3.3.2 Number of papers published per teacher in the Journals notified on UGC website during the year.

3.3.2.1 Number of papers published per teacher in the Journals notified on UGC website during the year

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISBN/ISSN Number	Link to the recognition in UGC enlisted Journal/Digital Object Identifier (doi) Number
Five Dimensional Static Spherical Symmetric Interior Solutions in *F®* *Gravity*	L. S. Ladke, B. V. Bansole, V. P. Tripade, R. D. Mishra	Mathematics	Global Journal of Engineering, Science & Social Science Studies	2023	2394-3084	
Structural and Electrical Properties of Poly (O-anisidine)- Fly Ash Composites	A. D. Dahegaonkar S. B. Kondawar V. A. Tabhane	Physics	Peer Reviewed Rereered and UGC Listed Journal (Journal No 47023)	2022	2319-8508	
Temperature Dependent Electrical Conductiity and Dielectric Properties of Fly Ash Collected From Thermal Power Plant	A. D. Dahegaonkar	Physics	International journal of researches in bioscience s, agricultur e and technolog y	2023	2347-517x	10.29369/ijrat.2023.010.1.0011

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tudy of molecular interactions in the binary liquid mixtures from acoustic and thermodyanmic parameters at 303k and 2 MHz frequency	S. V. Kumbhare and G. R. Bedare	Physics	Internatio nal journal of researche s in bioscience s, agricultur e and technolog y	2023	2347-517x	10.29369/ ijrat.2023. 02.1.0055
Ultrasonic investigation of molecular interactions in binary liquid mixtures at 298 k and 2 MHz frequency	S. V. Kinnake and G. R. Bedare	Physics	Internatio nal journal of researche s in bioscience s, agricultur e and technolog y	2023	2347-517x	10.29369/ ijrat.2023. 02.1.0041
Acoustical studies on molecular interactions in ternary liquid Mixtures at 303 K	A. U. Shende and G. R. Bedare	Physics	Internatio nal journal of researche s in bioscience s, agricultur e and technolog y	2023	2347-517x	10.29369/ ijrat.2023. 02.1.0004
Acoustical studies on molecular interactions in binary liquid mixtures at 298 k and 2 MHz frequency	S. V. Kumbhare and G. R. Bedare	Physics	Internatio nal journal of advance Research in Science and Engineeri ng	2022	2319-8354	

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novel 5d-7f transition phosphor KAL 1-x PO4Cl: Tbx 3+ (0.1< x< 1.0)	Ashish Akojwar, Dipak Nagapure, Purushottam Naktode, Kartik Shinde, and Namdeo Kokode	Physics	The European Physical Journal	2022		10.1051/epjap/2021210199
Molecular interaction in of sodium salt in different solvents at different concentrations	S. P. Burad and A. B. Dhote	Chemistry	International journal of researches in biosciences, agriculture and technology	2023	2347-517x	10.29369/ijrbat.2023.010.1.0041
The Pharmacokinetic study of [DMPMDC] Drug	K. P. Jumde, D. T. Tayade, A. B. Dhote	Chemistry	International Jounal of Science Technology and Management	2022	2394-1537	
Molecular interaction in aqueous solution of Doxycycline at different Temperatures	A. B. Dhote and S. H Shrirame	Chemistry	International Jounal of Science Technology and Management	2022	2394-1537	
Molecuar investigation in aqueous solition of Doxycycline at different concentrations and temperatures by ultrasonicaly	S. H. Shrirame, A. B. Dhote and K. P. Jumade	Chemistry	International journal of researches in biosciences, agriculture and technology	2023	2347-517x	10.29369/ijrbat.2023.010.1.0052

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Green Synthesis and Pharmacological Ptential of Curcumin	Dr. Asha Mathew, Dr. Arshia Parveen, Dr. Khushal N. Pathade, Dr. aparna Dhote, Dr. Aruna Kumari Nakkella	Chemistry	Journal of Pharmaceutical negative Results	2022		
Study of Molecular Interaction of Ceftriaxone Sodium at Different Concentrations by Ultrasonic Interferometry	Rajesh S. Hajare and Sunanda s. Aswale	Chemistry	Internatio na Journal of Advanced Ressearch in Science, Communi cation and Technolog y	2023	2581-9429	10.48175/568
Ultrasonic Study of Antibiotic Ampicillin Sodium at Dirrernt Concentrations	Rajesh S. Hajare	Chemistry	Internatio nal journal of researche s in bioscience s, agricultur e and technolog y	2023	2347-517x	10.29369/ijrbat.2023.02.1.0038
Quanlitative Study of Aquatic Weeds of Aantara Lake in Dewada Village of Chandrapur Distirct	Atul K. Pimpalshe nde , Shashikan t S. Sitre and R. S Hajare	Chemistry	Internatio nal journal of advance Research in Science and Engineeri ng	2023	2319-8354	

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Comparative study of ceforxime sodium, ampicillin sodium and ceftrizone sodium using acoustic and thermodynamic Property	Rajesh S. Hajare, Shashikant R. Aswale, Sunanda S. Aswale	Chemistry	International Journal of Science Technology and Management	2022	2394-1537	
Molecular Interaction in aqueous solution of Doxycycline at different Temperatures	A. B. Dhote and S. H Shrirame	Chemistry	International Jounal of Science Technology and Management	2022	2394-1537	
Molecuar investigation in aqueous solition of Doxycycline at different concentrations and temperatures by ultrasonicaly	S. H. Shrirame, A. B. Dhote and K. P. Jumade	Chemistry	International journal of researches in biosciences, agriculture and technology	2023	2347-517x	10.29369/ijrbat.2023.010.1.0052
The Pharmacokinetic study of [DMPMDC] Drug	K. P. Jumde, D. T. Tayade, A. B. Dhote	Chemistry	International Jounal of Science Technology and Management	2022	2394-1537	
Molecuar investigation in aqueous solition of Doxycycline at different concentrations and temperatures by ultrasonicaly	S. H. Shrirame, A. B. Dhote and K. P. Jumade	Chemistry	International journal of researches in biosciences, agriculture and technology	2023	2347-517x	10.29369/ijrbat.2023.010.1.0052

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Phytochemical analysis of Ehretialaevis Roxb. Of Bhadrawati,	Praveenkumar N. Nasare	Botany	Worlwide International Inter Disciplinary Research Journal	2022	2454-7905	
Study on Pollen Morphology of some Dicotyledonous families of Nagpur, Maharashtra, India	Praveenkumar N. Nasare	Botany	International Ournal of Science Technology and Management	2022	2394-1537	
Survey of medicinal plants of ralegaon and its peripheral area, tah-Ralegaon, Dist-Yavatmal Maharashtra, India	Praveenkumar N. Nasare	Botany	International journal of researches in biosciences, agriculture and technology	2023	2347-517x	10.29369/ijrbat.2023.010.1.0052
Diversity of Cholrophyceae members of masanghat lake of bhadrawati, Dist.-candrapur, Maharashtra, India	Praveenkumar N. Nasare	Botany	Peer-Reviewed & Refereed Indexed Multidisciplinary International Research Journal	2022	2278-9308	
Inventory of fodder yielding plants used by tribal and rural communities of gondia district of maharashtra state	Chandrakumar Parle, Praveenkumar Nasare, Sushma Narkhede	Botany	International Journal of Research and analytical Reviews (IJRAR)	2023	2349-5138	

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Assessment of Physico-Chemical Parameters of Gaurala Lake of Bhadrawati, Dist. Chandrpur Maharashtra , India	Praveenkumar N. Nasare	Botany	Review of Research	2022	2249-894x	
Studies on Ethno-Veterinary Plants Used By Tribal People of Gondia District of Maharashtra State, India	Chandrakumar Parle, Praveenkumar Nasare, Sushma Narkhede	Botany	World Journal of Pharmaceutical and Medical Research	2023	2455-3301	
Diversity of Macrophytes of Gudagaon Lake of Bhadrawati Tehsil, District- Chandrapur (M. S) India	Harney, N.V	Zoology	An International Multidisciplinary Quarterly Research Journal	2022	2277-5730	
Avifaunal Diversity of Fly Ash Pond of Chandrapur(MS), India	Harney, N.V	Zoology	International journal of advance Research In Science and Engineering	2022	2319-8354	
Macrophytes Diversity of Chora Lake of bhadrawati Tehsil, District- Chandrapur	Harney, N.V	Zoology	Online Interantional Interdisciplicary research Journal,	2023	2249-9598	
Determination of Chlorophyll-A in osmansagar Lake, Hyderabad, Andhra Pradesh, India	Swati S. Bopinwar, Shshikant R. Sitre and Tarun Kanti Ghosh	Zoology	International journal of researches in biosciences, agriculture and technology	2023	2347-517x	10.29369/ijrbat.2023.010.1.0051

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Quanlitative Study of Aquatic Weeds of Aantara Lake in Dewada Village of Chandrapur Distirct	Atul K. Pimpalshe nde , Shashikan t S. Sitre and R. S Hajare	Zoology	Internatio nal journal of advance Research in Science and Engineeri ng	2023	2319-8354	
Static Bioassay test For Toxicity Testing of Steel Processing Industry Wastewater using Freshwater zooplankton	Shashikan t R. Sitre and Rekha Sarkar	Zoology	Internatio nal Journal of Science Technolog y and Managem ent	2022	2394-1537	
Diversity of Avifauna in and arounds Himayatsagar Researvoir near Hyderabad, India	Swati S. Bopinwar, Shshikant R. Sitre and Tarun Kanti Ghosh	Zoology	Internatio nal journal of advance Research in Science and Engineeri ng	2023	2319-8354	
Road Map For Data Mining Techniques	M. N. Quadri	Computer Science	Internatio nal journal of researche s in bioscience s, agricultur e and technolog y	2023	2347-517x	10.29369/ijrbat.2023.010.1.0023
Location Based Analysis of Transportation Material and Its Impact on Potable Water Using IOT	Rohini Deshpand e Awale, Dr. M. N. Quadri	Computer Science	Internatio nal journal of advance Research in Science and Engineeri ng	2022	2319-8354	

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Predict Student improvement by using Data Mining Techniques and Component	M, N. Quadri	Computer Science	International journal of advance Research in Science and Engineering	2022	2319-8354	
Research, Innovation , Challenges & Opportunities in Higher Education	Dr. Vishal Nilkanthrao Shinde	Physical Esucation	International Multi-Disciplinary Conference	2023	2277-8071	
N-LIST: An Effective E-Resources For Academic Research and Development	Mr. Sandeep S. Pradhan	Library	International Journal of Advance and Applied Research	2022	2347-7075	10.5281/zenoda.7205126

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Five Dimensional Static Spherical Symmetric Interior Solutions in $f(R)$ Gravity

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Abstract:

This paper is devoted to five dimensional static spherical symmetric interior solutions for perfect fluid in $f(R)$ theory of gravity. Seven possibilities are used to solve the field equations. Solutions obtained are discussed by using physical acceptability conditions and we obtained some physical acceptable solutions. Also for each solution, Ricci Scalar, pressure & density are evaluated.

Keywords: Spherically Symmetric,Interior Solutions, Perfect Fluid, $f(R)$ Gravity

1. Introduction:

Modern theoretical cosmology begins with general relativity and it is generally acclaimed as a successful theory of gravitation which explains the most of known gravitation phenomenon. This theory plays important role in solving many astronomical issues such as big bang theory based on radiation. Many observations have confirmed the accelerated expansion of the universe but general theory of relativity is not effective to explain the problems regarding accelerated expansion of the universe. Also this theory fails to answer the issueof dark energy and dark matter. To solve these difficulties many modified theories of gravitation such as $f(R,T)$theory of gravity, $f(T)$theory of gravity, $f(R)$theory of gravity etc have been developed. $f(R)$Theory of gravity is one of the modified theory of gravity which is mostappropriate and suitable due to its application in the field of cosmology.Dark energy and dark matter problem and unification of early-time inflation and late time acceleration are addressed in $f(R)$gravity.

Weyl[1] and Eddington [2] studied the $f(R)$actions and later these actions were studied by Buchdhal [3] in the context of non-singular oscillating cosmologies. Many author [4, 22] have done a remarkable work in $f(R)$ gravity in different context. M.Sharif et al.[23] explore plane symmetric vacuum solutions in $f(R)$ gravity by using the assumption of constant scalar curvature which may be zero. Dark energy $f(R)$models are cosmologically viable are studied by Amendola et al. [24]. P.K.Agrawal [25] studied the vacuum solutions of FRW and axially symmetric space time in $f(R)$theory of gravity. Zhang and Noh[26] found a new class of plane symmetric solution in the presence of perfect fluid. Farasat Shamir [27]

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1. Structural and Electrical Properties of Poly (o-anisidine)-Fly Ash Composites

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S. B. Kondawar
Department of Physics, R. T. M. Nagpur University, Nagpur, India.
V. A. Tabhane
Department of Physics, Pune University, Pune, India.

