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

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Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISBN/ISS Number	Link to the recognition in UGC enlisted Journal
LRS BIANCHI TYPE-I COSMOLOGICAL MODEL WITH QUARK AND STRANGE QUARK MATTER IN f (R) GRAVITY	L. S. Ladke, V. P. Tripade, R. D. Mishra	Mathematics	International Research Journal of Modernization in Engineering Technology and Science	2021	2582-5208	
Bianchi Type-VI Bulk Viscous String and Fluid Cosmological Models in $f(R)$ Gravity.	L. S. Ladke, V. P. Tripade, R. D. Mishra	Mathematics	International Journal of All Research Education and Scientific Methods (IJRESM)	2021	2455-6211	
Acoustical Properties of Binary Mixture at 298k and at 2 MHz Frequency	G. R. Bedare, A. B. Dhote	Physics	International Journal of Scientific Research in Science and Technology	2021	Print ISSN: 2395-6011, Online ISSN: 2395-602X	

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Effect of Temperature on molecular interaction in Robeprazole Sodium in different solvent	Aparna B. Dhote and Gajendra R. Bedare	Physics	International Journal of Interdisciplinary Innovative Research & Development (IJIIRd)	2020	2456-236X	
ACOUSTIC BEHAVIOUR QF BINARY MIXTURE AT 308K AND AT 3MHz FREQUENCY	G. R. Bedare, A. B. Dhote	Physics	Journal of Information and Computational Science	2020	1548-7741	
Acoustical Properties of Binary Mixture at 298k and at 2 MHz Frequency	G. R. Bedare, A. B. Dhote	Chemistry	International Journal of Scientific Research in Science and Technology	2021	Print ISSN: 2395-6011, Online ISSN: 2395-602X	
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ACOUSTIC BEHAVIOUR OF BINARY MIXTURE AT 308K AND AT 3MHz FREQUENCY	G. R. Bedare, A. B. Dhote	Chemistry	Journal of Information and Computational Science	2020	1548-7741	
Molecular Interaction In Aqueous Solution of Ceftriaxone Sodium and Cefotaxime Sodium : An Ultrasonic Study	Rajesh S. Hajare, Shashikant R. Aswale, Sunanda S. Aswale	Chemistry	International Journal of Scientific Research in Science and Technology	2021	Online ISSN 2395-602X Print ISSN: 2395-6011	
Assessment of Physico-chemical Parameters of Satara Bhosale Lake of Pombhurna Tehsil of Chandrapur District in Maharashtra State.	Pimpalshende A. K. and Sitre S. R.	Zoology	JETIR	2021	ISSN-2349-5162	
Study of Aquatic weeds in Dongar Haldi Village Lake in Pombhurna Tehsil of Chandrapur District in Maharashtra State	Atul K. Pimpalshende, Manohar S. Ambatkar and Shashikant R. Sitre	Zoology	International journal of advances in engineering and management (IJAEM)	2021	2395-5252	DOI: 10.35629/5252-030621332137
Aquatic Macrophyte Bio-Diversity in Manda Tukum Lake of Mul Tehsil of Chandrapur District.	Gayatri Ashish Chaudhari and Shashikant Ramro Sitre	Zoology	Journal of Emerging Technologies and Innovative Research (JETIR)	2021	2349-5162	

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Avifauna diversity of Naleshwar Lake and its periphery in Mul Tehsil of Chandrapur District (Maharashtra State)	Gayatri Ashish Chaudhari and Shashikant Ramro Sitre	Zoology	International Journal of Ecology and Environmental Sciences	2021	Online ISSN: 2664-7133, Print ISSN 2664-7125	
ZOOPLANKTON DIVERSITY AND COMPOSITION IN LAKE OF VILLAGE DONGAR HALDI IN POMBHURNA TEHSIL OF CHANDRAPUR DISTRICT (M.S.), INDIA	Manohar S. Ambatkar, Atul K. Pimpalshende, Dr. Shashikant R. Sitre	Zoology	The Journal of oriental research madras	2021	0022-3301	
BIODIVERSITY OF AQUATIC WEEDS IN LAKE OF KONSARI IN CHAMORSHI TEHSIL OF GADCHIROLI DISTRICT IN MAHARASHTRA, INDIA.	Atul K. Pimpalshende, Shashikant R. Sitre and Manohar S. Ambatkar	Zoology	INTERNATIONAL JOURNAL OF RESEARCHES IN BIOSCIENCES, AGRICULTURE AND TECHNOLOGY	2021	2347-517X	
DIVERSITY OF AVIFAUNA IN AND AROUND MANDA TUKUM LAKE OF MUL TEHSIL OF CHANDRAPUR DISTRICT	Gayatri Ashish Chaudhary and Shashikant Ramro Sitre	Zoology	INTERNATIONAL JOURNAL OF RESEARCHES IN BIOSCIENCES, AGRICULTURE AND TECHNOLOGY	2021	2347-517X	

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Seasonal Chlorphycean Deversity in Vijasan Lake of Bhadrawati, District Chandrapur (M. S.) India	Luharia N. M., Harney, N. V. and Dhamani A. A.	Zoology	INTERNATIONAL JOURNAL FOR INNOVATIVE RESEARCH IN MULTIDSCIPLINARY FIELD	2021	2455-0620	
Macrophytes Biodiversity of Waigaon Tukum Lake Near Bhadrawati, District Chandrapur (M. S.), India	Harney N. V.	Zoology	Purakala (UGC Care Journal)	2020	0971-2143	
Diversity of Benthic Fauna of Nagrala Lake, Bhadrawati, District Chandrapur(Ms), India.	Bhute, K. B. and Harney, N. V.	Zoology	Aayushi International Interdisciplinary Research Journal (AIIRJ)	2020	2349-638x	
Avifaunal diversity of Ghotnimbala lake near Bhadrawati, Chandrapur (MS), India.	Bansod MA and Harney NV	Zoology	International Journal of Life Sciences	2021	ISSN: 2320 964X(o) , 2320-7817(p)	
Diversity of blue green algae in rice fields of nagbhid tehsil, dist. Chandrapur, maharashtra, india	S. D. Petkar, N. S. Wadhawe and R. R. Dahegaonkar	Batany	International Journal of Advances in Engineering and Management (IJAEM)	2020	2395-5252	DOI: 10:35629/5252-0205353356
DIGITIZATION OF LIBRARY INFORNATION RESOURCES IN PRESENT INFORNATION TECHNOLOGY WORLD	Sandeep S. Pradhan	Library	scholarly Research Journal For Interdisciplinary Studies	2021	2319-4766	

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Logical Review on Educational Data Mining	M. N. Quadri	Computer Science	International Journal of Computing, Communications and Networking	2020	2319-2720	https: // doi.org/10.30534/ijccn/2020/01932019

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LRS BIANCHI TYPE-I COSMOLOGICAL MODEL WITH QUARK AND STRANGE QUARK MATTER IN f(R) GRAVITY

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ABSTRACT

In this paper, we studied LRS Bianchi type-I Cosmological Model in the presence of quark and Strange quark matter in f(R) gravity. Energy density and pressure are evaluated for quark and strange quark matter. Some Physical parameters are also studied.

Keywords: - LRS Bianchi type –I, Quark and Strange quark matter, f(R) gravity.

