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Research Paper

Dr. A. M. Zine

Sr. No.	Name of Research Paper
1	Synthesis and Anti-microbial Activity of Novel Pyrrolidine Contain
2	synthesis-and-antimicrobial-screening-of-novel
3	Adsorption of Acid Red 14 from Aqueous Solution by Parthenium L.
4	Physico-Chemical Studies of Fluoride in ground water of Sindkhed Raja.
5	SYNTHESIS AND ANTIMICROBIAL SCREENING OF NOVEL 3-ARYL-2-G
6	Reuse of Waste Water from Laboratories. compressed
7	SONICATED ASSISTED SYNTHESIS OF BENZIMIDAZOLES, BENZOXAZOLES AND
8	Adsorption of Benzo Fast Scarlet from Aqueous Solution by Parthenium L. Carrot Grass
9	Equilibrium and Kinetic Studies
10	Composite An Efficient Catalyst
11	Kinetic and thermodynamic study of adsorption of methylene blue
12	The water quality assessment at historical places,
13	A Facile Synthesis of New Substituted Thiol – 2 amine Derivatives as Potent Antimicrobial Agent
14	Adsorptive Removal of Malachite Green from Aqueous Solution Using Low Cost Adsorbent
15	Removal of Rhodamine 6G from Aqueous Solution by Adsorption on Bio (1)
16	Adsorptive Removal of Amido Black From Aqueous Solution Using
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22	ONE POT SYNTHESIS OF 2-AMINO PYRANES USING AMMONIUM CARBONATE AS AN
23	SYNTHESIS OF NOVEL SUBSTITUTED-BENZO[d]THIAZOLE-
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27	IMPACT OF SUGAR INDUSTRY ON WATER QUALITY IN EASTERN MARATHWADA
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29	A Facile Synthesis of New Substituted Thiol – 2 amine Derivatives as Potent Antimicrobial Agent
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32	EQUILIBRIUM STUDIES ON MIXED LIGAND COMPLEXES OF Cu (II) AND Fe
33	(III) WITH SULPHUR CONTATNTNG LIGANDS AND AMINO ACIDS -A

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5	study of zooplankton wheel animalcules from kholi dam
6	Variations in the Rate of oxygen consumption Ammonia excretion and O/N Ratio of freshwater Bivalve mollusc <i>Indonala caeruleus</i> Body size
7	studies on zooplankton diversity of khandala dam
8	on a new species of the genus <i>lapwingia</i> singh, 1952 from <i>valves spinosus</i> at vazirabad dist, medhak
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11	size specific in the Rate of Oxygen consumption Ammonia excretion and O/N Ratio of Freshwater Bivalve Mollusc,
12	study on some abiotic and biotic factors of bhatana water reservoirs
13	Seasonal Changes in the Physico Chemical parameters of kolhi dam
14	Solid waste management a problem in Aurangabad city
15	Shri muktichya aadva krantikarak savitribai phule

Dr. V. P. Bhingardeo

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2	Pradhanmantri Awas Yojna
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Dr. Gaikwad N. R.

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4	Vartaman Media & Parivartit Sahitya
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Sr. No.	Name of Research Paper
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Sr. No.	Name of Research Paper
1	Causes of Farmers Suicides in Maharashtra


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A Facile Synthesis of New Substituted Thiazol-2-amine Derivatives as Potent Antimicrobial Agent

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Abstract: A facile synthesis of a new thiazol-2-amine derivative as antimicrobial agent and condensation with substituted thiourea compounds to afford the corresponding substituted thiazole derivatives in excellent yields. All the reactions were completed within less reaction time at reflux temperature. According to the result obtained, the compounds 3b, 3d, 3e, 3f, 3g, 3i, 3l and 3m were found the leader antimicrobial activity with the highest MIC values. The synthesized compound can be considered to develop new antimicrobial drug candidates. Amongst these, many compounds show better antibacterial and antifungal activity. The compounds 3b, 3d, 3e, 3f, and 3m exhibited significant antibacterial activity against *B. subtilis*, *S. aureus*, and *E. coli*. The compounds 3f, 3g, 3i, show significant antifungal against fungal strains i.e., *C. albicans*, *A. flavus* and *A. niger*.