Abstract

In recent years, composites reinforced with fly ash particulates have attracted considerable interest due to their inherent good mechanical properties and low cost. A new composite (POAS/FA) system using low-cost materials poly (o-anisidine) and substitute derivative of polyaniline and fly ash was prepared by chemical oxidation method in presence of ammonium persulphate (APS) with various composition of 10, 20, 30, 40 and 50-wt % of fly ash in conducting polymer. The structural characterizations of the composites were carried out by using XRD, SEM and UV-Vis spectroscopy techniques. A homogenous semi crystalline structure of the composites has been observed. Scanning electron microscopy (SEM) shows a good homogeneous mixture of the composite materials. In UV-Vis technique, characteristic bands in POAS have been shifted to longer wavelength due to incorporation of FA. Electrical conductivity studies were carried out by four in-line probe DC electrical conductivity measuring instrument. The electrical conductivity was found within the range of semiconductor region. An expected decrease in conductivity was observed with addition of FA into poly(o-anisidine). Electrical properties of FA can be used to control the conductivity of POAS to make it suitable for various applications.

Keywords: Conducting polymers, Poly(o-anisidine), Fly ash, Composites, Electrical conductivity

I. Introduction

Among the conducting polymers, polyaniline and its derivatives have attracted much attention due to its ease of synthesis by chemical or electrochemical polymerization, ammonium persulphate is generally used as the oxidizing agent for the preparation. Although the chemical

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TEMPERATURE DEPENDENT ELECTRICAL CONDUCTIVITY AND DIELECTRIC PROPERTIES OF FLY ASH COLLECTED FROM THERMAL POWER PLANT

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Communicated :10.12.2022 Revision: 20.01.2023 & 24.01.2023 Accepted: 26.01.2023 Published: 30.01.2023

ABSTRACT:
Fly ash is finely divided waste obtained during the generation of energy in thermal power plants by burning powdered coal. The recycling of fly ash has become an issue in recent years, as this industrial waste is environmentally and economically important. The conductivity and dielectric permittivity parameters of the pellet measured as a function of temperature. Then, they were analysed how these parameters change depending on varying temperatures. Real and imaginary part of dielectric properties of the fly ash measured in the temperature range of 25–150 °C. Temperature dependence of real and imaginary part of dielectric permittivity suggests that fly ash exhibits strong broadband electrical behaviour. XRD study have performed to determine structural properties of fly ash. SEM analysis has performed to observe the surface morphology of fly ash. Electrical properties of fly ash used to control the conductivity to make it suitable for various applications and the result obtained from dielectric study of fly ash is of greater scientific and technological interest for the fabrication of good quality of capacitor. With utilization of this waste, it is possible to save energy, produce cheaper and protect ecological balance.

Keywords: - Fly ash, Electrical conductivity, Dielectric Properties.

INTRODUCTION :

In India, main source of electrical energy is coal based thermal power plants which contributes 53 % share of total electrical power produced [1-2]. The major problems faced by coal based thermal power plants are the handling and disposal of by-product that is fly ash. This is because of the huge quantity of fly ash produced. The amount of fly ash generated in India is 130 million ton per year [3]. The fly ash disposal problem has assumed such an important issue in the India that the Ministry of Environment and Forests issued a regulation on 14 September 1999 specifying normative levels for progressive utilization of fly ash. It is mandatory for the coal based thermal power plants to utilize 100% of the fly ash produced in a stipulated time horizon [4, 5]. According to Central Electricity Authority Report India has achieved only 63.28% of the target in terms of fly ash Percentage Utilization in the year 2016-17 [6]. Hence, it has decided to work on the utilisation of fly ash. The utilisation of fly ash is itself a big problem. The fly ash generated by the power stations is transported to the ash pond, which takes a large quantity of fertile land for dumping [7]. A huge amount of water is required for transporting the fly ash. The demand and requirement emphasis on application of Fly ash in road embankments, filler, building materials, bricks, in agriculture, in paint industry and many more. The effective use of fly ash it is decided to make an alkali activated fly ash composites which can be converted into some useful in civil construction using these materials such as fillers, tiles etc. with good compressive strength [8]. Electrical conductivity and other electrical parameters are needed to study along with thermal behaviour to develop the material application for frequency base working environment. Thermal conductivity is the heat

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STUDY OF MOLECULAR INTERACTIONS IN THE BINARY LIQUID MIXTURES FROM ACOUSTIC AND THERMODYNAMIC PARAMETERS AT 303K AND 2 MHz FREQUENCY

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ABSTRACT:

Measurements of ultrasonic velocity, density and viscosity have been carried out for n- Hexanol in 1,4Dioxaneat different concentrations at 303 K temperature and 2 MHz frequency, to provide information about molecular environment and extent of molecular interaction by ultrasonic technique. Ultrasonic velocity study of binary liquid mixture has gained much importance in assessing the weak and strong molecular interactions and association between the component molecules. Ultrasonic studies may throw more light on the molecular interaction to know the behaviour of solute and solvent molecules in liquid mixtures and solutions. Acoustical parameters such as adiabatic compressibility (βa), intermolecular free length (Lf), Acoustic Impedance (Z) and relaxation time (τ)for n- Hexanol in 1,4 Dioxanewere calculated from ultrasonic velocity and effect of concentration on molecular interaction was predicted.

Keywords :- concentration, n- Hexanol, 1,4Dioxane, molecular, ultrasonic

INTRODUCTION :

Ultrasonic measurements are very useful in the study of molecular interaction which plays an important role in the development of molecular science. The study of thermodynamic properties of binary mixtures provides opportunities for adjustment of observable properties which provides an experimental background for intermolecular interaction in the binary mixture. The nature of molecular interaction of the system can be determined by the propagation of ultrasonic waves. The ultrasonic wave propagation in the medium affects its physical properties[1-4].

The quantities such as ultrasonic velocity, density, viscosity are the important parameters which are required for the ultrasonic non-destructive technique of material characterization [4-6].In the present work ultrasonic velocity, density and viscosity values are measured in binary liquid mixtures of n-Hexanol with 1-4 Dioxane at 303K over entire range of mole fraction. By using these data, the parameters adiabatic compressibility (β_a), intermolecular free length (L_f), Acoustic Impedance (Z) and relaxation time (τ)are calculated.

MATERIAL AND METHOD :

The ultrasonic velocity, density and viscosity in binary liquid mixtures for n – Hexanol in 1-4 Dioxane been measured for different concentration at 303K.

Velocity Measurement

The ultrasonic velocity (U) in binary liquid mixtures for n – Hexanol in 1-4 Dioxane been measured using an ultrasonic interferometer (Mittal type, Model F-81) working at 2MHz frequency and at temperature 303K. The accuracy of sound velocity was $\pm 0.1 ms^{-1}$. An electronically digital operated constant temperature water bath has been used to circulate water through the double walled measuring cell made up of steel containing the

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ULTRASONIC INVESTIGATION OF MOLECULAR INTERACTIONS IN BINARY LIQUID MIXTURES AT 298 K AND 2 MHZ FREQUENCY

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Accepted : 03.04.2023 Published : 30.05.2023

ABSTRACT:

Ultrasonic studies may throw more light on the molecular interaction to know the behaviour of solute and solvent molecules in liquid mixtures and solutions. Measurements of ultrasonic velocity, density and viscosity have been carried out for 1-Heptanol in Acrylonitrile at different concentrations at 298 K temperature and 2 MHz frequency, to provide information about molecular environment and extent of molecular interaction by ultrasonic technique. Ultrasonic velocity study of binary liquid mixture has gained much importance in assessing the weak and strong molecular interactions and association between the component molecules. Acoustical parameters such as adiabatic compressibility (βa), intermolecular free length (Lf), Acoustic Impedance (Z) and Relaxation time (τ) for n- Heptanol in Acrylonitrile were calculated from ultrasonic velocity and effect of concentration on molecular interaction was predicted.

Keywords :- Acrylonitrile, concentration, n- Heptanol, molecular, ultrasonic.

INTRODUCTION :

In recent years, understanding the nature of molecular interactions necessitates a study of liquids and liquid mixtures using ultrasonic technology. Thermo-acoustic properties of liquid mixtures have been widely used to investigate the departure of actual liquid mixture behaviour from ideality. The calculated acoustical parameters and ultrasonic velocity reveal important information about molecular interactions. Through ultrasonic investigation of liquid mixtures containing polar and non-polar components, it is possible to gain an understanding of the molecular interactions and structural behaviours of molecules and their mixtures. Intermolecular interactions influence both the structural arrangement and the shape of molecules [1-3]. At different temperatures, ultrasonic velocities, as well as density and viscosity, are measured at 298K temperature to gain a better understanding of the physicochemical properties and molecular interactions between the contributing components of these mixes. In most of the solutions, ultrasonic velocity is a temperature-dependent quantity. It is also affected by the solute concentration. Density, viscosity, and other thermodynamic parameters are measured and used to explain the nature, strength, and order of the molecular interaction. Spectroscopic methods can be used to investigate molecular interactions [4-6]. The ultrasonic technique is widely used over these methods because it is less expensive, easier to use, takes less time, and produces more precise results. An attempt has been made in this work to examine the variety of thermodynamic properties of aqueous [5-7]. From graphical and analytic perspectives, the nature of the mixture is varied in temperature, size, shape, and nature in order to understand its nature.

In present work the accurate thermodynamic and acoustic properties of higher alcohol particularly 1-Heptanol and Acrylonitrile have

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ACOUSTICAL STUDIES ON MOLECULAR INTERACTIONS IN TERNARY LIQUID MIXTURES AT 303 K

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ABSTRACT:

Ultrasonic velocity study of ternary liquid mixture has gained much importance in assessing the molecular interactions and association between the component molecules. Measurements of ultrasonic velocity, density and viscosity have been carried out for 1,4 Dioxane + n- Heptanol + Cinnamaldehyde at different concentrations at 303 K temperature and 2 MHz frequency, to provide information about molecular environment and extent of molecular interaction by ultrasonic technique. Ultrasonic studies may throw more light on the molecular interaction to know the behaviour of solute and solvent molecules in liquid mixtures and solutions. Acoustical parameters such as adiabatic compressibility (βa), intermolecular free length (Lf), Acoustic Impedance (Z) and free length (η)for 1,4 Dioxane + n-Heptanol + Cinnamaldehyde were calculated from ultrasonic velocity and effect of concentration on molecular interaction was predicted.

Keywords :- concentration, cinnamaldehyde, n- Heptanol, 1,4 Dioxane, molecular, ultrasonic.

INTRODUCTION :

In the recent days, for the proper design of any chemical industrial processes knowledge of thermodynamic and transport properties liquid/liquid mixtures are completely necessary. In polymerization processes 1, 4-dioxane is used as a cyclic ether, an excellent solvent frequently used in the manufacture of special chemicals, pesticides, bulk drug intermediates [1-4].

A measurement of sound velocity, density of liquid mixtures allows one to obtain information about their adiabatic compressibility, acoustic impedance, intermolecular free length, and relaxation timeand changes in their properties.

Cinnamaldehyde is an industrially significant organic compound which consists of a phenyl group attached to an unsaturated aldehyde.Cinnamaldehyde is an organic compound. Occurring naturally as predominantly the trans(E) isomer, it gives cinnamon its flavor and odor. It is a phenylpropanoid that is naturally synthesized by the shikimate pathway. This pale yellow, viscous liquid occurs in the bark of cinnamon trees and other species of the genus Cinnamomum.

1-Heptanol is an alcohol with a seven carbon chain and the structural formula of $CH_3(CH_2)_6OH$. It is a clear colorless liquid that is very slightly soluble in water, but miscible with ether and ethanol. 1-Heptanol is often utilized in cardiac electrophysiology experiments to block gap junctions and increase axial resistance between myocytes. Increasing axial resistance will decrease conduction velocity and increase the heart's condition to reentrant excitation and sustained arrhythmias. It has a pleasant smell and is used in cosmetics for its fragrance [5-7].

Ultrasonic velocity, density of binary mixture 1,4-dioxane+ n- Heptanol + Cinnamaldehyde have been measured at 303K temperature.

EXPERIMENTAL DETAILS :

By using an ultrasonic interferometer (Mittal type, Model F-81) working at 2MHz frequency

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ACOUSTICAL STUDIES ONMOLECULAR INTERACTIONS INBINARY LIQUID MIXTURES AT 298K AND 2 MHz FREQUENCY

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ABSTRACT

Measurements of ultrasonic velocity, density and viscosity have been carried out forn- Hexanol in Cyclohexaneat different concentrations at 298 K temperature and 2 MHz frequency. Ultrasonic studies may throw more light on the molecular interaction to know the behavior of solute and solvent molecules in liquid mixtures and solutions. Acoustical parameters as adiabatic compressibility (β_a), intermolecular free length (L_f) and time relaxation time (τ)for n- Hexanol in Cyclohexanewere calculated from ultrasonic velocity and effect of concentration on molecular interaction was predicted.