I. INTRODUCTION

Modern cosmological observational data [1-6] confirms that our universe is currently, undergoing an accelerated expansion. These results when combined with observations of cosmic microwave background (CMB) and large scale structure (LSS) observations, strongly suggest that the universe is dominated by an exotic component with large negative pressure called as Dark energy. However accelerated expansion nature of the universe is still changing problem in modern cosmology. To explain such issues of current cosmic acceleration modification of Einstein Hilbert action is one of the alternatives the approach which leads to modified theories of gravitation. A few of modified theories of gravity such are f(T) theory of gravity, f(R,T) theory of gravity and f(R) theory of gravity. f (T) theory of gravity, where T is the scalar Torsion has been proposed to explain current acceleration of the universe without involving dark energy. M.Sharif et. al. [7] considered spatial homogeneous and anisotropic Bianchi type-I universe in f(T) gravity. T.P.Sotiriou[8] had been discussed large scale structure in f(T) gravity. Ratbay M [9] has shown that the accelerating expansion of the universe understood by the f(T) gravity models.

Herkoet. al. [10] proposed the modified theory which is the generalized version of f(R) theory of gravity known as f(R,T) theory of gravity, where the gravitational langrangian involves an arbitrary function of the scalar curvature R and the trace of energy momentum T. Adhav [11] studied the exact solutions of Locally Rotationally symmetric Bianchi type-I space time. D.R.K Reddy et. al. [12] studied Bianchi type-II model in f(R, T) theory. FarasatShamir et. al. [13] obtained exact solutions of Bianchi type-I and V model in f(R, T) gravity with assumption of constant deceleration parameters variation law of Hubble Parameters.

Among these theories f(R) theory of gravity is considered to be the most suitable due to its cosmological importance. f(R) actions first studied by Weyl[14] and Eddington[15]. Nojiri and Odintsov [16] have explored visible dark energy models of f(R)gravity which shown the unification of early inflation and late time acceleration. Lobo and Oliveira [17] constructed warm whole geometries in the context of f(R) theories of gravity. Sharif and Kausar [18] discussed various vacuum Bianchi typemodels in f(R) theory of gravity. Santhiet. al. [19] has studied Bianchi type-III bulk viscous string cosmological models in f(R) theory of gravity. Shamir [20] has investigated dynamics of LRS Bianchi type-I Power law f(R) cosmology. Yilmazet. al. [21] studied quark and strange quark matter inf(R) gravity for Bianchi type-I and V space-times

At an early stage when the temperature of the universe was T = 200Mev, the phase transition of the universe took place from quark glucon plasma to hadron gas, which is referred as 'quark hadron phase' There are two ways of formation of quark matter. One is the 'quark hadron phase' transition in the early universe and second is the conversion of neutron stars into strange ones at ultrahigh densities. In the bag model, it is assumed that quarks are mass less and non interacting with quark pressure $p_q = \frac{\rho_q}{3}$ where ρ_q is the quark energy. Quarks

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Bianchi Type-VI$_h$ Bulk Viscous String and Fluid Cosmological Models in $f(R)$ Gravity

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ABSTRACT

In this paper, Bianchi type-VI$_h$ space-time with Bulk Viscous String and Bulk Viscous Fluid as source in the framework of $f(R)$ theory of gravity has been investigated. Correspondingly two models are obtained. To obtain the solution, it is assumed that expansion scalar θ is directly proportional to shear scalar σ^2, which lead to a relationship between the metric potentials. Physical properties of both the models are discussed.

Keywords: Bianchi type- VI$_h$ metric, $f(R)$ gravity, Bulk viscosity, Cosmic Strings.

INTRODUCTION

One of the towering achievements of 20th century was general theory of relativity given by Albert Einstein. Einstein developed the GR as a new way to understand gravitation by unifying his special relativity and Newton's laws. Einstein showed that gravity arises from the shape of the space-time. But this theory fails to answer the issue of accelerating expansion of the universe and dark energy problem. Recent observation strongly support that the universe is in accelerating phase which is confirmed from CMB [1] Supernova type Ia experiment [2] X-ray experiment [3] and large scale structure [4] therefore there is need of modification in general theory of relativity. Among the modified theories, *f(R)* theory of gravity is considered to be the most suitable due to its cosmological importance. This provides an easy unification of early time inflation and late time acceleration. Many authors explained the concept of *f(R)* theory of gravity.

It has been considered that *f(R)* actions were first studied by Weyl and Edington [5] [6] respectively. Later, Buchdhal [7] studied this field in case of non-singular oscillating cosmologies. Felice and Tsujikawa [8 gave a detailed review about *f(R)* theories of gravity. Hendi and Momeni [9] explored black hole solutions in $f(R)$ gravity. Upadhye and Hu [10] investigated the existence of relativistic stars in *f(R)* gravity. The stability conditions for *f(R)* models have been discussed by Starobinsky [11]. Multamäki and Vilja [12][13] explored spherically symmetric vacuum and non-vacuum solutions in $f(R)$ theory of gravity. Shojai and Shojai[14] calculated exact spherically symmetric interior solutions in the metric version of $f(R)$ gravitational theory. Azadi et al. [15] investigated cylindrically symmetric vacuum solutions in this theory. Plane symmetric solutions were studied by Sharif and Shamir [16]. The same authors [17] investigated the solutions for Bianchi types I and *V* models for both vacuum and non-vacuum case.

Capozziello et. al. [18] used no ether symmetries to study spherically symmetric solutions in *f(R)* theory of gravity, Bertolami et. al. [19] have proposed a generalization of *f(R)* gravity by introducing an explicit coupling of an arbitrary function of the Ricci scalar with the matter Lagrangian density Lm. Nojiri and Odinstsov [20] confirmed the late time acceleration and early time deceleration in *f(R)* theory of gravity. Hollenstein L. and Francisco S.N Lobo [21] discussed the exact solutions of *f(R)* gravity coupled to nonlinear electrodynamics in order to prime static spherically symmetric solution. Multamaki and Vilja [22] investigated static spherically symmetric vacuum solution of the field equation and non-vacuum solutions by taking fluid respectively in *f(R)* theory of gravity. Valerio Faraoni

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Acoustical Properties of Binary Mixture at 298k and at 2 MHz Frequency

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ABSTRACT

Measurements of ultrasonic velocity, density and viscosity have been carried out in Acetonitrile in 1,4 Dioxane at 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 free length (τ)for Acetonitrile in 1,4 Dioxane were calculated from ultrasonic velocity and effect of concentration on molecular interaction was predicted.

Keywords: Acetonitrile, Concentration, 1,4 Dioxane, Molecular, Ultrasonic

I. INTRODUCTION

study of ultrasonic waves in pure liquids and liquid mixtures is useful to predict the nature of intermolecular interactions exist in these liquids and liquid mixtures. Liquid mixtures consisting of polar and non-polar components are of immense importance. When two or more liquids are mixed, there occur some changes in physical and thermodynamic properties because of free volume change, change in energy and change in molecular orientations. Thermodynamic and acoustical parameters like adiabatic compressibility (βa), intermolecular free length (L_f) and relaxation time (τ) are of considerable interest in understanding the inter-molecular interactions in binary liquid mixtures. Ultrasonic studies have been found to be useful in describing the theory of liquid state of matter. The density (ρ), ultrasonic velocity (U) and viscosity (η) can be used to study the physicochemical behavior and molecular interactions in pure liquids, liquid mixtures and solutions [1-6].