Keywords: thiazol-2-amine; antibacterial; antifungal activity.

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1. Introduction

In the present global situation, antimicrobial infections created a lot of concern in everyone's mind. The emerging problem of different strains of COVID and their treatment of the drug resistance of different strains created tremendous pressure on humanity. There is an urgent need to develop some promising antimicrobial molecules. Nowadays, the treatment of bacterial infections remains important and has become a challenging problem. To an increasing number of multi-drug resistant microbial pathogens, there is a need to discover new and biologically active molecules. The emergence of old and new antibiotic-resistant bacterial strains in the last decades constitutes a substantial need necessary for new classes of antibacterial agents [1]. The heterocyclic compounds system has found broad applications in drug development to treat hypertension, schizophrenia, HIV, and bacterial [2]. Thiazole and its derivatives are considered thiourea/thiosemicarbazones' cyclic analogs and have been known for good pharmacological profile [3-5]—the research on thiazole nuclei is well known for its medicinal activity. Thiazole scaffold plays a vital role in nature [6]. The thiazole scaffold and its derivatives have been attracted continuing interest over the year because of their various biological activities [6,7]. Recently, researchers have found application in the drug development for the treatment of allergies [8], hypertension [9], inflammation [10],

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Removal of Rhodamine 6G from Aqueous Solution by Adsorption on Bio Adsorbent Prepared from Hyptis Suaveolens (Vilayti Tulsi): Kinetic, Equilibrium and Thermodynamic Study

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Abstract

The adsorption capacity of bio adsorbent, prepared from *Hyptissuaveolens* (VilaytiTulsi), for Rhodamine 6G removal from aqueous solution was investigated in the present study. The effect of pH, initial dye concentration, time, adsorbent dosage and temperature was investigated. The present adsorption follows pseudo second order kinetics. Langmuir isotherm and Freundlich isotherm was used for present study. The maximum adsorption capacity under optimum condition was found to be 48.78 mg g⁻¹. The thermodynamics study shows endothermic, spontaneous adsorption process.

Keywords: Rhodamine 6G, Adsorption, Dye removal, Bio adsorbent.

Introduction:

Different chemical materials were used in various industrial processes. Dyes are the mostly used organic chemical in the industries such as paper and pulp, lather, textile etc. Residual part of dyes comes in effluent of such industries creating environment problem [1, 2]. Most of the organic dyes are highly toxic and carcinogenic [3-5]. The presence of dyes can seriously affect the light penetration and damage the aquatic life [6]. There are different methods available for removal of hazardous dyes such as photo degradation and photo catalysis [7-10], electrochemical degradation [11], bio degradation [12, 13], chemical coagulation and adsorption. Among all adsorption have been the most common method employed for dye removal [14-16]. Activated carbon is the most suitable adsorbent but it is quite expensive so alternate cheaper adsorbent is a need [17-18].

Literature survey shows that different adsorbent have been reported for dye removal some of them are nanomaterials [19] such as magnetite@graphene oxide [20] Carbon nanotubes [21], CoFe₂O₄/rGO nanocomposite [22] while some are prepared from natural material such as Moroccan natural phosphate [23], activated carbon prepared from *Prosopis juliflora* L. wood [24], rice husk [25, 26], *Clitoriafurehildiana* pods [27], *Prunusamygdalus* L. [28] etc.

Rhodamine 6G is a fluorescent basic dye mainly used to coloured wool, cotton, silk etc. It is toxic and carcinogenic in nature [8, 29], so this dye was selected for present study.