Keywords: *n- Hexanol, concentration, Cyclohexane, molecular, ultrasonic*

I. INTRODUCTION:

Ultrasonic studies are extensively used to estimate the thermodynamic properties and predict the intermolecular interaction in pure liquid and various binary mixtures. The nature of molecular interaction of the system can be determined by the propagation of ultrasonic wave. The ultrasonic velocity is determined by ultrasonic interferometer. The ultrasonic measurement such as ultrasonic velocity (U), Density(ρ) and the viscosity(η) are widely used in the study of molecular interaction. It also applied in the characterizing the physico-chemical behavior of liquid mixture[1-6].

The Ultrasonic velocity and derived acoustical parameter are of special importance and provides valuable information about the molecular interaction. For this various binary mixture with respect to variation in concentration of liquid has been studied[7-9]. To study different kind of association, molecular motion and various type of interactionand their strength influence by the size of pure component and the mixture, the acoustical parameter are used[10-11].

In present work the accurate thermodynamic and acoustic properties of higher alcohol particularly 1-Hexanol and Cyclohexane have been calculated at 298K. The acoustic parameters are used to explain interaction in these binary mixture.

II. MATERIALS AND METHODS

The ultrasonic velocity (U) in binary liquid mixtures for n- Hexanol in Cyclohexanehave been measured using an ultrasonic interferometer (Mittal type, Model F-81) working at 2 MHz frequency and at

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Regular Article

A novel 5d-7f transition phosphor $KAl_{1-x}PO_4Cl:Tb_x^{3+}$ $(0.1 \leq x \leq 1.0)$

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Abstract. The present work reports on the synthesis of Terbium (Tb) doped $KAlPO_4Cl$ phosphors by the combustion of metal nitrates and urea carried out in a muffle furnace at a temperature of 650 °C. The powder phosphor samples obtained after combustion were characterized for structural and morphological analysis. Upon excitation with ultraviolet light of 380 nm, $KAlPO_4Cl$ doped with trivalent terbium ions exhibited strong emission in green light region with a weak emission in blue region which is very close to NUV region emission peaks situated at 544 nm and 551 nm. The emission spectrum reveals the potential of $KAlPO_4Cl:Tb^{3+}$ phosphor for LED as well as W-LEDs.

1 Introduction

Rare earth activated luminescent materials such as phosphate phosphors have been used to make considerable development in LED industry. The white light emitting diodes offers surplus benefits over the conventional incandescent and fluorescent lamps. WLEDs are becoming more and more popular owing to their high power efficiency, durability and flexibility in manufacturing process [1,2]. As a host materials, phosphates have received remarkable appreciation in phosphor industry by means of their promising characteristics such as large band gap supplemented with exceptional thermal and chemical stability [3–9]. Recent studies confirms that the researchers are more attentive towards fabricating high performance W-LEDs [10–15]. Especially, Tb^{3+} doped phosphate phosphors showed efficient green emission and it is being used in the display and lighting fields [16–18]. Furthermore, the phosphors may be used in integration with variety of applications such as waveguide strictures [19], active solar concentrators [20] and sub-wavelength regime propagation and nano-photonic integration [21]. Prior to present study, the attempts were made to prepare and develop new host materials and activators with high performance for solid state lighting such as Eu^{3+} activated $KAlPO_4Cl/F:RE^{3+}$ (RE^{3+} = Eu,Ce,Tb,Dy) [22–24], $LiAlPO_4Cl:EU^{3+}$ [25] and $Ca_{10}(PO_4)_6Cl_2:EU^{2+}$ [26,27]. The spectroscopic characteristics of these phosphors reveal their potential for being used to manufacture white light emitting diodes. However, there is scope for optimization in several ways and thereby an attempt has been carried out to study a rare earth doped $KAlPO_4Cl$ phosphor. So far, very limited literature is reported on the synthesis as well as study of luminescence property of $KAlPO_4Cl$ phosphor [22–25,27].

In this work, a study has been carried out to extend the application of $KAlPO_4Cl$ towards green emission and to fabricate high-quality $KAlPO_4Cl:Tb^{3+}$ phosphor powders using combustion method. It is observed that $KAlPO_4Cl:Tb^{3+}$ phosphor shows intense Green emission supplemented with characteristic lines in blue region. From the studies reported earlier and to the best of our knowledge, none of the studies has reported about the effects of Tb^{3+} ions alone on the photoluminescence (PL) of $KAlPO_4Cl:Tb$ phosphors. Hence there is a scope to evolve its potential as an alternative for phosphor generating green light when excited with NUV pumping.

2 Experimental

2.1 Synthesis

The preparation of $KAlPO_4Cl:Tb^{3+}$ phosphor was carried out by using combustion method. Figure 1 shows schematic representation of the synthesis. The combustion of AR grade 4N pure Potassium nitrate (KNO3), Aluminium nitrate ($Al(NO_3)_3 \cdot 9H_2O$), Di-ammonium hydrogen phosphate ($NH_4H_2(PO_4)$), Ammonium chloride (NH_4Cl),terbium oxide (Tb_4O_7) with Urea (NH_2CONH_2) as a fuel was performed in a muffle furnace at a temperature of 650 °C. Prior to combustion, the precursors were mixed together properly so as to obtain a homogeneous solution The compositions of the metal nitrates (oxidizers) and urea (fuel) were considered using the total oxidizing and reducing valences of the components. Tb^{3+} ion was introduced in the form of $Tb(NO_3)_3$ solution by dissolving Tb_4O_7 into HNO_3 solution separately. While doping with

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MOLECULAR INTERACTIONIN OF SODIUM SALT IN DIFFERENT SOLVENTS AT DIFFERENT CONCENTRATIONS

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ABSTRACT:
Now a days Ultrasonic velocity plays a vital role to study molecular interaction existing in the solution. Densities, viscosities of aqueous solution of sodium salt were measured at different concentrations and in different solvents. acoustic parameters were calculated from the experimental data . Type of interaction exist in the solution was predicted from acoustic parameters.

Keywords: - Sodium, Solvent, Ultrasonic, Molecular Interaction, Acoustic

INTRODUCTION :

Ultrasonic work on the principle that sound is reflected at different speed by tissues or substances of different densities .Ultrasonic investigation of liquid mixtures consisting of polar and non-polar component enable to understand the molecular interaction and structural behavior of molecules and their mixture. Number of researchers has studied the characteristics of inorganic salts in different solution. It has been reported that ions with low charge density are net structure breakers while ions with high charge density are net structure makers. The strength of ion dipole attraction is directly proportional to size of the ion, charge and the magnitude of the dipole but inversely proportional to the distance between the ions and the dipolar molecule.Electrolytes dissolving in solvent have been classified as structure makers or structure breakers. The values of all the acoustic parameters are important for collecting information about the structure of solvent as well as molecular interaction existing in the solution.

In present investigation Ultrasonic velocity and related acoustic parameters of NaBr with water have been calculated at different temperature 298K, 303K and 308K of different mole fraction.

MATERIAL AND METHODS :

In the present experimental work the different mole fraction of NaBr in water and NaBr in 20% ethyl alcohol solutions has been prepared. All thhe salt and solvent used are of AR Grade sample. All the solutions were prepared in deionized and distilled water. Following parameters were calculated

Velocity measurement :

The ultrasonic velocity of binary mixture for NaBr in H2O and NaBr in 20% Ethyl Alcohol The ultrasonic velocity (U) been measured using an ultrasonic interferometer (Mittal type, Model F-81) working at 2MHz frequency and at temperature 298K ,303K,308K. The accuracy of sound velocity was $\pm 0.1 ms^{-1}$. An electronically digital operated constant temperature water bath has been used to circulate water through the double walled measuring cell made up of steel containing the experimental solution at the desired temperature.

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THE PHARMACOKINETIC STUDYOF [DMPMDC] DRUG

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ABSTRACT

Recently in this laboratory the conduct ometric measurementsof (4S,6S,12aS)-4-(dimethyl- amino)-1,4,4a,5,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-naphthacene-2-carboxamide**[DMPMDC]** werecarried outby conductometric studyat different molar concentrations.This is easy somewhat suitable and accurate technique to study absorption, transmission and excretionof the drug in the umbrella of pharmacokinetics. This study requires minimum percentage of chemicals so we can term it as the green chemistry research in pharmacokinetics. Theding activity and drug effect were studied in pharmacokinetics. In this study we investigate the solute-solvent, ion-solvent interactions. This work mainly highlights on investigation of G, K and μ values. This technique is suitable and accurate to study pharmacokinetics and pharmacodynamics parameters.

KEY WORDS: *DMPMDC,Conductometric measurements, thermodynamic parameters.*

INTRODUCTION

The measurement of conductance gives information regarding the permeability of drug which is a key of biopharmaceutical parameter responsible for the effective bioavailability and good in vivo and in vitro correlation[1]. Improvement of solubility and dissolution rate and oral bioavailability of poorly watersoluble drugs are still the challenging aspects for the pharmaceutical technologists[2]. Hydrotropic solubilisation is considered as one of the safest methods of solubalisation[3]. Aqueous solubilisation of insoluble drugs can be achieved by the addition of hydrotropic agents. Many works highlighted the effect of the solubility enhancers (hydrotropic agents) [4,5] and hence improved stability of the drug but no detailed explanation is available relating to the improvement phenomena.

The split of electrolyte conductivities into the ionic components ideally requires transference numbers, the accurate measurements of which present serious experimental problems in many non-aqueous solvents. The conductance measurements provide valuable information regarding the ion-ion and ion-solvent interactions[6]. The conductometric studies of ionic association of divalent asymmetric electrolyte $Cu(NO_3)_2$ with Kryptofix-22 in mixed (MeOH-DMF) solvents at different temperatures were carried out by Gomaa and Al-Jahdali[7]. Izonfuo and Obunwo[8] and Roy et al[9] studied the conductance of alkali metal in different mixtures mixed solvents. The thermodynamic parameters and Walden products of different complexes were studied by few researchers and

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Molecular Interaction in aqueous solution of Doxycycline at Different Temperatures

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ABSTRACT:

The ultrasonic velocity, density, viscosity have been measured for solution of antimalarial drug as doxycycline at different temperaturs at at 2MHz by ultrasonic interferometer.. The acoustical parameters such as relaxation time, internal pressure, free volume have been computed .these acoustic parameters are useful to predict the nature and strength of molecular interaction in the binary mixture of doxycyline with water. doxycycline at different temperatures and at different concentration.

Key Words:*doxycycline,relaxation, internal pressure, ultrasonic*

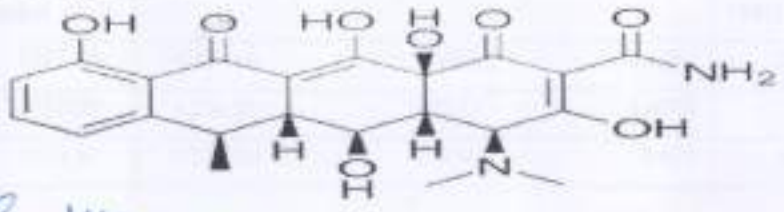
INTRODUCTION:

In recent year, the study of acousticalproperties of liquids have been useful to be helpful in understanding themolecular interactions in solution. Ultrasonic waves have obtained the test for the investigation ofstructure and properties of matter in the basic science.Ultrasonic examinations are utilized toevaluate the thermodynamic properties and topredict the intermolecular interaction inpure liquid. Though the molecular interactions . Now a day's Ultrasonic technology isemployed in a wide range of applications in medicine,biology, industry, material science, agriculture,oceanography, sonochemistry research etc. due to its nondestructive nature [1-5].

Ultrasonic is most exciting and fascinating fieldof scientific research among the researchers since theultrasonic and other related thermo acoustic parametersprovide useful information regarding the structure ofmolecules, molecular order, molecular packing, inter andintra -molecular interactions[6-9].

The review of literature shows that lot of work has been done to investigate ultrasonic measurement of pure liquid and liquid mixture at different concentrations and temperatures but less effort has been made to investigate ultrasonic studies in binary as in Doxycycline with water. Thus, in the present work, acoustical studies of have been studied in water at different temperatures over a different range of Doxycycline concentrations.

The structure of Doxycycline is as



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MOLECULAR INVESTIGATION IN AQUEOUS SOLUTION OF DOXYCYCLINE AT DIFFERENT CONCENTRATIONS AND TEMPERATURES BY ULTRASONICALY

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ABSTRACT:
Ultrasonic velocity plays a vital role to understand molecular interaction existing in the solution. Drugs are the compound which is used to cure diseases. Doxycycline is antimalarial drug. Densities, viscosities of aqueous solution of doxycycline were measured at different concentrations and at different temperatures. From the experimental values thermodynamic parameters were calculated. From it molecular interaction was predicted.