The various acoustic parameters such as ultrasonic velocity, density, viscosity, adiabatic compressibility, free length and free volume are useful in understanding molecular structure and molecular interactions in the medium. Thermodynamics studies of binary liquid mixtures have attracted much attention of scientists. These physico-chemical analyses are used to handle the mixtures of hydrocarbons, alcohols, aldehydes, ketones etc. The measurement of ultrasonic speed enables us to the accurate measurement of some useful acoustic and thermodynamic parameters and their excess values [7-9]. These excess values of ultrasonic velocity, adiabatic compressibility, molar volume and viscosity in binary liquid mixture are useful in predicting the solute-solvent interactions. The variation in ultrasonic velocity gives information about the bonding between

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Effect of Temperature on molecular interaction in Rabeprazole Sodium in different solvent

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ABSTRACT

A drug can be defined as a chemical substance of known structure, other than a nutrient of an essential dietary ingredient, which, when administered to a living organism, produces a biological effect. By measuring ultrasonic velocities, densities of rabeprazole sodium at different concentrations and at 298K,303K,308K in aqueous solution and alcoholic solution acoustic and thermodynamic parametes will be calculated. From these data molecular interaction will be predicted. Also reactivity of the drug can be predicted.

Key words: drug, rabeprazole, thermodynamic, interaction, reacitivity

1. INTRODUCTION

Ultrasonic measurements are very useful in chemical and food processing, pharmaceuticals, material testing, and underwater ranging and cleaning and are also commonly employed in mechanical machinery of material 1. Ultrasound is regarded as being of low intensity when there no permanent change takes place in the material during propagation of ultrasonic waves[2]. This is the uniqueness of the ultrasonic method over other diffraction method Ultrasonic technique has been employed to investigate the properties of any substance to understand the nature of molecular interactions in pure liquid3 Arun Kumar Misra et.al.,[3]have attempted the interactions of paracetamol with fatty acids through viscometric technique. Conformity ofmacromolecular interactions was reported by many workers using ultrasonic technique.[4] In recent years, the study of intermolecular interactions through ultrasonic investigations plays an imperative role in the growth of molecular sciences [5-7]. A systematic knowledge of solution behavior of drugs is of great importance in order to understand their physiological action [8]

In pharmacology, a drug is a chemical substance, typically of known structure, which, when administered to a living organism, produces a biological effect [9]. A drug can be defined as a chemical substance of known structure, other than a nutrient of an essential dietary ingredient, which, when administered to a living organism, produces a biological effect. Traditionally drugs were obtained through extraction from medicinal plants, but more recently also by organic synthesis. [10] now a days ultrasonic technique is used to study molecular interaction in drug solution.[11-13]

In the present study we measured ultrasonic velocity, density of aqueous and alcoholic solution of rabeprazole sodium at different concentrations and temperatures. From this data acoustic parameters will be calculated which helps to predict effect of solvent as well as concentrations and temperatures can be predicted.

2. MATERIALS AND METHODS

velocity (U) in aqueous solution and alcoholic solution of Rabeprazole sodium, which was prepared by taking purified AR grade samples, have been measured using an ultrasonic interferometer (Mittal type, Model F-81) working at 2MHz frequency and at temperature different temperatures and at different concentrations. The accuracy of sound velocity was ±0.1 ms-1. A digital 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 desire temperature. The density of pure solvent and soltion was determined using density bottle by relative measurement method with an accuracy of ±0.1Kgm-3. An Ostwald's viscometer was used for the viscosity measurement of pure liquids and liquid mixtures with an accuracy of ±0.0001NSm-2. The temperature around the viscometer and pycknometer was maintained within ±0.1K in an constant temperature water bath. All the precautions were taken to minimize the possible experimental error.

3. RESULT AND DISCUSSION

Using the experimental data of ultrasonic ultrasonic velocity (U), density (ρ), various acoustical parameters such as adiabatic compressibility (βa), intermolecular free length (Lf), Acoustic impedance (Z) were calculated by the following equations (1-3).

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ACOUSTIC BEHAVIOUR OF BINARY MIXTURE AT 308K AND AT 3MHz FREQUENCY

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ABSTRACT:

Measurements of ultrasonic velocity, density and viscosity have been carried out in ethanolicsolution of Acrylonitrile at different concentrations at 308 K temperature and 3 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 free volume (V_f)for Acrylonitrile in Ethanolwere calculated from ultrasonic velocity and effect of concentration on molecular interaction was predicted.

Keywords: *acrylonitrile, concentration, ethanol, molecular, ultrasonic*

I. Introduction:

The ultrasonic studies are used to estimate the thermodynamic properties and predict the intermolecular interactions in pure liquid [1], liquid mixtures[2]and ionic interactions in electrolytic solutions[3]. Using ultrasonic waves, the nature of molecular interaction of the system can be determined. Ultrasonic wave propagation in a medium affects its physical properties. The Physico-chemical behavior of different liquids mixtures and ultrasonic velocity measurements can used to study molecular interactions in the liquids by ultrasonic study [4- 5]Now -a- days ultrasonic waves are of intense scientific and technological research. In view of its extensive scientific and engineering applications it attracts attention of researchers, instrumentation engineers, industrialists, technologists, medical practitioners, software engineers and medical scientistsnondestructive testing professionals. The study of ultrasonic waves in pure and liquid mixtures is useful to predict the nature of intermolecular interactions exist in these liquids and liquid mixtures. The various acoustic parameters such as ultrasonic velocity, density, viscosity, adiabatic compressibility, free length and free volume are useful in understanding molecular structure and molecular interactions in the medium [5-6]. Thermodynamics studies of binary liquid

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ACOUSTIC BEHAVIOUR OF BINARY MIXTURE AT 308K AND AT 3MHz FREQUENCY

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ABSTRACT:

Measurements of ultrasonic velocity, density and viscosity have been carried out in ethanolicsolution of Acrylonitrile at different concentrations at 308 K temperature and 3 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 free volume (V_f)for Acrylonitrile in Ethanolwere calculated from ultrasonic velocity and effect of concentration on molecular interaction was predicted.

Keywords: *acrylonitrile, concentration, ethanol, molecular, ultrasonic*

I. Introduction:

The ultrasonic studies are used to estimate the thermodynamic properties and predict the intermolecular interactions in pure liquid [1], liquid mixtures[2]and ionic interactions in electrolytic solutions[3]. Using ultrasonic waves, the nature of molecular interaction of the system can be determined. Ultrasonic wave propagation in a medium affects its physical properties. The Physico-chemical behavior of different liquids mixtures and ultrasonic velocity measurements can used to study molecular interactions in the liquids by ultrasonic study [4- 5] Now -a- days ultrasonic waves are of intense scientific and technological research. In view of its extensive scientific and engineering applications it attracts attention of researchers, instrumentation engineers, industrialists, technologists, medical practitioners, software engineers and medical scientistsnondestructive testing professionals. The study of ultrasonic waves in pure and liquid mixtures is useful to predict the nature of intermolecular interactions exist in these liquids and liquid mixtures. The various acoustic parameters such as ultrasonic velocity, density, viscosity, adiabatic compressibility, free length and free volume are useful in understanding molecular structure and molecular interactions in the medium [5-6]. Thermodynamics studies of binary liquid

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Molecular Interaction In Aqueous Solution of Ceftriaxone Sodium and Cefotaxime Sodium : An Ultrasonic Study

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ABSTRACT

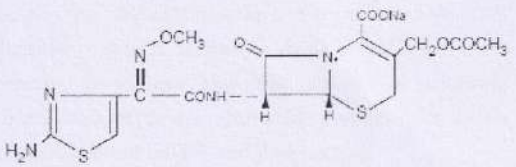
Ultrasonic velocity, viscosity and density have been measured for antibiotic Cefotaxime sodium and Ceftriaxone sodium in water at different concentrations, temperatures and frequency at 2MHz. As the acoustical parameters like relative association, specific acoustic relaxation time and free volume would be more useful to predict the molecular interaction. By using ultrasonic velocity, viscosity and density of the prepared solution of Cefotaxime sodium and Ceftriaxone sodium in water these acoustical parameter have been determined. It has been identified that the molecular interactions in aqueous solution of Cefotaxime sodium were stronger than that of in aqueous solution of Ceftriaxone sodium. And also there is a strong solute - solvent interaction occurring in aqueous solution of Cefotaxime sodium than that of aqueous solution of Ceftriaxone sodium.