Removal of Rhodamine 6G from Aqueous Solution by Adsorption on Bio Adsorbent Prepared from *Hyptis Suaveolens* (Vilayti Tulsi): Kinetic, Equilibrium and Thermodynamic Study

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Synthesis and anti-proliferative activity studies of 2-(2-(trifluoromethyl)-6-(substituted)imidazo[1,2-*b*]pyridazin-3-yl)-*N*-(substituted)acetamide derivatives

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Abstract

A series of novel imidazo[1,2-*b*]pyridazin-3-yl acetamide derivatives (**9a-9j**) were synthesized from a 3,6-dichloropyridazine. We have developed a simple strategy for the synthesis of functionally diverse imidazole, and pyridiazine derivatives were reported via a series of steps. The work involves bicyclic imidazo-pyridazine ring formation, halogenation, cylation, hydrolysis, peptide coupling, and Buchwald reaction. The structure of the synthesized compounds was confirmed by IR, ¹H NMR, ¹³C NMR, ¹⁹F NMR, mass spectra, and elemental analysis, and purity is checked by HPLC. All synthesized compounds were screened for anticancer activity against A-549 and Du-145 cancer cell lines by MTT assay. The preliminary bioassay suggests that most of the compounds show anti-proliferation with different degrees; doxorubicin was used as positive control. The synthesized compound shows IC₅₀ values in the range of 1.74 μM to 16.17 μM in both cell lines. The compounds **9e**, **9g**, and **9h** were active compared with doxorubicin in both the cell lines. The compounds having cyclopentyl ring are active compared with higher and lower carbon analogues.

1 | INTRODUCTION

Cancer is considered as one of the major causes of human health concerns with increasing number of patients with the time all over the world. Although many types of chemotherapeutic drugs were used for the treatment, although still, there is a challenge to identify safe and effective drug for the cancers. Drug resistance occurred during treatment is a major concern of present time. The design and development of new anti-proliferative agents with increased efficiency, less side effective, cost effective, and time concern for the treatment were the major challenges for present researchers. Considering these facts, the development of

new chemotherapeutic targets with selective action has to be identified, as many classes of heterocycle scaffolds were used for the different types of cancers. For normal functioning of cells in the human kinome, there are 518 kinases that are involved in different phases of life and all are associated with each other.^[1] Different kinases were responsible for different functioning of cells; some kinases are TOR signaling, which are responsible for cell growth,^[2,3] and some are protein tyrosine kinase inhibitors.^[4] The imbalance in the kinases occurs in several diseases like cancer, neurodegenerative disorders, and inflammation. By considering the importance of kinases, we need to develop new kinase inhibitors with diversified activity. In present



Research Article



An efficient method for the synthesis of 2,4,5-trisubstituted imidazoles using lactic acid as promoter

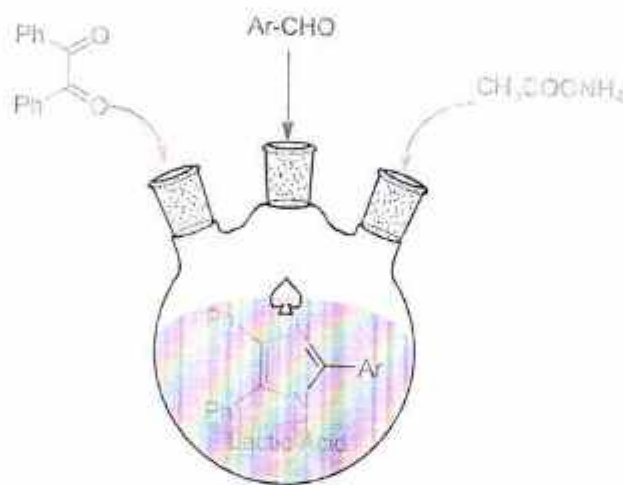
Jayant Sonar¹ · Sandeep Pardeshi¹ · Shrikant Dokhe¹ · Rajendra Pawar⁴ · Kiran Kharat⁵ · Ashok Zine² · Babasaheb Matsagar³ · Kevin Wu³ · Shivaji Thore⁴

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Abstract

Synthesis of 2,4,5-trisubstituted imidazole compounds from an aromatic aldehyde, benzil and ammonium acetate is demonstrated using biodegradable lactic acid at 160 °C. This method is a simple, environmentally benign, and works for aromatic aldehyde containing electron donating and electron withdrawing groups.