Keywords: - Antimalarial, Doxycycline, Ultrasonic, Molecular Interaction.

INTRODUCTION :

In the recent years Ultrasonic measurements play a vital role in chemical and food processing, pharmaceuticals, testing of material and mechanical machinery of materials[1-3]. There is some considerable interest to aware the intermolecular interaction in liquid mixtures. The main usage of organic mixtures have used for processing and further formulations of product. Physicochemical properties of pure and mixtures of organic liquids are having great importance in the field of science and industrial engineering. The thermodynamic properties like adiabatic compressibility, acoustic impedance is used to classify the various intermolecular interactions between the different species exist in solution.

A drug is any chemical substance that causes a change in an organism's physiology or psychology when consumed [4-7] Drugs are typically distinguished from food and substances that provide nutritional support. Consumption of drugs can be via inhalation, injection, and smoking, and ingestion, absorption via a patch on the skin, suppository, or dissolution under the tongue. Antimalarial drugs are used for the treatment and prevention of malaria infection. Most antimalarial drugs target the erythrocyte stage of malaria infection. Doxycycline is an antibiotic that also can be used to prevent malaria. Doxycycline, a synthetically derived tetracycline, is a partially efficacious causal prophylactic (liver stage of Plasmodium) drug and a slow acting blood schizontocidal agent highly effective for the prevention of malaria.[8]

In the present study ultrasonic velocity, density and viscosities of aqueous solution of doxycycline at different concentration s and at different temperature was measured. This data is useful to calculate thermodynamic parameters such as adiabatic compressibility, acoustic impedance. From these reactivity and molecular interaction of the drug is predicted.

The structure of doxycycline is

Experimental:

The ultrasonic velocity (U) in liquid mixtures which prepared by taking purified AR grade samples, have been measured using an ultrasonic interferometer (Mittal type, Model F-

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Green Synthesis And Pharmacological Potential Of Curcumin

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Abstract

Curcumin has complex versatile aspects which incorporate antidiabetic, antihypertensive, antitumour, cytotoxic and antimicrobial properties. Due to its antioxidant, chelating, and inhibitory effects on the pathways that lead to hypertension, curcumin can prevent diabetes, renin-induced hypertension, and hypertension caused by heavy metals. Curcumin is a cancer treatment that can stop abnormal cell growth. Nanocurcumin is a better form of curcumin that has better therapeutic properties because it is easier to get to the diseased tissue, goes into the body more easily, and gets rid of itself more quickly through the system. The antibiotic resistance crisis, which is attributed to the overuse and misuse of these medications, is a serious health problem in the 21st century, according to WHO warnings. Sub-optimally, the extensive spreading pace of the medications into microbial microorganisms' tissues. The bacterial multi-drug resistance (MDR) was developed through mutagenesis, biochemical, and genetic approaches.

Curcumin is the hydrophobic bioactive fixing separated from the rhizome of the spice *Curcuma longa L.* that has been found for its wide scope of natural action and pharmacological action. Curcumin's antioxidant, anti-diabetic, antihypertensive, anti-inflammatory, antimicrobial, antiprotozoal, antiproliferative, and antiatherosclerotic properties. These properties act in the treatment of a variety of chronic conditions, including hyperglycemia, cancer, and high blood pressure. Nanotechnology is the science of the small, devoted to the production, design, and characterization of ultra-small particles with improved properties. It is widely used in the fields of engineering, medicine, the pharmaceutical industry, and the chemical industry. The literature demonstrates that therapeutic, bioactive plant-derived compounds that are biofabricated into nanodrugs or nanomedicines have improved solubility, bioavailability, stability, and specificity, as well as the ability to easily cross membrane barriers. It has been estimated that the total number of people who suffer from diabetes will increase from 171 million to 366 million in the year 2030. By mediating the uptake of glucose through increased expression of the glucose transporter, curcumin has the potential to treat diabetes by lowering blood glucose levels, increasing the activity of AMP kinase, causing pancreatic cells to secrete more insulin, and decreasing insulin resistance. Previous studies indicated that curcumin had the potential to treat complications associated with diabetes, including diabetic neuropathy, nephropathy, diabetes-induced vascular diseases, and liver disease complications. Hypertension is another significant clinical problem influencing one-fourth of the world's grown-up populace and is probably going to increment to 29% by 2025. Hypertension can be caused because of diabetes, high renin-angiotensin-aldosterone framework (RAAS) and openness to weighty metals. Curcumin is a possible antihypertensive specialist as it has different restorative targets and clinging impacts that forestall hypertension and other hypertension-related cardiovascular diseases.

Keywords: Curcumin, metal oxide nanoparticles, lipid nanoparticles, dendrimers, nanogels, water solubility and bioavailability

INTRODUCTION

Curcumin also has well-established antimicrobial properties and can inhibit the growth of several bacteria such as *Staphylococcus*, *Streptococcus*, and *Enterobacteriaceae* as well as certain pathogenic fungi. Curcumin when used in combination with synthetic colistin, the minimum inhibitory concentration (MIC) values of antibiotics, due to a synergistic mechanism and inhibited the growth of methicillin-resistant *Staphylococcus aureus*, preventing the development of Psoriasis and sclerosclerosis fibroblasts, down a characteristic phenotype that is caused by both of these pathways. However, curcumin's poor bioavailability (low absorption in the small intestine, rapid degradation, poor solubility, and rapid systemic elimination) prevents it from having any therapeutic or pharmacologic effects. To address this issue, curcumin can be loaded or conjugated to a nanoparticle that serves as an extremely effective drug delivery system, increasing the concentration of curcumin in the body's tissues. This review paper extended light on the helpful impacts of curcumin on different prominent substances of human and furthermore features the new advances in nanotechnology-based drug conveyance frameworks related with undermining bioavailability of curcumin. Curcumin's antimicrobial activity can be further enhanced by conjugating it with metal oxide nanoparticles like ZnO, MgO, TiO$_2$, Al_2O_3, and CuO$_2$, which are all excellent antimicrobials in and of themselves.

As a hydrophobic molecule, curcumin is insoluble in water but readily soluble in polar solvents like DMSO, ethyl acetate, methanol, and acetonitrile. There are two distinct absorption bands for curcumin. One band is in the visible spectrum and has the highest absorption from 410 to 430, while the other band is in the ultraviolet spectrum and has the highest

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Comparative study of cefotaxime sodium, ampicillin sodium and ceftriaxone sodium using acoustic and thermodynamic property

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ABSTRACT

In the present investigation relative association, specific acoustic relaxation time, free volume and apparent molar volume of aqueous solutions of cefotaxime sodium, ampicillin sodium and ceftriaxone sodium have been calculated from density, Viscosity and sound velocity at different temperatures, concentrations and at 2MHz frequency. Various acoustical and thermodynamic parameters help in understanding the molecular interactions occurring in these aqueous solutions of cefotaxime sodium, ampicillin sodium and ceftriaxone sodium.

Key words: *Ultrasonic velocity, relative association, specific acoustic relaxation time, free volume, apparent molar volume*

INTRODUCTION

Nature and strength of intermolecular interaction in pure liquids and the mixtures understood from ultrasonic wave through the solution. Ultrasonic velocity of a liquid is related to the binding forces between the atoms or the molecules. Information about physico-chemical behavior of solutions and liquid mixtures and molecular interactions of multi-component liquid mixtures gives by measurement of ultrasonic velocity. Ultrasonic testing and evaluation techniques are widely used in engineering, dentistry, medical, biochemistry, consumer and process industries, and etc[1-2]. A number of researchers have investigated molecular interaction in aqueous solution of different antibiotics[3-14]. In pharmaceuticals Cefotaxime sodium, Ceftriaxone sodium and ampicillin sodium is used as an antibiotics.

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ULTRASONIC STUDY OF ANTIBIOTIC AMPICILLIN SODIUM AT DIFFERENT CONCENTRATIONS

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ABSTRACT:

Measurement of ultrasonic velocity and its related properties in the liquid mixture play an important role to study physic-chemical behavior of the solution. Acoustic and thermodynamic properties determine from ultrasonic velocity and related properties which provide qualitative information about molecular interactions in liquid mixture. Ultrasonic velocity, density and viscosity of ampicillin sodium were measured at different concentration at 303.15 temperatures and at 2MHz frequency. From data thermodynamic parameters such as adiabatic compressibility, intermolecular free length, specific acoustic impedance, relative association, relaxation time, Rao's constant and Wada's constant were evaluated. The effect of concentrations on molecular interaction in aqueous solution of ampicillin sodium was interpreted in terms of thermodynamic parameters.

Keywords :- Ultrasonic velocity, Acoustic properties, molecular interaction, Ampicillin sodium.

INTRODUCTION :

Study of ultrasonic velocity is more important in understanding of behavior of binding forces among component of solution. Ultrasonic velocity determines some useful acoustic and thermodynamic properties which give quantitative information about molecular interaction in solution [1-3].These data are particularly important in pharmaceutical industries. A number of researchers[4-14] has investigated molecular interaction in aqueous solution of different antibiotics. Ampicillin sodium is used as an antibiotic in pharmaceuticals.

Ampicillin sodium

In the present investigation, ultrasonic velocity, density and viscosity measurement of aqueous solution of antibiotic ampicillin sodium carried out at different molar concentration at temperature 303.15K, and frequency 2MHz. From the data various acoustic and thermodynamic parameter determine which interpreted molecular interaction in aqueous solution of ampicillin sodium.

Experimental:

Antibiotic drug ampicillin sodium obtained from Aristo Pharmaceuticals Private Limited was used. Double distilled water was used for making solutions. Densities were measured with the help of density bottle. Weighing was done on Roy CCB-4 Balance, (± 0.001 g). A special thermostatic water bath arrangement was made for density, viscosity and ultrasonic velocity measurements in which there is continuous stirring of water with the help of electric stirrer and temperature variation was maintained within ± 0.1°C. All the ultrasonic velocities were measured by single crystal interferometer (Mittal Enterprises, Model F-81) with accuracy of ±

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Study of Molecular Interaction of Ceftriaxone Sodium at different Concentrations by Ultrasonic Interferometry

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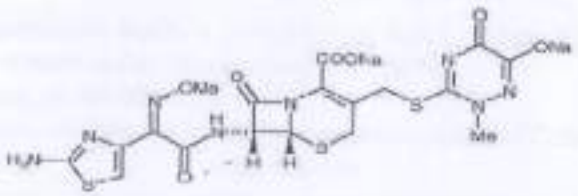
Abstract: *Density, viscosity and ultrasonic velocity, of eftriaxone sodium were measured at different concentrations at 303.15 temperatures and at 2MHz frequency. Different thermodynamic and acoustical parameters like Intermolecular free length, Adiabatic compressibility, Relative association, Specific acoustic impedance, Free volume, Relaxation time, Rao's constant and Wada's constant were calculated from data obtained. From thermodynamic and acoustical parameters molecular interaction in aqueous solution of ceftriaxone sodium at different concentration have been interpreted.*

Keywords: Density, viscosity, ultrasonic velocity, molecular interaction, ceftriaxone sodium

I. INTRODUCTION

The measurement of ultrasonic velocity in pure liquids and mixture is an important tool to study the physic-chemical properties which also explain molecular interaction. Ultrasonic parameters give valuable information about the behavior of solutions, intermolecular association, dipole interaction and complex formation. Using ultrasonic velocity in conjugation with thermo-acoustic parameters and excess thermodynamic function the nature and type of interactions in liquid mixture[1-5] can be studied. A number of researchers[6-16] has studied molecular interaction in aqueous solution of different antibiotics. Ceftriaxone sodium is used as antibiotic in pharmaceuticals.



Ceftriaxone sodium

In the present study, density, viscosity and ultrasonic velocity aqueous solution of antibiotic ceftriaxone sodium have been measured at different molar concentration at temperature 303.15K, and frequency 2MHz. Different acoustic and thermodynamic parameter have been determine from density, viscosity and ultrasonic velocity data. The result has been studied in terms of molecular interaction in aqueous solution of ceftriaxone sodium.

II. EXPERIMENTAL

Antibiotic drug ceftriaxone sodium obtained from Prosperity 6 pharmaceutics Limited was used. Double distilled water was used for making solutions. Densities were measured with the help of density bottle. Weighing was done on Roy CCB-4 Balance, (± 0.001 g). A special thermostatic water bath arrangement was made for density, viscosity and ultrasonic velocity measurements in which there is continuous stirring of water with the help of electric stirrer and temperature variation was maintained within ± 0.1°C. All the ultrasonic velocities were measured by single crystal interferometer (Mittal Enterprises, Model F-81) with accuracy of ± 0.03% and frequency 2 MHz. The ultrasonic velocities, densities and viscosities of water and aqueous solutions of ceftriaxone sodium of concentrations 0.1 M, 0.01 M and0.001 M were measured at temperature 303.15K.