Keywords : Viscosity, density, Ultrasonic velocity, Cefotaxime sodium, Ceftriaxone sodium

I. INTRODUCTION

Ultrasound creates number of applications in medicine and research. After first antibiotic penicillin invention number of natural, semi synthetic and synthetic antimicrobials were discovered and applied in clinics, achieving great progress in bacterial infection therapy[1]. However, many decades later, Due to lack of new drug development and rapid emergence of resistant bacteria, bacterial infections have again become a serious threat [2]. To understand the physical and chemical properties of drug action, it is necessary to consider the bonds formed by drug molecules which are influenced by thermal agitation and chemical invironment[3]. A number of researchers[4-15]have investigated molecular interaction in aqueous solution of different antibiotics. In pharmaceuticals Cefotaxime sodium and Ceftriaxone sodium is used as an antibiotic.

Cefotaxime sodium -



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Assessment of Physico-chemical Parameters of Satara Bhosale Lake of Pombhurna Tehsil of Chandrapur District in Maharashtra State.

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ABSTRACT

The Chandrapur district of Maharashtra state harbours a lot of small and large water bodies scattered everywhere. The Pombhurna tehsil harbours some of them. In order to analyze them one of the water body was selected for investigation. In present research paper assessment of physico-chemical parameters of Satara Bhosale lake of Pomburna tehsil in Chandrapur district in Maharashtra state was done for a period of 2 years 2016-17 and 2017-18. Monthly variations of physical and chemical parameters like atmospheric temperature, water temperature, transparency, electrical conductivity, total dissolved solids, free CO_2, total alkalinity, pH, dissolved oxygen, total hardness, chlorides, phosphate, nitrate, sulphate, COD and BOD were recorded. In all 17 different physico-chemical parameters were analyzed during the study conducted on this freshwater ecosystem of perennial nature.

KEYWORDS : Satara Bhosale Lake, Physico-chemical parameters, Pombhurna tehsil, Chandrapur district, Maharashtra state.

INTRODUCTION

The physico-chemical profile and biological analysis of flora and fauna is needed to obtain a clear picture of the underlying water conditions in a freshwater ecosystem. In recent years there is increase in water pollution as side effect of industrial and anthropogenic activities. The increase in load of pollutants bring about a rapid shift in the biota of the ecosystems and thus affect the water quality and subsequently biodiversity of the area. In view of this there is need for designing an appropriate framework to safeguard our natural resources for sustainable environmental management. Today water bodies throughout the world are medium to heavily polluted by man's negligent attitude and investigations are needed to overlook the changes.

Recent works on water quality assessment were done bynumber of researchers viz. Adimasu (2015) on lake Hawassa, Chittora et.al, (2017) on Udaipur city, Rajasthan, Fule (2018) on various water sources in Ashti tehsil of wardha district, Khan et. Al., (2012) on Triveni lake of Amravati distrit, Kistan et. Al., (2013) on Ambatur lake of Chennai, Luharia and Harney (2016) on Vinjasan and Gawrala lake of Bhadrawati city, Mehta et. al., (2016) on Satpala lake of Palghar, Nautiyal et, al., on Dodital lake of Uttarkashi district of Garhwal Himalayas, Nirbhavane and Khobragade (2017) on Sion lake of Mumbai, Tichkule and Bakre (2017) in freshwater lakes near lakhni,Bhandara district, Pawar and Pejawar (2017) on Nilje and Govali ponds of Kalyan district, Pundlik et al (2018) on Lonar lake of Washim district, Rana Phul Kunwar Singh (2016) on Mohan Ram Lake Shahdol, Upadhyaya & Chandrakala (2016) on Karanji lake waters of Mysore, Pradhan et al (2012) on Chilka lake water, Yogita Babu and Ramchandra Mohan (2018) on Errarajan lake of Bangalore.

The Pombhurna tehsil of Chandrapur district in Maharashtra state harbours a lot of freshwater bodies which are still unexplored as per our literature review. So an attempt is made here to assess the [illegible]

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Study of Aquatic weeds in Dongar Haldi Village Lake in Pombhurna Tehsil of Chandrapur District in Maharashtra State

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ABSTRACT
During present study the diversity of aquatic weeds in village lake of Dongar Haldi in Pombhurna Tahsil of Chandrapur district in year 2020-2021 was observed and recorded. Total 16 different species of aquatic weeds were found to be present in Dogar Haldi lake during the present research work. The aquatic weeds of the lake were classified into five different types as free floating, submerged floating, Rooted submerged, marginal and emergent weeds. In present study biodiversity of aquatic weeds of a village level lake are investigated and presented. For conservation and sustainable utilization of aquatic ecosystems it is necessary to carry out biodiversity assessment of aquatic macrophytes of all the aquatic ecosystems of the world. In this context, this research work forms a baseline data collection of a perennial freshwater lake which will be used for future predictions with respect to pollution assessment and biodiversity analysis.

KEYWORDS : Aquatic weeds, Pombhurna tehsil, Dongar Haldi village, Chandrapur district, Maharashtra state.

I. INTRODUCTION

Aquatic weeds constitute a part of aquatic ecostems of the world. Aquatic weeds are present in places of marshy land and water logged areas throughout the world. The weed biodiversity varies continuously due to presence of nutrients in water and around the marshy place. The weeds are disturbing to production of fish fauna and recreational aspects of the lakes too. Macrophytes of freshwater ecosystems play important roles in the structure and functioning of fresh water ecosystems of the world. The aquatic macrophytes (weeds) are classified as free floating , rooted floating, submerged and emergent hydrophytes based on their characteristics. Proper identification of aquatic weeds is of primary importance for their control and management. Species of macrophytes are of great importance today as far as natural food supply to fish species is concerned.

Aquatic weeds of different water bodies in India are studied by different researchers like Unni (1971), Khinchi et al (2008), Wadhave et al (2010), Tijare (2011), Rohankar et al (2012), Sikdar (2012), Sharma (2013), Parshuramkar et al (2013), Dhore and Lachure (2014), Sitre (2014), Shende, et al (2016), Bhute and Harney(2017), Sashi Kumar et al (2015), Reddy and Chaturvedi (2016), Murkute and Chavan (2016), Deshmukh et al (2016), Prasad and Das (2018), Pimpalshende and Sitre (2019). The freshwater ecosystems of pombhurna tehsil are still uninvestigated till date with respect to aquatic weeds. So an attempt is made here to study them, with respect to aquatic weed diversity during 2020-21.

II. MATERIALS AND METHODS

STUDY AREA:

The freshwater perennial lake under study is located in Dongar Haldi village in Pombhurna tehsil of Chandrapur district in Maharashtra state (India). It is located between 19.91235 latitude and 79.58031 longitude. Total water spread area of this freshwater village level lake is 36364.18 m^2 and is about 194 mts above the mean sea level. In rainy season 15 feet deep water level is present in it and during summer season its capacity decreases to about 10 feet deep water.

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Aquatic Macrophyte Bio-Diversity in Manda Tukum Lake of Mul Tehsil of Chandrapur District.

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ABSTRACT

The present research work was carried out to assess the diversity of aquatic macrophytes in Manda Tukum lake of Mul Tehsil of Chandrapur district in Maharashtra state during a two year span 2016-2018. The aquatic macrophytes of the study area were collected and identified using standard literature. Total 15 species of aquatic macrophytes of various types were recorded in the lake. The 15 different species of aquatic macrophytes of the lake basin belong to five different groups viz. 4 free floating, 4 rooted floating 3 submerged, 2 submerged floating leaved and 2 emergent macrophytes. Among different macrophytes *Nelumbo spp*, and *Nymphea spp*. were found in abundance during winter season in all sites of the lake and it added aesthetic value to the water body.