Graphic abstract



Keywords Lactic acid · Promotor · Green solvent · 2,4,5-Trisubstituted Imidazoles

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Removal of anionic dye Wool Green 5 by neutral Alumina as a low-cost adsorbent: Kinetic and Equilibrium study

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Abstract:

In the present paper, the adsorption of anionic dye Wool Green 5 from aqueous solution by alumina was studied in a batch adsorption system as a function of contact time and initial concentration. Several adsorption kinetic models like pseudo-first-order, pseudo-second-order, Elovich, and diffusion models (Weber-Morris and Dumwald-Wagner and Film diffusion) were used to investigate the adsorption mechanism. The experimental results have shown that the R² of both the pseudo-first-order and pseudo-second-order are about 99%, but the comparison of experimental and calculated values of adsorption capacity and statistical parameters of error analysis shows the better fitment of the pseudo-second order kinetic model over the pseudo-first order and Elovich model.

Keywords: Parthenium L, Wool Green 5, adsorption, kinetic, Diffusion models, Alumina.

1. Introduction

Synthetic dyes are extensively used in various industries like paper, textile, plastic, carpet, food, cosmetics and leather tanning¹⁻³. The unutilized and untreated dyes are released in industrial effluents leading to environmental pollution problem⁴⁻⁶. These dyes are of non-biodegradable in nature and may be toxic to aquatic life. It has carcinogenic and mutagenic effects causing problems to kidneys, liver, brain, the reproductive and central nervous system⁷⁻⁹. The removal of dyes from wastewater effluents is of great importance. A number of removal methods such as adsorption, advanced oxidation, aerobic coagulation, anaerobic microbial degradation, and membrane separation are used to remove dyes from wastewater. Amongst all these removal methods, adsorption is the most widely used due to its cost-effectiveness and efficiency. Activated carbon is a widely used adsorbent material because of its high adsorption capacity and microporous structure¹⁰. But it has limitation due to its high cost and limited commercial use. There is a need to try for other adsorbent having low cost, low toxicity, and abundance¹¹. Several abundant and low-cost adsorbents like coir pith^{12,13}, peanut hull¹⁴, rice husk¹⁵, baggas pith¹⁶, Vilayit tuls¹⁷, carrot grass¹⁸⁻²⁰, wheat shells²¹, banana, and orange peels²² are tested for dye removal. As observed, many of the reported low-cost adsorbent materials show lesser adsorption capacity, thereby limiting their industrial use. New economical, easily accessible, environment-friendly and efficient adsorbents are required.

The aim of the present study is to use neutral alumina as a low-cost adsorbent for the removal of Wool Green 5 dye from aqueous solution.

Theme- New horizons in chemical sciences.

Guest Editor- R.P. Pawar

Kinetic and Isotherm models for the Adsorption of Acid Red 1 from aqueous solution by *Parthenium hysterophorus L.*

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ABSTRACT

The adsorption behaviour of Acid red 1 onto *Parthenium hysterophorus L.* from aqueous solution was investigated. Adsorption kinetics, equilibrium, and thermodynamics were investigated as a function of initial concentration and temperature. Three kinetic models – the pseudo first-order, second order and Elovich were used to investigate the adsorption mechanism. Evaluation of kinetic models showed that the pseudo first order kinetic model was found to correlate the experimental data. The adsorption data were modelled by using Langmuir, Freundlich and Temkin adsorption isotherms. The data were well represented by Langmuir isotherm equation and the calculated thermodynamic parameters indicated a spontaneous and exothermic nature of the adsorption process.

KEYWORDS

Dye adsorption, Acid Red 1, *Parthenium hysterophorus L.*, Equilibrium isotherm.