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Molecular Interaction in aqueous solution of Doxycycline at Different Temperatures

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ABSTRACT:

The ultrasonic velocity, density, viscosity have been measured for solution of antimalarial drug as doxycycline at different temperaturs at at 2MHz by ultrasonic interferometer.. The acoustical parameters such as relaxation time, internal pressure, free volume have been computed .these acoustic parameters are useful to predict the nature and strength of molecular interaction in the binary mixture of doxycyline with water. doxycycline at different temperatures and at different concentration.

Key Words:*doxycycline,relaxation, Internal pressure, ultrasonic*

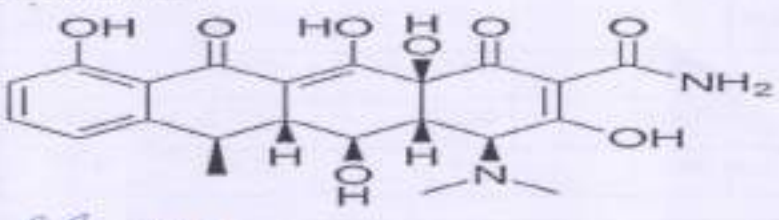
INTRODUCTION:

In recent year, the study of acousticalproperties of liquids have been useful to be helpful in understanding themolecular interactions in solution. Ultrasonic waves have obtained the test for the investigation ofstructure and properties of matter in the basic science.Ultrasonic examinations are utilized toevaluate the thermodynamic properties and topredict the intermolecular interaction inpure liquid. Though the molecular interactions . Now a day's Ultrasonic technology isemployed in a wide range of applications in medicine,biology, industry, material science, agriculture,oceanography, sonochemistry research etc. due to its nondestructive nature [1-5].

Ultrasonic is most exciting and fascinating fieldof scientific research among the researchers since theultrasonic and other related thermo acoustic parametersprovide useful information regarding the structure ofmolecules, molecular order, molecular packing, inter andintra -molecular interactions[6-9].

The review of literature shows that lot of work has been done to investigate ultrasonic measurement of pure liquid and liquid mixture at different concentrations and temperatures but less effort has been made to investigate ultrasonic studies in binary as in Doxycycline with water. Thus, in the present work, acoustical studies of have been studied in water at different temperatures over a different range of Doxycycline concentrations.

The structure of Doxycycline is as



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MOLECULAR INVESTIGATION IN AQUEOUS SOLUTION OF DOXYCYCLINE AT DIFFERENT CONCENTRATIONS AND TEMPERATURES BY ULTRASONICALY

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ABSTRACT:
Ultrasonic velocity plays a vital role to understand molecular interaction existing in the solution. Drugs are the compound which is used to cure diseases. Doxycycline is antimalarial drug. Densities, viscosities of aqueous solution of doxycycline were measured at different concentrations and at different temperatures. From the experimental values thermodynamic parameters were calculated. From it molecular interaction was predicted.

Keywords: - Antimalarial, Doxycycline, Ultrasonic, Molecular Interaction.

INTRODUCTION :

In the recent years Ultrasonic measurements play a vital role in chemical and food processing, pharmaceuticals, testing of material and mechanical machinery of materials[1-5]. There is some considerable interest to aware the intermolecular interaction in liquid mixtures. The main usage of organic mixtures have used for processing and further formulations of product. Physicochemical properties of pure and mixtures of organic liquids are having great importance in the field of science and industrial engineering. The thermodynamic properties like adiabatic compressibility, acoustic impedance is used to classify the various intermolecular interactions between the different species exist in solution.

A drug is any chemical substance that causes a change in an organism's physiology or psychology when consumed [5-7] Drugs are typically distinguished from food and substances that provide nutritional support. Consumption of drugs can be via inhalation, injection, and smoking, and ingestion, absorption via a patch on the skin, suppository, or dissolution under the tongue. Antimalarial drugs are used for the treatment and prevention of malaria infection. Most antimalarial drugs target the erythrocyte stage of malaria infection. Doxycycline is an antibiotic that also can be used to prevent malaria. Doxycycline, a synthetically derived tetracycline, is a partially efficacious causal prophylactic (liver stage of Plasmodium) drug and a slow acting blood schizontocidal agent highly effective for the prevention of malaria.[8]

In the present study ultrasonic velocity, density and viscosities of aqueous solution of doxycycline at different concentration s and at different temperature was measured. This data is useful to calculate thermodynamic parameters such as adiabatic compressibility, acoustic impedance. From these reactivity and molecular interaction of the drug is predicted.

The structure of doxycycline is

Experimental:

The ultrasonic velocity (U) in liquid mixtures which prepared by taking purified AR grade samples, have been measured using an ultrasonic interferometer (Mittal type, Model F-

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THE PHARMACOKINETIC STUDYOF [DMPMDC] DRUG

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ABSTRACT

Recently in this laboratory the conduct ometric measurementsof (4S,6S,12aS)-4-(dimethyl- amino)-1,4,4a,5,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-naphthacene-2-carboxamide[**DMPMDC**] werecarried outby conductometric studyat different molar concentrations.This is easy somewhat suitable and accurate technique to study absorption, transmission and excretionof the drug in the umbrella of pharmacokinetics. This study requires minimum percentage of chemicals so we can term it as the green chemistry research in pharmacokinetics. Thedrug activity and drug effect were studied in pharmacokinetics. In this study we investigate the solute-solvent, ion-solvent interactions. This work mainly highlights on investigation of G, K and μ values. This technique is suitable and accurate to study pharmacokinetics and pharmacodynamics parameters.

KEY WORDS: *DMPMDC,Conductometric measurements, thermodynamic parameters.*

INTRODUCTION

The measurement of conductance gives information regarding the permeability of drug which is a key of biopharmaceutical parameter responsible for the effective bioavailability and good in vivo and in vitro correlation[1]. Improvement of solubility and dissolution rate and oral bioavailability of poorly watersoluble drugs are still the challenging aspects for the pharmaceutical technologists[2]. Hydrotropic solubilisation is considered as one of the safest methods of solubalisation[3] Aqueous solubilisation of insoluble drugs can be achieved by the addition of hydrotropic agents. Many works highlighted the effect of the solubility enhancers (hydrotropic agents) [4,5] and hence improved stability of the drug but no detailed explanation is available relating to the improvement phenomena.

The split of electrolyte conductivities into the ionic components ideally requires transference numbers, the accurate measurements of which present serious experimental problems in many non-aqueous solvents. The conductance measurements provide valuable information regarding the ion-ion and ion-solvent interactions[6]. The conductometric studies of ionic association of divalent asymmetric electrolyte $Cu(NO_3)_2$ with Kryptofix-22 in mixed (MeOH-DMF) solvents at different temperatures were carried out by Gomaa and Al-Jahdalli[7]. Izonfuo and Obunwo[8] and Roy et al[9] studied the conductance of alkali metal in different mixtures mixed solvents. The thermodynamic parameters and Walden products of different complexes were studied by few researchers and

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MOLECULAR INVESTIGATION IN AQUEOUS SOLUTION OF DOXYCYCLINE AT DIFFERENT CONCENTRATIONS AND TEMPERATURES BY ULTRASONICALY

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A drug is any chemical substance that causes a change in an organism's physiology or psychology when consumed [6-7] Drugs are typically distinguished from food and substances that provide nutritional support. Consumption of drugs can be via inhalation, injection, and smoking, and ingestion, absorption via a patch on the skin, suppository, or dissolution under the tongue. Antimalarial drugs are used for the treatment and prevention of malaria infection. Most antimalarial drugs target the erythrocyte stage of malaria infection. Doxycycline is an antibiotic that also can be used to prevent malaria. Doxycycline, a synthetically derived tetracycline, is a partially efficacious causal prophylactic (liver stage of Plasmodium) drug and a slow acting blood schizontocidal agent highly effective for the prevention of malaria.[8]

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PHYTOCHEMICAL ANALYSIS OF *EHRETIALAEVIS* ROXB. OF BHADRAWATI,

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ABSTRACT

The present work was carried out for the qualitative analysis of leaves of *Ehretialaevis*Roxb. The presence or absence of alkaloids, carbohydrates, flavonoids, glycosides, phytosterols and phenols was investigated. The qualitative analysis of leaves of *Ehretialaevis*Roxb.showed the presence of alkaloids, carbohydrates, glycosides, saponins, phytosterols, flavonoids, phenol and tannis.

KEYWORDS:- Qualitative analysis, *Ehretialaevis*Roxb. leaves.

INTRODUCTION

*Ehretialaevis*Roxb.is a rare Indian medicinal plant and member of Boraginaceae family is widely used as a medicinal plant. It is a high valued medicinal plant and becoming rare in the state of Maharashtra. It has a religious importance among in Hindus. It is a highly valued plant cited in the literature of NathSampradaya. The inner bark of *Ehretialaevis*Roxb.is used as food. Leaves are applied to ulcers and in headache. Fruit is astringent, anthelmintic, diuretic, demulscent, expectorant and used in affections of urinary passages, diseases of lungs and spleen. Powdered kernel mixed with oil is remedy is ringworm, seeds are anthelmintic (Admuthe&Nalwade, 2016). The use of this medicinal plant is increasing worldwide, keeping in the mind, the significance of this plant, the qualitative analysis of leaves of *Ehretialaevis*Roxb. was planned.

MATERIAL AND METHODS

The material and methods used for phytochemical analysis of *Ehretialaevis*Roxb. are given in following paragraphs.

PLANT LEAVES EXTRACTION

In this study, the leaves of plants were collected from Bhadrawati, Dist. –Chandrapur, Maharashtra.Washed leaves of the plant with tap water for 2 – 3 times for cleaning. For evaporating the water contents, the washed plant leaves were kept for drying in sunlight. After drying, the sample was grounded to get fine poweder with the help of mortar and pestle. Then for the future use with proper labeling, the powder stored in air tight plastic container.

Solvent Extraction:

20 gm of leaves powder was taken in a beaker and 250 ml distilled water was added to it in such a way that plant leaves powder soaked it. After one hour, filtered to solution with the help of normal filter paper and the filtered extract of the leaves was used for qualitative phytochemical analysis.

Phytochemical analysis:

By utilizing following standard techniques, the leaf extract was tested for presence of bioactive compounds

A) **Test for Alkaloid (Mayer Test)**: In 2ml plant extract, added two drops of Mayer's reagent (mercuric chloride, potassium iodide in water) are added by the side of test tube. The test specified by the formation of yellow coloured precipitates. This indicates the presence of alkaloid in leaves.

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Study on Pollen Morphology of some Dicotyledonous families of Nagpur, Maharashtra, India

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Abstract

This particular study is carried out to study morphology on pollengrains in the some dicotyledonous families including Malvaceae, Asteraceae, Convolvulaceae and Verbenaceae. In Malvaceae, 9 plants of pollengrains were spherical, tricolporate, polypantoporate, 3-zonoporate or pantoporate, spines are excluded,pointed end and have bulbous base. In Asteraceae, all 11 plants of pollengrains found, they were spheroidal, echinate, tricolporate, 3-colporoidate, tectate. In Convolvulaceae all 4 plants of pollengrains found that they were prolate, spheroidal, and radially symmetrical. In Verbenaceae, all 4 plants of pollengrains found in*Duranta repens* and *Lantana camera*,they were spheroidal, prolate, exine was thick where as in *Phyla nodiflora*, pollengrains were spheroidal, echinate, may be 3-colpate, 3 – colporate and 3 – colporoidate.

Keywords: Dicotyledonous family plants, India, Maharashtra, Nagpur, Pollengrains Morphology.

1. INTRODUCTION

Palynology is a separate discipline of Botany that deals with the study of pollen and spores. Hyde and William coined the term palynology. In the early part of the 20thcentury, knowledge about the structure of living pollengrains became sufficiently known due to the pioneering works of Woodehouse [1] (1935). Since then, several workers were attracted in this field and at present, a large volume of information has accumulated on pollen morphology of several plants families of the angiosperms. Most of this information is documented in the form of books and monographs by dedicated workers like Erdtman (1943[2], 1944[3], 1952[4], 1960[5], 1964[6], 1965[7], Erdtman & Singh [8] (1957), Ikuse [9] (1956), Hyde and Adams [10] (1958), Fagery and Iverson[11] (1964), Kremp [12] (1965), Nair [13] (1966), Sharma [14] (1967), Kapp [15] (1969), Rao and Shukla [16] (1959, 1975[17]), Saoji and Vadera [18] (2013), Thaware and Saoji [19] (2013). In a book entitled, Essentials of Palynology, Nair [20] (1966) refers to the various papers. He and his co-workers published on pollen morphology of several Indian species of Angiosperms. In a later publication, Nair [21] (1970) dwelt on the historical and palynological aspect of Angiosperm vice-a-versa pollen morphology. He (1964) also discussed economic aspect palynology.