Key words : Manda Tukum lake, Macrophytes, Diversity, Mul tehsil, Chandrapur district, Maharashta state.

Introduction

Macrophytes are aquatic plants growing in and near water bodies throughout the world. Macrophytes provide food, shelter and oxygen for aquatic life like invertebrates, fishes etc. Diversity of macrophyte in a aquatic ecosystem is an indicator of water quality. Presence and absence of macrophytes always affects the aquatic eco- system to a large extent. Abundance of macrophyte in a water body influence habitat structure, fish potential and nutrient dynamics of a lake. Absence of macrophyte leads to excessive turbidity and salinization which affects aquatic ecosystem balance and growth and development of aquatic life.

However, an over abundance of macrophyte in a lake basin may affect ecosystem health, recreational activities and the aesthetic appeal of the aquatic eco-system. Aquatic macrophytes serve as a good source of food to mankind and animals, thus forming a palatable food for water and birds and best for aquatic wild life conservation practices (Kiran *et. al.*, 2006). They serve as substratum to different micro and macro fauna (Raut *et. al.*, 2005)

Chandrapur district of Maharashtra State harbors a large number of fresh water bodies and Mul tehsil harbours some of them. Manda Tukum is a fresh water lake situated in village Manda Tukum of Mul Tehsil of Chandrapur district. It is very close to Tadoba-Andhari Tiger Reserve.

As no previous studies were reported on this aquatic ecosystem till date by any researcher the present research work is done to analyze the aquatic macrophyte biodiversity in this beautiful perennial lake and its vicinity.

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Avifauna diversity of Naleshwar Lake and its periphery in Mul Tehsil of Chandrapur District (Maharashtra State)

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Abstract
The wetlands of all types play a vital role in maintaining the diversity of avifauna worldwide. Avian species diversity and distribution in a particular area is influenced by limnological characteristics of the water body and surrounding locality conditions. As no previous studies were reported on Naleshwar lake bird biodiversity, the present study was carried out to document diversity of avifauna in and around Naleshwar Lake, located in Mul Tehsil of Chandrapur district in Maharashtra state. Since no data pertaining to avifauna of this region is available till date it was decided to find out the diversity of birds of this area during the span of 2016-2018. Based on the observation made over a period of two years time a wide variety of birds were found to inhabit the lake and its vicinity nearby. In our studies it is found that about 54 species of birds were present in the lake and its adjoining areas which visit the lake frequently for feeding, breeding and other activities. The maximum species of birds were sighted during the winter season followed by summer and monsoon season respectively.

Keywords: avifauna, Naleshwar Lake, Mul Tehsil, Chandrapur District, Maharashtra state

Introduction

Water plays an important role in sustaining the natural aquatic ecosystem's of the world on which maximum birds sustain. Birds are warm blooded feathered vertebrates which are at the top of the food chain and habitat of birds plays a very important role in diversity in any area of the world. Studies on birds in Indian sub continent are mostly done by researchers *viz.* Ghazi (1962) [5], Majumdar (1984) [22], Ghosal (1995) [6], Wadatkar and Kasambe (2002) [30], Yardi *et al* (2004), Kedar and Patil (2005) [15], Kulkarni and Kanwate (2006) [17, 18, 19], Kedar *et al* (2008) [16], Kurhade (2010) [21], Thaokar *et al* (2010) [29], Kanwate and Jadhao (2010) [14], Harney *et al* (2011) [8], Narwade and Fartade (2011) [23], Joshi *et al* (2012) [12], Hippargi *et al* (2012) [11], Harney *et al* (2013) [10], Rasal and Chavan (2015), Rathod *et al* (2017) [27] and many more till date.

Freshwater lakes are important wetlands which play a vital role in sustaining the diversity of varied avifauna. Avian species distribution of a particular area is influenced by limnological characteristics of prevailing water bodies in the area.

Since no data pertaining to avifauna of Mul tehsil with respect to Naleshwar Lake in this region is available it was decided to analyze the birds of this area during the years 2016-2018. In this context the present study was carried out to document the diversity of avifauna in and around Naleshwar Lake located in Mul Tehsil of Chandrapur district, in Maharashtra state.

Naleshwar is a small village lake in Mul tehsil in Chandrapur district of Maharashtra state. The area of this lake is approx. 10 hector having irrigated area 48.27 hector. As the lake harbours anthropogenic activities it was quite polluted from its water quality analysis done for two years span by us. This lake harbours a lot of weeds of diverse nature on which a lot of birds of different species sustain throughout the year. Their biodiversity is analyzed in this research work.

Materials and Methods

Naleshwar is a small village lake in Mul tehsil in Chandrapur district of Maharashtra state. The area of this lake is approx. 10 hectore. Present irrigated area is 48.27 hector. A checklist of birds of this area during the years 2016-2018 is prepared. The present research work on birds was carried out from 2016 to 2018 on Naleshwar Lake and its surrounding areas. The observation were carried out by using a field binocular (7 X 25 X magnification) during the early morning hours from 6 to 9 AM and in the evening time from 4 to 6 PM.

Identification of birds species was done with the help of standard literature i.e. Woodcock (1980), Ali S. and Ripley S.D. (1995) [3] and Grimmet *et. al.* (1999) [7].

Result and Discussion

During present study 54 different birds belonging to different species were recorded in lake and its peripheral areas. The recorded birds are presented in Table 1. Out of the 54 different recorded bird species 07 different bird species were classified as migratory, 10 species as resident migratory and remaining birds as resident birds of the area..

Among the families recorded species of birds Scolopacidae was dominant family with 8 species, followed by Ardeidae and Columbidae with 5 and 4 species each. Further study reveals that Passeridae, Gruidae, Corvidae, Stumidae with (3 species each); Alcedinidae, Anatidae, Ciconidae, Cuculidae, Psittacidae, Phalcrocoracidae with (2 species each). Coraccidae, Dicrudidae, Hirudinidae, Lannidae, Meropidae, Muscicopidae Phasinidae,

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ZOOPLANKTON DIVERSITY AND COMPOSITION IN LAKE OF VILLAGE DONGAR HALDI IN POMBHURNA TEHSIL OF CHANDRAPUR DISTRICT (M.S.), INDIA*

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ABSTRACT

The present study focusses on zooplankton diversity and its composition in lake of Dongar Haldi village of Pombhurna tehsil in Chandrapur district during the period 2020 – 2021. In all 48 different species of zooplankton were observed. Among these 09 species belongs to Protozoa, 14 species belongs to rotifer, 10 species belongs to copepoda, 04 Species belong to cladocera and 01 species belongs to ostracoda. In this lake we observe rotifer species to be a dominant group throughout the study period. The analysis showed an average abundance of species in winter season, lower in monsoon season and maximum present in summer. These changes occur due to different environmental conditions and the lake basin changes.

KEYWORDS:- Zooplankton, Dongar Haldi, Diversity, Pombhurna tehsil.

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INTRODUCTION:-

Water is important natural resource of all living organism. Natural resources like pond, lake, river, dam and ocean, conserve the nature and other living organism. Zooplankton are present in such water bodies. Zooplanktons are microscopic organism found in aquatic ecosystem. The zooplankton are important for fishes as food for life. The zooplanktons divided in to different groups like Protozoa, Cladocera. Copepoda, Rotifer and Ostracoda. Many finding were studied the zooplanktons of lake water bodies both in India and Other countries.

