादन घेणे गरजेचे आहे. त्यामुळे शेतीत रासायनिक खते आणि किटकनाशके यांचा अतिवापर केला गेला. रासायनिक खतांच्या वापरातून सत्तरच्या दशकात हरीतक्रांती यशस्वी झाली. अन्नधान्य उत्पादनात प्रचंड प्रमाणावर वाढ झाली. अन्नधान्याच्या बाबतीत भारत स्वयंपूर्ण झाला. पण लवकरच रासायनिक खतांचे अनेक दुष्परीणाम दिसू लागले. रासायनिक खतांमुळे जी उत्पादन वाढ होते ती तात्पुरत्या स्वरूपाची असते. रासायनिक खतांचा अधिक व सातत्याने वापर केल्यामुळे जमिनीचा पोत बिघडतो व जमिनीची उत्पादन क्षमता कमी होते. रासायनिक खतांचा वापर करावयाचा असेल तर पिकांना भरपूर पाणी द्यावे लागते. त्यामुळे जमिनीतील क्षारांचे प्रमाण वाढून जमिनीचा कस कमी होतो. महाराष्ट्रातील अनेक ऊस उत्पादक भागात खारवटलेल्या जमिनी पहावयास मिळतात. रासायनिक खते व किटकनाशके मानवी आरोग्याच्या दृष्टीने घातक असतात. हे आता सिद्ध झाले आहे. रासायनिक खतांच्या वापरातून अन्नधान्याचा दर्जा घसरतो. रासायनिक खतांच्या वापरामुळे आपली निर्यातही कमी झाली आहे. यातून सेंद्रिय खतांचा वापर करावा हा मतप्रवाह पुढे आला आणि सेंद्रिय शेतीचे महत्त्व वाढू लागले आहे.

विषयाची उद्दिष्ट्ये :

१. सेंद्रिय शेतीचा इतिहास समजून घेणे.
२. भारतातील सेंद्रिय शेतीची वैशिष्ट्ये अभ्यासणे.
३. सेंद्रिय शेतीचे फायदे समजून घेणे.

संशोधन पद्धती :

सदरच्या शोध निबंधासाठी प्रामुख्याने द्वितीय सामग्रीचा आधार घेण्यात आलेला आहे. म्हणूनच माहितीचे संकलन हे दुय्यम स्रोतांद्वारे करण्यात आले आहे.

सेंद्रिय शेती :

सेंद्रिय शेती म्हणजे कुठल्याही तऱ्हेचे रासायनिक खत किंवा कृषी रसायन न वापरता पिकांच्या पौष्टिकतेसाठी जिथे फक्त सेंद्रिय स्रोतांचा वापर केला जातो ती सेंद्रिय शेती होय.

सेंद्रिय शेती म्हणजे सजीव पर्यावरणीय रचना आणि जीवनचक्रास समजून घेवून व रासायनिक रसायनांचा वापर टाळून केलेली एकात्मिक शेती पद्धती होय.

सेंद्रिय शेतीचा इतिहास :

जगात जेव्हा शेती ही संकल्पना उदयास आली. तेव्हापासूनच सेंद्रिय शेतीचा उगम झाला. पूर्वी लोक पालापाचोळा कुजवून त्याचाच वापर शेतीसाठी खत म्हणून करत आणि कोणत्याही प्रकारच्या किटकनाशकांचा वापर न करता शेतीत उत्पादन घेत असत. आरोग्याला उपकारक असे ते अन्न होते. लोकसंख्या वाढीमुळे

भूमिजा खण्डकाव्य में प्रगतिशीलता

डॉ. योगिता अपूर्व हिरे

हिंदी विभागाध्यक्षा,

लोकनेते व्यंकटराव हिरे महाविद्यालय, नासिक

को चुना है, जिससे प्रस्तुत प्रबंध काव्य की कथा का ताना-बाना बुना गया है। अर्थात् रामायण की उत्तर कथा को कवि ने नया आयाम दिया है।