Pollengrains are structures that house the male gametophyte generation of angiosperms and gymnospers. They are also the vehicles as which the male gamete genetic code is carried to the female gamete. Pollengrains

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SURVEY OF MEDICINAL PLANTS OF RALEGAON AND ITS PERIPHERAL AREA, TAH-RALEGAON, DIST.-YAVATMAL, MAHARASHTRA, INDIA

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ABSTRACT:
In the present study, survey of medicinal plants of Ralegaon and peripheral area was carried out during the academic year 2020 – 2021. Survey method was used to carry the survey of medicinal plants. Total hundred medicinal plants were surveyed from the Ralegaon and its peripheral area. The information regarding medicinal plants was carried out with respect to their botanical names, vernacular, names, family, locality of the plant, part used and the morphological characters, chemical constituents and medicinal uses. The traditional knowledge about the plants for curing diseases was also collected from traditional healers and elderly tribal men who participated in the local therapy in the study area.

Keywords: - Medicinal Plants, Ralegaon, traditional, knowledge, tribal people.

INTRODUCTION :

The term ethnobotany coined by Harsh berger in 1895, ethnobotany deals with study of entire realm of useful relationship between plants and man. Present ethnobotany associates various disciplines such as anthropology botany, linguistics, nutrition, conservation and pharmacology, which enables wide opening of field of enrich the human knowledge. The traditional Ayurveda and Siddha system of India contributed greatly to medicinal botany branch.

The science of life, the Ayurveda is the most popular, classical and traditional system of medicine in India which mainly based on plants. Number of ethnomedicinal plants with parts used in curing different medical problems. In India, it is reported that 2500 species of plant used by traditional healers and 100 species of plants serve as rich source of medicine Ralegaon tehsil in located in Yavatmal District of Maharashtra (India), its geographical distribution is between 20o24' 59.99" North latitudes and 78o30' 59.99" East longitudes. It belongs to a tribal region. The major tribes are Banjara, Gawali, Gond etc. The local people of this region have tremendous information of medicinal plants used against different diseases. As this region is rich in plant diversity due to climate and soil properties in this region. The aim of this study is to enlist and document traditional, ethnobotanical information of the medicinal plants and their parts used in treatment of different diseases by tribal and local people of Ralegaon tehsil through medicinal plants used by the tribal community of Ralegaon and associated knowledge. The ethnobotanical plant information was gathered through frequent visits, oral questionnaire group discussion with traditional healers, local peoples, vaidues, Bhumka and Ojha.

Material and Method

Survey method was used to carry out the information about medicinal plants, botanical data was collected during the academic year

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Diversity of Chlorophyceae members of Masanghat Lake of Bhadrawati, Dist.-Chandrapur, Maharashtra, India

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Abstract

MasanghatIake is located at behind the NilkanthraoShinde Science and Arts College, Bhadrawati, Chandrapur district of Maharashtra, India. It is near about half kilometer from the college. A study on diversity of Chlorophyceae members of MasanghatLake was undertaken during academic session 2018 – 2019 in three seasons. The water body is utilized by local Dhiwarcommunity for Shingada, production. It is polluted due to the domestic water and other anthropogenic activities. The Chlorophyceae are large and important group of fresh water green algae. They include some of the most common species which are impotant both ecologically and scientifically. It is found that Chlorophyceae members were found maximum in winter season and minimum in summer season and very low or less in number in monsoon season.

KEYWORDS:-Phytoplaknton, Chlorophyceae, Diversity, Masanghat lake, Bhadrawati.

Introduction:

Chlorophyceae members are the free living phytoplakntons mostly limited to shallow water and attached to the submerged plants or found in moist soil. The Chlorophyceae is a group of algae having their photosynthetic pigments. A Chlorophyceae (from the Greek word chloros, meaning "green") make up an extremely large and important class of green algae and these are distinguished mainly on the basis of ultra-structural morphology.Members may be unicellular, colonial or filamentous.The green algae (Chlorophyceae) compose the largest and most varied phylum of algae and they are the most closely related to the higher plants because of their similar photosynthesis pigments, storage of starch and the fine structural organization of the chloroplast (Happey wood, 1988). The green algae include a greater diversity of cellular organization and morphological structure than are found in any other algal division. They come in a wide variety of shapes and forms including free swimming unicellular species, colonies, non-flagellate unicells, filaments and more.

Material and Methods

The water samples were collected from Masanghat Lake at five sites - M_1, M_2, M_3, M_4 and M_5 in three different seasons in academic session 2018-2019. The samples were collected in the morning hours between 7.30 am to 9.30 am. 50 litres of water sample was filtered through the plankton net made on bolting silk numbers 25 with the mesh size 64 lines. The collected samples were allowed to settle down by adding Lugol's iodine. Sedimentation requires 24 hrs after which supernatant was removed and concentrate was made upto 50 ml depending upon the number of plankton and preserved in 5% formalin for further studies.For the quantitative study, the concerned sample was shaken and immediately one drop of sample was taken on a clear microslide with the help of a standard dropper, the whole drop was then carefully covered with the cover glass and observed under the binocular microscope. The data is tabulated in the table. Plankton identification upto genera and whenever possible upto species level was identified according to keys given by Edmonson (1959), Adoni (1985) and APHA (1985) and standard analysis was undertaken as per Zar (2005).

Many researchers have published their work on aquatic environment and ecology of phytoplankton's of freshwater.Some of which indicates the work of George (1962), Kamat (1965), Barhate and Tarar (1981), Patil (1995), More and Nandan (2000), Bahura (2001), Borseet. al; (2003), Nasare et. al; (2009), Bhosle and Nasare (2010), Meshram and Nasare (2011), Nasare (2014), Mahajan and Harney (2016), Chunne and Nasare (2018), Nasare (2018), Harney et. al., (2018), Mahajan and Harney (2020). It is very essential to study phytoplankton diversity time to time for this type of perennial water body for maintaining sustainable ecological balance. Therefore, Masanghatlake was undertaken to study the Chlorophyceae members diversity.

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INVENTORY OF FODDER YIELDING PLANTS USED BY TRIBAL AND RURAL COMMUNITIES OF GONDIA DISTRICT OF MAHARASHTRA STATE

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ABSTRACT

In this study, total 46 plant species documented as fodder yielding plants belonging to 19 families and 38 genera used by tribals of the study area. Data analysis shows that out of 46 fodder plants, 25 are trees, 14 herbs and 5 shrubs and 2 climbers.

Key words:

Fodder Plants, Rural communities, Tribals of Gondia district, Maharashtra

INTRODUCTION

Gondia district belongs to Vidarbha region of Maharashtra. It is bounded by Balaghat district (Madhya Pradesh State) in North, Rajnandgaon district (Chhatishgarh State) in East, Gadchiroli and Bhandara district of Maharashtra in South and West respectively. The district lies between 20.39^0 to 21.38^0 North latitude and 79.27^0 to 80.42^0 East longitudes. Navegaon National Park and Nagzira wildlife sanctuary are in the district.

The main river of the district is Wainganga. Bagh, Pangoli and Gadhavi are the tributaries of Wainganga. Rice is the main crop of the district. Total area of the district is 4843.12 Sq. Km of which 2644.07 Sq. Km area covered under forest. Forest is mixed dry-deciduous tropical type.

Tribal people of the study area reared animals for farming, milk production and meat. Grazing and browsing practices found in tribal villages since long decades. Tribal people of the study area used plant parts as fodder for their pet animals especially for goat and cattle. Thus, the present survey was conducted to explore the knowledge of fodder plants used by tribal people of the Gondia district. Gond, Halba and Kawar are three tribes dwell in their hamlets (Patle *et al*, 2015).

Lefroy *et al* (1992) reported trees and shrubs as sources of fodder from Australia. Punjani (2002) reported some fodder yielding plants from Aravalli hills of North Gujarat. Chhetri (2010) recorded some fodder yielding trees of Meghalaya, Northeast India. Rashid and Sharma (2012) explored economically important fodder plants of Rajouri district, Jammu & Kashmir State. Abdalla *et al* (2014) studied fodder potential and chemical composition of *Acacia nilotica* fruits for livestock in the dry lands of Sudan.

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ASSESSMENT OF PHYSICO-CHEMICAL PARAMETERS OF GAURALA LAKE OF BHADRAWATI, DIST. CHANDRAPUR, MAHARASHTRA, INDIA

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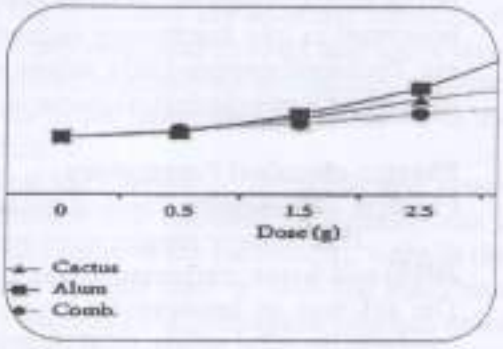
ABSTRACT

The present paper deals with the physico-chemical properties of Gaurala Lake of Bhadrawati of Chandrapur district, Maharashtra in 2018 – 2019. Gaurala Lake is located near Gaurala area of Bhadrawati on the way to railway station road and adjacent to Ganpati temple (Vinayaka) within latitude 79.110474N and longitude 20.033844 E. Water is an essential component for living beings and plays an important role in sustaining the natural ecosystem of the world. In the present study, an attempt has been made on physico-chemical analysis of Gaurala Lake. This paper is intended to be a study of concerning lake water and some physico-chemical parameters such as temperature, pH, transparency, turbidity, conductivity, TS, TDS, TSS, DO, BOD, COD, alkalinity, total hardness, calcium, magnesium, chloride, and sulphate. The quantity parameters were compared with the standards laid down by APHA.



KEYWORDS - *Gaurala Lake, physico-chemical parameters, Bhadrawati, Maharashtra.*

INTRODUCTION

The lake provides sufficient water for drinking as well as other useful purposes to mankind. Water is one of the essential requirements for sustaining the life activities of all ecosystems. Fresh water is essential for drinking domestic use, fisheries, agricultural and industrial uses. This kind of use can lead to deterioration in water quality and quantity that impact not only the aquatic ecosystem but also the availability to water for human needs. All life on earth depends on good quality of water. The environmental pollution ultimately contaminates water of rivers, ponds, lakes and dams. The assessment of water quality is an important aspect for the developmental activities of that region, because the lakes, reservoirs and rivers are used for supplying water for domestic and other commercial activities. The physico-chemical and biological analysis is needed to obtain a perfect picture of the prevailing water quality at any situation in any region of the subcontinent. A systematic attempt has been made to study the spatial and temporal variations of its hydro-chemical conditions with a view to evaluate the current status of water of the lake and delineate the source and extent of pollution. The lentic water bodies (Gaurala lake) selected for the present investigation is located at the Bhadrawati, near Ganpati temple (Vinayaka), railway station road.

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STUDIES ON ETHNO-VETERINARY PLANTS USED BY TRIBAL PEOPLE OF GONDIA DISTRICT OF MAHARASHTRA STATE, INDIA

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ABSTRACT

The present research documented 37 plant species belonging to 26 families and 32 genera. Various types of ailments are treated by using herbal medicine in Gondia district of Maharashtra State of India. Tribal (Gond, Halba and Kanwar) as well as non tribal people of district are practice for the treatment of their animals since long decades.

KEYWORDS: Ethno-veterinary, Gondia district, Tribal people, Maharashtra.