The Zooplanktons community changes according to their Physico-chemical parameter of the environment. The abundance and assemblage composition of zooplanktons are depends upon the dominance of water bodies, fish, macroinvertebrates and their food preference. The zooplankton community is composed of both primary consumers (which eat phytoplankton) and secondary consumers (which feed on the other zooplankton). They provide a direct link between primary producers and higher tropic levels such as fish(anbalgan and Sivlaxmi,2019)

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BIODIVERSITY OF AQUATIC WEEDS IN LAKE OF KONSARI IN CHAMORSHI TEHSIL OF GADCHIROLI DISTRICT IN MAHARASHTRA, INDIA.

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ABSTRACT:

The present research was carried out to find the diversity of aquatic weeds in Konsari lake of Chamorshi tehsil of Gadchiroli district of Maharashtra state (India) in the year 2020. In all total 16 different species of aquatic weeds were found to be present in Konsari lake. The aquatic weeds were represented by six different types as, free floating, submerged floating, Rooted floating, rooted submerged, rooted emergent and marginal weeds. In present study rich biodiversity of aquatic weeds indicate its enriched status on which a lot of migratory birds are visitors in winter season.

Keywords: Aquatic weeds, biodiversity, Konsari Lake, Gadchiroli district, Maharashtra state.

INTRODUCTION:

Aquatic weeds referred to as macrophytes are a part of aquatic vegetation including macroalgae and angiosperms resident of aquatic habitats. Aquatic weeds are present in places of marshy land and water logged areas in the whole world. The weed biodiversity varies continuously due to presence of nutrients in water and organic pollution around marshy places. The weeds are disturbing to production of fish fauna in any sort of water body. Macrophytes of freshwater ecosystems play important roles in the structure and functioning of ecosystems. Different forms of macrophytes present seasonal and variable growth patterns. The aquatic macrophytes are classified as free floating , rooted floating, submerged and emergent hydrophytes based on their characteristics. Proper identification of aquatic weeds is of utmost importance for their proper control. They are classified according to various habitats which form their living environment.

Aquatic weeds are essential parts of natural aquatic systems and form the basis of a water body's health and productivity. Species of macrophytes are of great importance today as far as natural food supply to fish species is concerned. Macrophytes of different water bodies in India are studied by different researchers like Arya, M. et. al.(2018), Chambhare *et.* al. (2008), Chudamani and Siddhi (2004), Deka and Sarma (2014), Parvenn, M et al(2014), Shashikumar and Chelak Prasad (2015), Murkute and Chavhan (2016), Sharma and Singh.(2017), Shende et al (2016), Maitreya (2015), Chunne and Nasre (2018), Arya, *et* al, (2018), Singh *et* al (2018), Sharma and Dwivedi (2016), Shende *et* al (2016), Sitre (2013), Wahane, et. al. (2017), Mahajan and Harney (2018). The freshwater ecosystems of Chamorshi tehsil in Gadchiroli district of Maharashtra state are still un- investigated till

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DIVERSITY OF AVIFAUNA IN AND AROUND MANDA TUKUM LAKE OF MUL TEHSIL OF CHANDRAPUR DISTRICT

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ABSTRACT:

Freshwater lakes are important types of wetlands which play a vital role in the diversity of birds worldwide. Avian species distribution of a particular area is influenced by limnological characteristics of prevailing water bodies in the area. In this context the present study was carried out to document the diversity of avifauna in and around Manda Tukum Lake of village Manda Tukum, located in Mul Tehsil of Chandrapur district. Since no data pertaining to avifauna of this region is available it was decided to prepare a checklist of birds of this area during 2017-2019. Based on the observation made over a period of time a wide variety of birds were found to inhabit the lake and its vicinity nearby. Based on our studies it is found that about 65 species of birds were present in the lake and its peripheral areas. The maximum species were sighted during the winter season followed by summer and monsoon season respectively.

Key words: Manda Tukum lake, Mul tehsil, Avifauna, Checklist, Chandrapur district.

INTRODUCTION:

Water is an indispensable requirement for all living organism which plays an important role in sustaining the natural aquatic ecosystem of the world. Birds are warm blooded vertebrates which are at the top of the food chain can be suitable indicators of biodiversity. Habitat of birds plays a crucial role in diversity in any area. Studies on birds in India are mostly done by researchers like Ghazi (1962), Majumdar (1984), Ghosal (1995), Yardi *et al* (2004), Kedar and Patil (2005), Kedar *et al* (2008), Kurhade (2010), Kanwate and Jadhao (2010), Harney *et al* (2011), Hippargi *et al* (2012), Harney *et al* (2013).

Freshwater lakes are important wetlands which play a vital role in sustaining the diversity of birds. Avian species distribution of a particular area is influenced by limnological characteristics of prevailing water bodies in the area.

In this context the present study was carried out to document the diversity of avifauna in and around Manda Tukum Lake of village Manda Tukum, located in Mul Tehsil of Chandrapur district. Since no data pertaining to avifauna of this region is available it was decided to prepare a checklist of birds of this area during the years 2017-2019.

Manda Tukum is a small village in Mul tehsil in Chandrapur district of Maharashtra state. It is located 32 km towards east from district headquarter Chandrapur and 11 km from Mul Tehsil, where the perennial freshwater lake is situated. The area of this lake is 17.58 hectore. Present irrigated area is 34.09 hectore

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Seasonal Chlorophycean Diversity in Vijasan Lake of Bhadrawati, District Chandrapur (M.S.) India

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Abstract: Chlorophyceae the free-living phytoplankton, is mostly limited to shallow waters and attached to the submerged plants or found in moist soil. The chlorophyceae is a group of algae having their photosynthetic pigments localized in chromatophores which are grass-green because of the predominance of chlorophyll a and b over the carotene and xanthophylls. Diversity of Chlorophyceae in the Vijasan Lake of Bhadrawati was studied from October 2013 to September 2015. A total of 24 species of Chlorophyceae were identified in this lake and seasonally maximum value of Chlorophyceae was recorded in monsoon season and minimum in winter season due to the heavy influx of water from the catchment areas.
***Key Words:** Phytoplankton, Chlorophyceae, Diversity, Vijasan Lake*

Introduction:

Phytoplanktons are the microscopic free floating algal communities of water bodies and productivity of an aquatic system is directly related to diversity of phytoplankton. The phytoplanktonic study is a very useful tool for the assessment of water quality and productivity of any type of water body and also contributes to understanding of lentic water bodies (Pawar*et al.*, 2006, 2017a, 2017b, 2018a, 2018b). Phytoplankton includes several thousands of microalgae belonged to Chlorophyta (green algae), Cyanophyta (blue green algae), Bacillariophyta (diatoms), Euglenophyta (pigmented flagellate or phytoflagellated) etc. Green algae, blue green algae, diatoms, desmids and Euglenoid flagellates are the basic link in the food chain of all aquatic flora and were ecologically significant (Airsang, 2013, Murgan and Anandhi, 2016, Harney*et al.*,2013, Saikia*et.al.*,2018)

Vinjasan lake is lies on the west side of Bhadrawati about 196 m above mean sea level and is at 79°05'46" E longitude and 20°05'57" N latitude. It receives the water from the surrounding catchment areas during the monsoon period as well as from drainage. The area of Vinjasan lake is spread over 40 acres. The depth of water is 25 feet during the monsoon and 5 to 6 feet during the summer season. The water of this lake is primary used for washing, farming and fishing activities but today due to peripheral urbanization, construction of residential buildings and catchment area it has been reduced to waste land.