‘भूमिजा’ नायिका प्रधान प्रबंध काव्य है। कथा के आधार चरित्र सीता तथा अहल्या है। नायिका सीता का चरित्र प्रमुख है। सीता के जन्म से संबंधित आख्यान के अनुसार वह धरती की गोद से पैदा हुई थी, इसलिए धरती को ही अपनी माता और पिता मानती है। वह अयोनिजा है। जमीन के भीतर गड़े घड़े में से सीता प्रकट हुई थी, जब राजा जनक अकाल के समय खुद हल जोत रहे थे। सीता भले ही जनक की औरस संतान न हो, परंतु जनक ने उसे पुत्रीवत् स्नेह किया। विवाह के बाद सीता को अयोध्या के कश्त्रिम मर्यादापूर्ण और आडंबरयुक्त वातावरण में स्थान मिला, किंतु उसे राजसी सुख से वंचित होकर चौदह वर्ष राम के साथ वनवास जाना पड़ा। लंका विजय के बाद वह राम के साथ अयोध्या वापस लौटी, परंतु उसे राजरानी का सुख नहीं मिला। एक अनाम धोबी द्वारा उसकी लंका निवास की अवधि को लेकर प्रवाद फैलाया गया। परिणाम स्वरूप राम उसे पुनः वनवास भेजते हैं। वनवास के दिनों में उसे वाल्मिकी के आश्रम में पनाह मिली और वह दो जुड़वा बच्चों की माँ बनी। दुबारा वनवास दिए जाने पर सीता को आपत्ति है। उसका आक्रोश फूट निकलता है। वास्तव में रावण की पराजय के बाद राम ने तुरंत ही सीता की अग्नि-परीक्षा की थी। उसने अपनी पवित्रता प्रमाणित कर दी। लेकिन अयोध्या के कुछ लोगों के कारण उसे ये दुर्दिन देखने पड़े। उसके हृदय को भारी सदमा लगा। वह खुकुल की एकपक्षीय मर्यादा और अन्याय को आडंबर मानती है। सीता कहती है कि पुरुष प्रधान राजाओं के सम्मुख उसे अपनी चारित्रिक शुद्धता और पवित्रता कितनी बार सिद्ध करनी पड़ेगी ? राम ने इतिहास में अपना नाम अंकित करने और कीर्ति रक्षा हेतु उसे एक सामान्य जन की तरह यह सजा दी है।

नागार्जुन विरचित ‘भूमिजा’ सन २००१ में प्रकाशित कश्ति है। इस प्रबंध काव्य में जो कथा आती है, उसका मूल आधार वाल्मिकी कश्त रामायण है। परंतु नागार्जुन जी आधुनिक प्रगतिशील कवि रहे हैं, इसलिए उनकी मौलिक प्रतिभा के दर्शन भी इस काव्य में होते हैं। ‘भूमिजा’ के रचना के मूल में लोक जीवन के साथ भारतीय नारी की जीवन गाथा का अधिक प्रेरक है। नागार्जुन ने रामकथा के भीतर से नारी जीवन की त्रासदी और नारी सुलभ संवेदनाओं को मार्मिक अभिव्यक्ति दी है। नारी के प्रति सम्मान और विनम्रता का भाव नागार्जुन के रचानाकार की मुख विशेषता है। यह कवि का संस्कार है। इसीलिए वह सीता और अहल्या के जीवन के करूण प्रसंगों का चित्रण करता है। इसी के साथ राम कथा के महानायक को भी राजतंत्रीय परिवेश से निकाल कर लोकभूमि में प्रस्तुत कर देता है।

सीता के अवतरण और उनकी भू-समाधि का अहल्या के शिलारूप को आधार बनाकर तीन खंडों में ‘भूमिजा’ का रचना की गई है। कथा के इन खंडों का उपजीव्य वाल्मिकी कश्त रामायण है। परंतु नागार्जुन ने तीन स्वतंत्र प्रसंगों को कथा का एक रूप दिया है, जिसके मूल में भी नारी जीवन के प्रति कवि का दृष्टिकोण तथा रामकथा की लोकभूमि का उपस्थापन है। विविध प्रसंगों द्वारा लोकधर्म की कसौटी पर कसते हुए कविवर नागार्जुन ने एक चतुर जौहरी की भाँति रामकथा के स्वर्णिम प्रसंगों से तीन मार्मिक कथा प्रसंगों

राजतंत्र में पालित-पोषित राजा राम की आदर्श नीति पर वह व्यंग्य करती है। सीता अपने आप को लोक कुल में पनपी हुई घास की तरह मानती है, क्योंकि राम ने जब चाहा तब उसे अपनाया और जब