INTRODUCTION

Pieroni *et al* (2004) reported natural remedies and nutraceuticals used in ethno-veterinary practices in Island Southern Italy.[1] Takhar (2004) surveyed southern Rajastan for ethno-veterinary herbal medicines. The study area included five districts Banswara, Dungarpur, Chittorgarh, Udaipur and Rajsamand.[2] During the study 37 plant species recorded for the treatment of various diseases like skin, tumors, wounds, sores, swelling, lice, ticks, bone fractures, urinary and kidney stone problem, foot and mouth diseases. Harsha *et al* (2005) studied ethno-veterinary practices in Uttara Kannada district of Karnataka, India.[3] Pandey (2006) reported *Sandha* is a unique blend of traditional herbs and fermentation technology. It is prepared by rural and tribal people of Gonda, Balrampur, Bahraich and adjoining districts of Terai region of Uttar Pradesh.[4] Tiwari and Pande (2006) studied indigenous veterinary practices of Darma valley of Pithorgarh district, Uttaranchal, India.[5] Nag *et al* (2007) reported indigenous animal healthcare practices for 30 diseases of domestic animals and their treatment by 62 plant species from Udaipur district, Rajastan, India.[6] Lans *et al* (2008) documented medicinal plant treatments for fleas and ear problems of cats and dogs in British Columbia, Canada.[7] Saikia and Borthakur (2010) collected information of indigenous knowledge of local communities on medicinal plants used for curing various veterinary diseases in Gohpur, Sonitpur district, Assam state.[8] Satapathy (2010) reported 88 plant species and 86 prescriptions for veterinary medicines are used among tribes of Jaipur district of Orissa.[9] Bharati and Sharma (2010) documented indigenous knowledge of various ethnic groups of Sikkim regarding animal healthcare.[10] Tiwari and Pande (2010) investigated 23 household plants and plant products which are used in the treatment of animal diseases by local people and tribes of Uttarakhand.[11] Pandit (2010) conducted study of ethno-veterinary plants of Jhargram division, West Bengal, India.[12] Galav *et al* (2010) documented animal healthcare practices utilized by livestock owners at Pushkar animal fair organized every year near Ajmer, Rajasthan in month of Kartik (October or December).[13] Deshmukh *et al* (2011) reported some of the unique ethno-veterinary treatments from Dhavda region of Jalna district of Maharashtra state, India.[14] Salave *et al* (2012) studied traditional ethno-veterinary practices in Karanji Ghat area of Pathardi tahsil in Ahmednagar district, Maharashtra, India.[15] Abbasi *et al* (2013) documented the traditional knowledge on botanical ethno-veterinary therapies in three districts of the lesser Himalayas of Pakistan.[16] Moreki (2013) reported the use of indigenous plants used by family poultry rearers to treat and control diseases and parasites in 15 villages of Botswana.[17] Galav *et al* (2013) studied traditional veterinary medicines used by livestock owners of Rajastan, India.[18] Yadav and Gupta (2014) collected information on ethno-veterinary practices by livestock owners in animal fair at Pushkar, Rajastan, India.[19] Lulekal *et al* (2014) documented ethno-veterinary plants of Ankober district, North Shewa zone, Amhara region, Ethiopia.[20] Eshetu *et al* (2015) reported 49 ethno-veterinary medicinal plant species used by traditional healers in Ethiopia in treating different animal

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Macrophytes Diversity of Chora Lake of Bhadrawati Tehsil, District- Chandrapur (M.S.), India

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Abstract

Macrophytes are the conspicuous plants that dominate wetlands, shallow lakes and streams. Macrophytes contribute to maintaining key function and related biodiversity in freshwater ecosystems and to provide the needs of human societies. These plants provide physical structure, increase habitat complexity and heterogeneity and affect various organisms like invertebrates, fishes and waterbirds.The present paper describes the diversity of macrophytes of Choralake of Bhadrawatitehsil, Chandrapur district, Maharashtra State from February 2022 to January 2023in which 15 species belonging to4 groups such as 6 Free floating suspended submerged, 5Rooted floating leaves weeds, 2 Rooted submerged hydrophytes and 2Submerged floating weeds were recorded. Among different macrophytes, *Ipomeaaquatica*were found in abundance in all the sites of lake.

KEYWORDS : Macrophytes, Choralake, biodiversity

Introduction

Aquatic plants are plants that have adapted to living in aquatic environments (saltwater or freshwater). They are also referred to as hydrophytes or macrophytes. These plants require special adaptations for living submerged in water, or at the water's surface.

The village Chora is 19 km away from Bhadrawatitahsilin Chandrapur district of Maharashtra State, India and situated on the North side. It is situated at about 718 m above the mean sea level and is at 20° 11' 52.97" N latitude and 79° 14' 11.01"E longitude.The depth of water 23feet in mansoon and 6 feet in summer season.During the last few decades considerable studies on aquatic macrophytes from different freshwater bodies of India and abroad. This work has therefore undertaken to document the aquatic macrophytes of Choralake of Bhadrawatitehsil.

Materials and Methods

The aquatic macrophyteswere collected for the period of 1years i.e. February 2022 to January 2023 by visiting the lake. Macrophytes in shallow waters were collected directly while those from deeper water with the help of long handled hook. On collection the specimen were thoroughly washed, excess water soaked with filter paper, kept in polythene bags lined with filter paper and brought to the laboratory and preserved in 10% formalin and observed.The specimens were identified up to species level as per the guidelines of Kodarkar (1994).

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AVIFAUNAL DIVERSITY OF FLY ASH POND OF CHANDRAPUR (MS), INDIA.

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ABSTRACT

Birds belong to class-Aves of super class Tetrapoda. A bird may be described as most beautiful and graceful, bipedal feathered, oviparous, warm blooded vertebrate possessing pair of wings. Many birds species undertaken long distance annual migration to take advantage of global difference of seasonal temperature, therefore optimizing availability of food sources and breeding habitat[1].

Birds are essential animal group of an ecosystem and maintain a tropic level. Therefore, detail study on avifauna and their ecology is important to protect them. The present investigation was carried out to document the avifauna in and around the Fly ash pond located 15 km away from Chandrapur of Maharashtra State and the study is from Oct. 2017 to Sep. 2019 in which 108 species of birds were recorded of 14 different orders and 40 families during the study. Among the recorded species 62 were resident, 34 were resident migrant, 11 were migratory and 01 is resident migratory common. Due to abundant food available throughout the year in fly ash pond in the form of aquatic crustaceans, insects, molluscs etc. the lake always attracts a large number of birds throughout year.

Key words- *Avifauna, Fly ash pond, avifaunal diversity, Habit and Habitat.*

INTRODUCTION

Of all the animals, birds have been the most well-known classis because human beings have used them for feeding, communication, pollinating plants, and decorate the home, etc. Also, birds are important to some animals for biological control, for example Rodentia. Birds are important to continue ecologic circle, especially in food chain. They aid in the pollinization of plants. By landing on a plant or sucking the nectar from a flower, and then moving on to the next, a bird does the job usually associated with bees. Birds also have a good system for spreading seeds. They eat berries and then when they "dispose of" their waste, the berry seeds are disposed along with it. Bird feces provide good fertilization for the seeds with which they are dropped, giving seeds very good conditions with which to grow[2].

Diversity of avifauna is one of the most important ecological indicators to evaluate the quality of habitats. Now-a-days, avifaunal diversity has been decreasing due to the destruction of natural habitats and human disturbances. Random destruction of natural habitats by cutting nesting trees and foraging plants for commercial use of woods and lands are the main factor responsible for narrow down in avian foraging habitat and their nesting sites. Thus, many species of birds may be forced to inhabit in the urban areas and constrain them to breed there[3].

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5. Diversity of Macrophytes of Gudgaon Lake of Bhadrawati Tehsil, District - Chandrapur (M.S.), India

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Abstract

Macrophytes, as an integral part of freshwater ecosystems, play a number of diverse roles in determining the structure and function of these systems. Aquatic macrophytes play an important role in structuring communities in aquatic environments. These plants provide physical structure, increase habitat complexity and heterogeneity and affect various organisms like invertebrates, fishes and water birds. The present paper describes the diversity of macrophytes of Gudgaon lake of Bhadrawati tehsil, Chandrapur district, Maharashtra State from February 2021 to January 2022 in which 17species belonging to 4 groups such as 6 Free floating suspended submerged, 5 Rooted floating leaves weeds, 2 Rooted submerged hydrophytes and 4 Submerged floating weeds. Among different macrophytes, *Pistia sp.* and *Salvenia sp.* were found in abundance in all the sites of lake.

Key words- Macrophytes, Gudgaon lake, biodiversity

Introduction

Macrophytes form the basic source of food (energy) in the aquatic food chain, and provide the most suitable breeding, nesting and sheltering places for varied macrofauna, including fish and waterfowl, besides supporting huge quantities of periphyton which is, to some extent, the life environment of most aquatic animals. Aquatic plants are plants that have adapted to living in aquatic environments (saltwater or freshwater). They are also referred to as hydrophytes or macrophytes. These plants require special adaptations for living submerged in water, or at the water's surface. The most common adaptation is aerenchyma, but floating leaves and finely dissected leaves are also common.

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STATIC BIOASSAY TEST FOR TOXICITY TESTING OF STEEL PROCESSING INDUSTRY WASTEWATER USING FRESHWATER ZOOPLANKTON

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ABSTRACT

Plankton population in a water body represent the indices of health and productivity of an aquatic environment. Plankton form the base of aquatic food web as most of the fauna thrive on plankton population for their daily food requirements. Zooplankton are highly sensitive to pollution stress and many species of protozoa, rotifer and cladocera are biological indicators of water pollution in rivers and lakes recei9ving toxic components. The zooplankton are important links in aquatic food chains and play a major role in ecology as the aquatic biotic population of fish thrives on them.

From findings reported in literature it is evident that studies on freshwater zooplankton are limited to certain specific types of chemicals and studies on impact of industrial wastewaters are very less. So keeping this point in view toxicity testing was undertaken on freshwater zooplankton using pickling wastewater of a steel processing industry located near Nagpur. Static bioassay tests were conducted to assess the toxic potential of neutralized pickling wastewater. LC100. LC50 and NOEC were recorded in 48 hr. static bioassay tests to analyze the toxic effect.

***Key Words**: Toxicity testing, static bioassay tests, fresh water zooplankton, steel processing industry, neutralized pickling wastewater.*

INTRODUCTION

In nature toxicants seldom enter the aquatic environment as pure chemicals. Animal and plant communities are continually exposed to the hazards of industrial wastewaters or surface run offs containing a complex mixture of many varied chemicals and toxicants. It is therefore important to determine the toxic threshold of the industrial effluent for establishing their safe limits and also to establish the tolerance limits to test species. The information and data base is useful for deriving water quality criteria for aquatic animals.

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DETERMINATION OF CHLOROPHYLL-A IN OSMANSAGAR LAKE, HYDERABAD, ANDHRA PRADESH, INDIA

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ABSTRACT:
Chlorophyll-a an indicator of algal biomass has always been affecting the lakes and reservoirs. It may be dependent on the different water quality patterns in lakes. The present study was undertaken during January 2012 to December 2014 in order to investigate the seasonal diversity of Chlorophyll- a in Osmansagar lake by analyzing various abiotic characteristics.
A'Glass fiber filter assembly method with the help of Spectrophotometry was followed to determine chlorophyll-a in the Osmansagar lake. In Osmansagar, the observed chlorophyll-a was in the range of 7 to 18 µg/l throughout the year. Vertical distribution of chlorophyll-a during a season showed a uniform pattern. These finding helped to understand the ecosystem of the lake.

Keywords: - Chlorophyll- a,Osmansagar. Glass fiber filter. Spectrophotometry. Ecosystem.

INTRODUCTION :

Chlorophyll is the green molecule in plant cells that carries out the bulk of energy fixation in the process of photosynthesis. Chlorophyll itself is actually not a single molecule but a family of related molecules, designated as chlorophyll a, b, c, and d. Since chlorophyll-a molecule is found in all plant cells and it indicates the state of fertilization of a water body, the measurement of chlorophyll-a is important. Chlorophyll-d is found only in marine red algae, while chlorophylls-b and c are common in fresh waters. The molecular structure of chlorophylls-a and b consists of a ring-like structure called a porphyrin and a long organic phytol "tail." In the center of the porphyrin ring is a magnesium molecule. The relative concentrations within the cell of these chlorophylls vary with the species of algae. These are the carotenes and the xenthophylls.

By measuring the concentration of chlorophyll- a in water, it can be used to characterize the biomass of phytoplankton, that preliminarily determine the eutrophication degree of water, and reflect the water quality of lakes (Bi, J. Spatial 2020 & Kim, H.G. *et al* 2021). In addition to environmental factors, natural properties of lakes, physicochemical properties of water, and human activities have direct or indirect effects on chlorophyll- *a* concentration (Zhang, Z.Y. *et al* 2018 & Deng *et al* 2019).

MATERIALS AND METHODS :

Hyderabad, the capital of Andhra Pradesh, is situated 20 km from the Osmansagar reservoir, and the reservoir is one of the sources for supplying water for use to the city. The main sources of surface water are Osmansagar, Himayatsagar, Manjira Barrage, Singur Dam and Nagarjunasagardam (Fig.1). Osmansagar was constructed across Musiriver during the period 1912-1920 in Gandipet village,

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Qualitative Study of Aquatic Weeds of Aamtara Lake in Dewada Village of Chandrapur District

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ABSTRACT

In present study, survey was carried out to find out the diversity of aquatic weeds in Aamtara lake in Dewada village of Pombhurna Tehsil of Chandrapur district in Maharashtra state in the year 2021 using qualitative study of weeds. During weed study in all total 19 species of aquatic weeds belonging to 14 different families were recorded in Dewada village Aamtara lake ecosystem. Based on habitat the weeds are classified into 4 different types into free floating, submerged floating, emergent and marginal types. In present study we recorded rich biodiversity of aquatic and terrestrial weeds represented by Ipomoea, Vallisneria, Hydrilla and Nymphea species in lake basin on which rich biodiversity of birds thrive in winter season.

Keywords: Qualitative study, Aquatic weeds, biodiversity, Aamtara lake, Chandrapur district.