Material and Methods

Sample for planktonic study were collected monthly from each pond. The samples were collected in the morning hours between 8.30a.m to 10.30 a.m. 50 Lt. of water sample was filtrated through the plankton net made of bolting silk number 25 with mesh size 64 lime. The collected samples were allowed to settle down by adding Lugol's iodine. Normally, sedimentation requires 24 hrs. After which supernatant was removed and concentrate was made up to 50 ml depending the number of plankton and preserved in 5% formalin for further studies. For the quantitative study, the concentrated sample was shaken and immediately one drop of sample was taken on a clear micro side with the help of a standard dropper, the whole drop was then carefully covered with the cover glass and observed. Plankton identification up to genera and whenever possible up to species level was classified according to keys given by Prescott (1954), Edmonson (1959), Sehgal (1983), Adoni (1985) and APHA (1985) and standard analysis was undertaken as per Zar (2005). Quantitative study of plankton was done by Sedgwick – Rafter cell method.

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Macrophytes Biodiversity of WaigaonTukum Lake Near Bhadrawati, District Chandrapur (M.S.), India

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Abstract

Macrophytes are the conspicuous plants that dominate wetlands, shallow lakes, and streams. Macroscopic flora include the aquatic angiosperms (flowering plants), pteridophytes (ferns), and bryophytes (mosses, hornworts, and liverworts). In lakes macrophytes provide cover for fish and substrate for aquatic invertebrates, produce oxygen, and act as food for some fish and wildlife. Macrophytes is an important factors for helping in maintaining ecological balance. Aquatic macrophytes play a pivotal role in maintaining primary productivity of water ecosystem. Aquatic macrophytes includes a vast majority of aquatic vascular plants. They are found mainly in the shallow regions of ponds, lakes, rivers, swamps and streams etc. They are of considerable ecological and economical importance. The present paper describes the macrophytes biodiversity of WaigaonTukumlake near Bhadrawati of Chandrapur district of Maharashtra State from January 2015 to December 2017in which 26 species representing 17 families belonging to 08 groups such as 03 Submerged floating weeds, 03 Rooted floating leaves weeds, 01 Rooted emergent with heterophlic weeds, 06 Free floating suspended submerged, 03 Rooted submergedhydrophytes, 07 Emergent weeds, 02 Submerged weeds and 01 Anchored floating weeds.

Keywords: Macrophytes, WaigaonTukum, Biodiversity.

INTRODUCTION

An aquatic plant can be defined as one that is normally found growing in association with standing water whose level is at or above the surface of the soil. Standing water includes ponds, shallow lakes, marshes, ditches, reservoirs, swamps, bogs, canals, and

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Diversity of Benthic Fauna of Nagrala Lake, Bhadrawati, District Chandrapur(Ms), India.

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Abstract

Freshwater lakes are integral part of urban ecosystem and provide numerous benefits to human beings directly or indirectly. Benthic fauna plays important roles in keeping freshwater ecosystems functioning properly. Just about anywhere you go on the planet; there is some kind of insect that will live in almost any place that stays wet for a week or so.

This study was aimed to study the diversity of benthic fauna of Nagrala lake near Bhadrawati of Chandrapur district. The benthic fauna was collected from the lake during June 2016 to May 2018. During the study, 20 species of benthic fauna belonging to 10 groups of class/phylum were found.

Key words- Nagrala lake, Benthic fauna, Diversity

Introduction

Benthos is a crucial component of biotic life found in shallow water estuarine and coastal marine ecosystems. Macrobenthos are the bottom dwelling organisms found in all the aquatic ecosystems of the world and which differ from ecosystem to ecosystem. Benthos plays a major link between primary producers, decomposers and higher trophic levels.

Aquatic insects or water insects live some portion of their life cycle in the water. They feed in the same ways as other insects. Some diving insects, such as predatory diving beetles, can hunt for food underwater where land-living insects cannot compete.

Benthos is the community of organisms that live on, in, or near the seabed, river, lake, or stream bottom, also known as the benthic zone. India is one of the many reasons (Merritt, R.W.et. al., (2008) and are the primary bio-indicators of mega biodiversity countries in the world and occupies the freshwater bodies such as lakes, ponds, wetland, streams ninth position in terms of freshwater mega biodiversity and rivers Mittermeier, R.A.(1997). They serve various purposes such as food of Literature review suggested that this is the first study on fishes and other invertebrates, as vectors of pathogens to the quantitative assessment of aquatic insect diversity of both humans and animals.

Insects constitutes about 70% of all known species of animals are insects. Although they are mainly land animal, they are widespread and adapted to all types of environment. They are also the only invertebrates that can fly (Voshell, 2002). Most insects feed on plant materials, while some feed on animal tissues and wastes. Aquatic insects contribute significantly to fresh water ecosystems, one of many groups of organisms that, together, must be considered in the study of aquatic ecology. As such their study may be a significant part of understanding the ecological state of a given ecosystem and in gauging how that ecosystem will respond to stress.

Aquatic insects and other bottom-dwelling organisms in freshwater systems are also monitored in order to gauge subtle and profound effects that changes in water quality have on aquatic life. Many species of aquatic insects are very susceptible to pollution or alteration of their habitat. In fact, aquatic insects are the group of living things used most commonly for monitoring the health of aquatic environments. The aquatic insects also reside in

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Research Article

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Avifaunal diversity of Ghotnimbala lake near Bhadrawati, Chandrapur(MS), India.

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ABSTRACT

Birds are crucial to maintain balance of many ecosystem and maintain a tropic level. Some birds are easily migrating, transport a variety of things through the environment. They are natural way to control pests in gardens, on farms and other places. 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 Ghotnimbala lake located near Bhadrawati town in Chandrapur district of Maharashtra State from June 2016 to May 2018 in which 45 species of birds were recorded of 11 different orders and 27 families during study. Among the recorded species 39 were resident 04 were resident migrant and 02 were winter visitor.

Keywords: Avifauna, Ghotnimbala lake, avifaunal diversity

INTRODUCTION

Birds are important for maintaining ecologic cycle, especially in food chain. They aid in the pollination of plants by landing on a plant or sucking nector from a flower and then moving on to the next, a bird does the job usually associated with bees. Bird also has 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's faeces provide good fertilization for seeds with which they are dropped, giving seeds very good conditions with which, they grow.

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 by cutting, nesting trees and foraging plants for commercial use of woods and lands are the main factor responsible for narrow down in avian forced to inhabit in the urban areas and constrain them to breed there.

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Diversity of blue green algae in rice fields of nagbhid tehsil,dist. chandrapur, maharashtra, india

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ABSTRACT: Blue Green Algae (Cyanobacteria) are mostly present in paddy fields and are valuable to maintain soil fertility in them through nitrogen fixation therefore blue green algae are considered to be very useful in agriculture. The role of Blue green algae is considered very useful in Agriculture. The role of blue green algae in nitrogen fixation and enhancement in soil fertility has been extensively studied worldwide; Rice is the principal crop of Nagbhid Tehsil, District Chandrapur, Maharashtra. Cultivated on 25803 hectares out of 51900 hectares of total area under cultivation of crop. This study is aimed to characterize the abundance of blue green algae in paddy field areas of Nagbhid Tehsil. In present investigation, 45 species of Blue green Algae were identified. Both Heterocystous and non Hesterocystous forms were observed. Maximum number of species represented the genera Nostoc, Anabeana, Oscillatoria, Microcystis, Lyngbya.

KEYWORDS: Cyanobacteria, diversity, paddy fields, Nagbhid Tehsil

I. INTRODUCTION

Cyanobacteria also known as blue green algae is a large group of structurally complex and ecologically significant gram-negative prokaryotes which are abundantly present in rice fields and also maintain the fertility of this ecosystem. The paddy field ecosystem provides a suitable habitat for the growth of blue green algae with respect to their requirements for light, water, High temperature and nutrient availability. This could be the reason for more abundant growth of Cyanobacteria in paddy soils than in upland soils (Roger and Reynaud, 1982 and Konda and Yasuda 2003).