Introduction

The aquatic weeds were present in wetland ecosystems of the world and are classified based on their habitat which form their eco-environment and become conductive for their growth and reproduction. Water bodies which are places of recreational and aesthetic use are badly affected by unwanted growth of aquatic weeds. It also affect the quality of water in which the weeds thrive. Aquatic weeds impede the free flow of water which may contribute to increased seepage and may cause rises in water-tables in the adjoining areas. Fish production is greatly hampered by the presence of floating and submerged aquatic weeds. Several researcher work on weeds from different states and different parts of the world viz. Lars, (2003), Sanyal, (2007), Uka., (2009), Ahamad, (2015), Chaturvedi, (2016), Sharma and Dwivedi (2016), Fekadu, (2017), Wahane, *et.*al..(2017), Prasad, (2018). Pimpalshende, (2019), Hacer, *et.*al.(2021). Aquatic weeds choke the water bodies and pose a danger of mosquito breeding sites worldwide. As no weed study war recorded from Aamtara lake of Pombhurna lake the present research was undertaken to analyze it.

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Diversity of Avifauna in and around Himayatsagar Reservoir near Hyderabad, India

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ABSTRACT

Birds are bio-indicators of different kind of environment like Urbanization and Industrialization. They are one of the best indicators of our ecosystem, so study of Avifauna is an important component for biological environment. The present investigation was carried out to document the Avifauna diversity in and around the Himayatsagar reservoir, located in the Hyderabad city of Telanagana State during 2012 to 2014. Altogether 35 species of birds were recorded of 20 families during the study. Among the recorded species 26 were residential, 6 were migrant, 2 were residential migratory and 1 is residential migratory common.

Keywords: *Birds, Urbanization and Industrialization, Avifauna, Ecosystem, Himayatsagar Reservoir*

INTRODUCTION

Population of birds is a sensitive indicator of pollution in both terrestrial and aquatic ecosystem (Gaston, 1975; Hardy et al. 1987). The estimation of local densities of avifauna helps to understand the abundances of various species of other organisms (Turner, 2003). Birds are often used as monitors of pollutants (Furness 1993) to indicate possible impacts of industrial interference in the ecosystems (Becker 2003). Noise pollution in metropolis caused physical irritance and disturbance in normal physiological processes of birds (Sharma et al. 1985). An assemblage of large number and diverse bird species is an indication of less species competition due to diverse niche requirements (Pianka 1974). Some birds are sensitive to noise or traffic and their movements get disturbed (Uttangi 2003) in such situations. They are one of the best indicators of ecosystem, health, pollution problems and function as early warning system (Gole 1984; Becker 2003; Ripley 1978; Sharma 1982; Bhattacharjee and Hazarika 1985; Sandhu and Dang 1980).

STUDY AREA

Hyderabad, the capital of Andhra Pradesh, is situated 20 km from the Osmansagar Reservoir, and the reservoir is one of the sources for supplying water for use to the city. Osmansagar was constructed across Musi river during the period 1912-1920 in Gandipet village, Rajendra nagar mandal in Ranga Reddy district. The reservoir is located at latitude 17022'30" and longitude 80004'00".The catchment area is 738.14sq.km. From the Osmansagar and Himayatsagar reservoirs, there has been a decline in water supply

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ROAD MAP FOR DATA MINING TECHNIQUES

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ABSTRACT:
Now a day's data is very important part for each sector of the world. Each sector trying to extract the meaningful data form very large amount of database and store for future used. For extracting hidden information from data we have to accept any one technique which takes minimum time to retrieve the meaningful data. In this paper the different techniques are studied and introduced for retrieving the data and try to show which one is the best to retrieve the data. It shows overview detail regarding techniques which perform predictive and descriptive data mining task. I have gone through the existing research work in the area of data mining techniques which will promote us to have a fair analysis in the field of data mining techniques.

Keywords: - Data Mining, Decision Tree, Genetic Algorithm, Clustering, Classification

INTRODUCTION :

Data mining is used for extract and analyzing the information from the database and provide the valuable knowledge. Applications of data mining by analyzing data is used for decision making, control of business, education systems and market analysis [1].Different methods or techniques are used in data mining for processing and analysis of different data patterns among which well known are decision tree, association, clustering, rules mining, summarization and classification[15]. Today in each sector of the electronic environment, data is collected and store in one center, from this data any firm or organization need the meaningful data anytime and anywhere. So there should be a technique to handle this hidden and meaningful data to the organizer of firm so that they can take quick decision and proceed for their work. Following figure 1 shows the details about data mining process takes place.

In this data mining process the first stage is to collect the different information among different data sources. The data warehouse is created by using data cleaning and integration of the data. The data set is prepared after selection and transformation of data from data warehouse. Extracted patterns are maintained by data mining process. Lastly the end user gets knowledge and information from the data sources by post processing and visualization from extracted patterns. In this paper the data mining technique were study and gives the suggestion for use of better technique to handle the data.

DATA MINING TECHNIQUES :

The descriptive and predictive are the two Data mining techniques used to process the data. The information about input data is provided by the descriptive technique where as in predictive technique hidden or unknown information will be predicted. Data mining used the different techniques such as clustering, classification, association rule etc. [33][7][19].

A. Clustering Technique

In data clustering technique the common or logically similar data collected and processed in

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LOCATION BASED ANALYSIS OF TRANSPORTATION MATERIAL AND ITS' IMPACT ON POTABLE WATER USING IOT

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Abstract

Distributing andmanaging fresh water supply chain needs multiple channels of water transportation and storage at multiple level and location. During the entire overall process water remains in contact with multiple type of natural and artificial materials like soil, iron, cement, steel, cast iron, rocks, plastic, etc. This contact may remain for long term or short term and this contact may or may not affect the quality of water. Impact due to material contact on water may depend upon different condition of material and vice versa, where first water may damage the material and the damaged material may affect water quality like in case of iron pipes used for water transportation. This is quite serious issues and hence water supply chain needs continuous water quality monitoring system at multiple source or the location. Aim of this paper is to study and identify the impact on water after contact with different material for given time and developing the IoT based solution for centralized water quality monitoring system.

Keywords: *heavy metals, environment, contamination, legal requirements, pollution.*

1. INTRODUCTION

Consumable water distribution is one of the most important responsibilities of Municipal Corporation. Water sources for city consumable water is from natural water sources like Dam, Lakes, Ponds, Aquifers , Rivers and authorities need to deploy the system to pull the water to consumers through different methods like pipelines or the water tanker. While water flowing between different sources through different materials including CPVC, concrete, iron pipes or the plastic pipes may affect the water quality. This problem needs real-time and regular water quality check. After start point of water supply, water nearly flows from pipelines mainly and user will not find the way to detect the water quality in between. Proposed idea is to design and develop in-pipe consumable water quality checking device. This device would be fixed into existing pipeline with its sensor probes dipped in flowing water and its statistics will be monitored through central server using remote communication and software data analytics.

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Predict Student improvement by using Data Mining Techniques and Component

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Abstract

Data mining in Education is one of the interdisciplinary research areas which are used to identify the methods and explore data in education field. Educational Data Mining (EDM) is to study related questions of education. It gives the planning for enhancement of teaching and learning process. In this paper I have study and focuses on methods which are used for educational data to built models for improving performance in academic by the learner. The study shows the prediction of student for improvement in studies using data mining algorithms.

Keywords- Educational data mining (EDM), EDM Tools, Data Mining Techniques, Student Performance, Prediction.

I. INTRODUCTION

Educational Data mining (EDM) is a technique which is applies for educational data. It is gives statistical, machine learning and data mining (DM). It is used to analyze data in order to resolve research issues [1]. EDM is used for better understanding of student's data [2]. EDM is one of the emerged research area for researchers in the world which include offline education, E-learning and Intelligent tutoring system [3]. EDM used for some quality of edification and efficacious cognition process [4]. The expected growth difficulties arise in application of EDM such as different types of data, varied objectives and techniques. The different researchers having view on EDM objectives such as student modeling, learning system, domain modeling, building the computational models and study the effects of resources [5][6]. In this paper I have try to evaluating faculty performance to be used with different classification algorithms that predicts faculty performance. The outcome show that can predict the result of the faculty and then it becomes possible for taking required action [7]. The data mining techniques can be used to avail teachers to manage their classes, understand their students; learning processes as well as the feedback to learners [8][5].

The objective of this survey paper is to review, different Data Mining Methods applied to EDM related. This survey paper presents a review of most of the types of Data Mining methodologies applied to EDM till date. In this survey the most recent works in education that has been resolved by utilizing DM techniques and identifies and suggests few research opportunities and future scopes in EDM.

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SPORTS : A STRESS BUSTER

ABSTRACT

Stress is experienced when an individual feels that they cannot cope with a situation with which they are presented. If an athlete is in a stressful situation then their athletic performance, whether this be in competition or in training, will be effected. The coach can limit the effect on performance of competitive anxiety by assisting the athlete to identify an appropriate coping strategy. Stress is an integral part of our lives. "It is a natural byproduct of all our activities". Life is a dynamic process and thus forever changing and stressful. Stress is a function of the demands placed on us and our ability to meet them. These demands often come from outside sources, such as family, jobs, friends, or school. But it also can come from within, often related to what we think we should be doing versus what we're actually able to do. So stress can affect anyone who feels overwhelmed — even kids. In preschoolers, separation from parents can cause anxiety. As kids get older, academic and social pressures (especially from trying to fit in) create stress. Many kids are too busy to have time to play creatively or relax after school. Kids who complain about all their activities or who refuse to go to them might be overscheduled. Kids' stress may be intensified by more than just what's happening in their own lives. Engaging in a sport can help increase feelings of self-esteem and self-efficacy, which can significantly reduce your overall level of stress. If you've ever remained inactive for an extended period of time, you're familiar with that sluggish, apathetic feeling that can quickly turn to feelings of self-loathing or even depression, which can further exacerbate your stress levels.

Keywords *:- Stress, Anxiety, Ability, Depression.*

Aim of the Study The main aim of this study is to find a solution to the growing problem of stress among the students through sports. Objectives of the Study To assist students to increase their awareness of stress. To recognize the impact of stress on modern life. To recognize that sports can be an effective medium to release stress. Hypothesis This paper focuses on to find whether sports can enhance selfesteem of children by helping them to manage different stresses that they undergo and lead a happy life. It can be hypothesized that sports has a positive impact on the adolescents emotional well-being.

Objectives of the Study :- To assist students to increase their awareness of stress. To recognize the impact of stress on modern life. To recognize that sports can be an effective medium to release stress.Hypothesis This paper focuses on to find whether sports can enhance selfesteem of children by helping them to manage different stresses that they undergo and lead a happy life. It can be hypothesized that sports has a positive impact on the adolescents emotional well-being

Sample :- 250 students were analyzed to find their stress levels.

Method :- Bisht Battery of Stress Scale (BBSS) was constructed and standardized by Dr. Abha Rani Bisht (Almora). The battery has been designed to find out the stress. The battery contained the different thirteen scales of the stress.

Pressure on Children Now-a-days parents and school put a lot of pressure on children which ultimately results into more health issues, like anxiety and depression, than before. In the olden days school days were the best days of a person's life. Children then were not burdened with homework and the tension of scoring high marks. Parents

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N-LIST: AN EFFECTIVE E-RESOURCES FOR ACADEMIC RESEARCH AND DEVELOPMENT

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Abstract:

Information and learning Resources play a vital role in research and academic development of any institution. The involvement and vast use of ICT based tool and especially internet have made significant changes in information resources generation, storage, access and dissemination in the electronic form virtually. It influences the use and collection development method and policies of academic libraries. Libraries often prefer electronic resources as substitute to print collections for optimum utilization. INFLIBNET and INDEST-AICTE Consortiums N-LIST program is the major evolutionary initiatives in India for universities and college library users to access to e-resources to students, researchers and faculty from colleges. These revolutionary steps are providing scholarly resources including e-journals, e-books, databases, abstracts proceedings etc. virtually to users which helps to colleges for their research and development. This paper specially discuses about N-LIST Project of INFLIBNET, its components, availability of e-resources, access and retrieval, membership procedure, current status and their roles for colleges with respect to their research and development.

Keywords: *INFLIBNET, N-LIST, E-Resource, E-ShodhSindhu, E-Journals, E-Books*

Introduction:

Libraries play a vital role in educational institutions in supporting learning, teaching and research activities. The academic libraries working with primary goal and responsibility of to collect, manage and disseminate the information to its user according to their need. From last decades due to use of ICT technologies the traditional libraries move towards the modern libraries and also information collection in the form of traditional to Electronic (E-Books, E-Journals etc.) are the largest and fastest growing collections in the libraries. Electronic resources are the prime ingredients and in most of academic libraries they become a common part of the library resource collection. Due to the involvement and tremendous use of ICT tools, especially the internet and the web tools, have brought significant changes in the ways of information generation, storage, dissemination, retrieval and make use of information. Recent advancement in web and digital technologies and the recent changing mode of traditional to E-publishing have brought in a revolution in publication industry; also make revolutionary changes in subscription, access and dissemination of e-publication resources (like e-journals and e-books) through digitally and virtually.

Dr. L.S. Ladke