Cyanobacteria play an important role in maintenance and buildup of soil fertility (Board, 2004), consequently, increasing rice growth and act as a natural biofertilizer (Song et. al, 2005). Species of Nostoc, Anabeana, Scytonema, Oscillatoria, Lyngbya and many more other genera are widespread in the soils of Indian rice fields and are responsible to contribute significantly to increase the fertility of that soil. Various Workers have studied the cyanobacterial flora of rice fields of our country (Rao et. al 2008; Nayak and Prasanna 2007; Chaudhariet. al 2011; Dasgupta and Ahmed, 2013; Singh et. al, 2014;Thajamanbi et. al, 2016; Basavaraja. and Naik., 2019) and few attempts have also been carried out to explore their diversity in the state of Maharashtra (Gonzalves and Gangla, 1949; Patil and Satav, 1986; Madane and Shinde, 1993; Patil and Chougule, 2009; Kamble, 2017; Ghadge and Karande, 2019) however, Information of Systematic study on blue green algae from Nagbid Tehsil is inadequate. The agro-climatic conditions of the rice fields of Nagbhid tehsil favors the growth of Cynobacterial population. Hence, the current study has been aimed at doing a thorough study of Diversity of blue green algae from these areas.

II. MATERIALS AND METHODS

Study Area: Mohadi Area which is located 10 km from Nagbhid towards north (Longitude 79°40'0" E and Latitude 20°35'0" N). Talodhi Area is located 15 km from Nagbhid Towards south (Longitude 79°40'0" E and Latitude 20°35'0" N). Navegaon Pandav area is located 0.9 km from Nagbhid Towards East (Longitude 79°40'0" E and Latitude 20°35'0" N). Nagbhid area is located 0.2 km from Nagbhid city Towards West (Longitude 79°40'0" E and Latitude 20°35'0" N) of Nagbhid Tehsil Dist. Chandrapur, Maharashtra

Collection, Preservation and identification of samples: Samples were collected in Rainy season from 4 different sites of Nagbhid Tehsil, Dist. Chandrapur, Maharashtra. The sampling was done randomly from both soil and water of the paddy fields. The algal samples were preserved in 4% formalin and slides were prepared by staining with methylene blue and mounted in glycerin. Detail

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On

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DIGITIZATION OF LIBRARY INFORMATION RESOURCES IN PRESENT INFORMATION TECHNOLOGY WORLD

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Abstract

ICT play a vital role in Libraries for information generation and dissemination. In recent time the availability and use of ICT/web based technologies in libraries, the creation and sharing of information through the digital (virtual methods changes the traditional function of the library as a place for storage and preservation of library resources. With the digitization of information the library move towards one step ahead to digital acceptance to serve their service to user digitally. This paper discusses the various aspects of digitization like concepts, problems and specially discusses process of digitization of resources.
Keywords: *Digitization, ICT, Digital Library, Copyright, Library Resources*

INTRODUCTION

The use of Information and communication Technology and the web technologies/internet facilities in library/information centre the traditional function of the library as a place for storage house of resources and preservation of library resources has changed dramatically. Academic libraries are duly bound in routine work of acquisition, preservation and dissemination of information of whatever source available to their user regularly, but with the involvement and advancement of technologies it very essential to preserve such information and made available in a more convenient and accessible format.

Digitization of information materials is the process of converting analogue information to a digital format. The information contained in traditional print and written form such as document, books, papers, manuscripts, or a combination of these or other similar documents cannot be preserved for a very long time. With the help of technology it is possible to convert and preserve these traditional material into digital image format (PDF, TIFF,JPG etc.) which are machine readable and make it available for a long time in the form of electronic document for future use as archive. By the process of digitization the information in electronic document usually used to store and preserve on the CD, DVD, CD-ROM and Intranet/Internet. Digitized materials are easy to access for user at any time any were and also single documents can be accessed by more than one user at time.

NEED OF DIGITIZATION OF LIBRARY RESOURCES

Due to excessive growth and explosion of information it is very difficult to manage the printed material for a long time in library. In the academic libraries the new information generated every day. Digitization is the process of converting and storing traditional written and printed record materials into electronic form. The information contained in traditional print and written form such as books, papers, manuscripts or a combination of these or other similar documents cannot be preserved for a very long time. As the time passes, the information contained in this traditional form material gradually fades out and finally the traditional medium document becomes unusable. These traditional print and written documents can be lost forever unless there are

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Logical Review on Educational Data Mining

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ABSTRACT

Student's admission, attendance in the class and their examination results is one of the big data for today's educational institution for manipulating and storing. Maintaining this type of data is of the logic task for data recorder. As the education data is growing very quickly in the education field so that different logical algorithms are required. Due to this reason Educational Data Mining (EDM) is required in Educational Sector. The algorithms of data mining like traditional cannot applied directly to educational issues because they have particular aim, so that a primary algorithm has to apply then after the method of data mining will use on the problem. Before processing the data clustering can be used as a primary algorithm. The number of studies shows application of data mining algorithm by using different attributes. So, in this paper a logically review on applying clustering algorithm as well as its uses in terms of EDM is studied.

Key words: Cluster, Data Mining, Logical Review, Educational Data Clustering, Student

1. INTRODUCTION

The various researchers in EDM have conducted studies on different datasets of education sector and try to cluster academic performance of students in examination.[1] EDM is one of the interdisciplinary sector of education which apply on Data Mining(DM), statistics, machine-learning, information retrieval and various data set of educational issues to resolve.[2]. EDM aim is to make a model which improves educational setup effectiveness using different systems. Knowledge Discover in Databases (KDDs) is new name to Data Mining [3]. Pre-processing algorithm is clustering. It is one of the unsupervised ways in pattern recognition, mathematical data, DM etc. It is group of same elements together to make a bunch. Every group has elements which are identical but different to other group elements. Educational Data Clustering (EDC) in which such analyzing occurs in educational sector. The College or institute has three main parts like lecturer, student and their environment. While interaction is made between these three parts then it generates big data which logically clustered to mine hidden information. The academician can use data clustering to identify improvement in performance of learning styles and behavior of student [4]. Number of Colleges is increasingly focuses on academic success of their students [5]. For enhance student retention efforts some researcher applied the predictive modeling techniques. Now a day's various software's available like Rapid Miner, Weka etc. which are use for DM algorithms to find solutions for specific problems [6]. The commercial websites are used for grouping user data to identify the common fields. The same can apply to educational information system. The degree compass is one such successful system [7].

2. EDUCATIONAL DATA MINING

Educational Data Mining is a method for transferring data in primary stage to different modules into valuable sequence which will used by different elements of education sector such as student, teachers and other education related persons. EDM can be a new module inserted into the existing education system and complete the purpose of teaching quality [8]. The important role is play by the student which provided us the objective output, so that college can improve teaching strategies and development of courses etc.[9]The researchers, traditionally applied DM methods like rule mining, association, classification, clustering and text mining to educational concern [10]. During 1995 to 2005 most papers are published on EDM which are galleried in 2007 survey. The survey shows Data Mining application impact on traditional educational college by using web-based learning management system [11]. Online courses applications for DM are suggested by various researchers and proposed clustering technique which non-parametric to extract website information related to users [12]. The researchers show how to develop large essential and strong electronic education model with using association rules and clustering [13]. One game study shows how the student educated with disturbing equipments for model in place of educational model [14]. On other hand researcher has solutions which implement in mining data in education [15]. In their study showed how

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