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ONE POT SYNTHESIS OF 2-AMINO PYRANES USING AMMONIUM CARBONATE AS AN EFFICIENT CATALYST

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ABSTRACT

One pot synthesis of 4-amino pyraneshave been achieved using ammonium carbonate in aqueous ethanol system. The describe method is useful for the synthesis of pyranes using aromatic aldehydes, malononitrile and dimedone as three component reaction using conventional heating as well as microwave. The method provides simple and easy way for the synthesis of 2-amino pyraneswith good yield.

Keywords: 2-amino pyrane, aldehyde, malononitrile, dimedone, catalysed, ammonium carbonate, conventional, microwave.

INTRODUCTION

Heterocyclic compounds are the very important class of organic compounds. Many naturally occurring compounds contain the heterocyclic rings as core part in them like haemoglobin and chlorophyll. Pyranes are one of the important heterocyclic compounds. These are reported to exhibit many biological properties like anti-oxidant¹, antimicrobial², antifungal³, anti-cancer⁴. These are also reported to have pigment property and agrochemical applications⁵.

Multicomponent reactions are the key strategies for the current organic synthesis. After Strecker's synthesis of amino acids⁶ the multicomponent reactions were explored. If we look at last few decades then it realises that the number of publications of multicomponent reactions are continuously increasing. The significant benefits of the MCR are short time for the reactions and less steps for the synthesis that leads to good yield of products. These out comings meet to the requirement of green chemistry principles which are demand of future chemistry also i.e. sustainable chemistry.

Most of one pot synthesis 2-aminopyranes utilised three components aldehyde, malononitrile and active methylene group containing compounds like dimedone. Variety of methods and catalysts are reported for its synthesis. Bases such as potassium carbonate⁷, caesium carbonate⁸, sodium ethoxide⁹, sodium bicarbonate¹⁰, meglumine¹¹, N-methyl morpholine¹², piperidine¹³, triethyl amine¹⁴, potassium tertiary butoxide¹⁵, basic alumina¹⁶ are reported for the 2-amino pyranes. γ -Alumina¹⁷, silica supported sulphuric acid¹⁸ like materials are reported as heterogeneous catalysts. Nano particles like ZnAl₂O₄-Bi₂O₃ composite¹⁹, palladium (0)²⁰, Preysslerheteropoly acid on Ni_{0.5}Zn_{0.5}Fe₂O₄ magnetite nanoparticles²¹, Nano-titania-supported Preyssler-type heteropolyacid²², Nano Silica-Bonded 5-N-Propyl-Octahydro-Pyrimido[1,2-A]Azepinium Chloride²³, gold

nanoparticles supported on thiol - functionalized reduced graphene oxide²⁴, Fe₃O₄ magnetic nanoparticles coated with a copolymer²⁵, (Fe₂O₃)-MCM-41-supported acidic ionic liquid²⁶, 4-(40-Diamino-di-phenyl)-sulfone supported enhollow magnetic mesoporous Fe₃O₄@SiO₂²⁷, Nano-SiO₂²⁸ are also reported. Ionic liquids like ionic hydroxides²⁹, piperidinium acetate³⁰, amino acid ionic liquids³¹, 2-Hydroxyethyl-1-ammonium 3-hydroxypropane-1-sulfonate³², tetrabutylammonium Chloride³³, salts like Mg(ClO₄)₂⁵⁴, Ba(OTf)₂³⁵ are also reported. Organic catalysts such as β -Cyclodextrin³⁶, binaphthyl-modified organocatalyst³⁷, DBDMH³⁸, Fructose³⁹, L-Proline⁴⁰⁻⁴², Vitamin B₁⁴³, urea⁴⁴, Vitamin B₁₂⁴⁵, are reported for the efficient synthesis of 2-amino pyranes.

Some reported methods are having drawbacks like cost of catalysts or the high conditions for reactions or the difficulty of reaction workups. We earlier reported the simple, expeditious and green process for the Knoevenagel condensation of aldehydes with malononitriles using ammonium carbonate. Ammonium carbonate provided the creation of anions over active methylene groups which are key for the condensation. Hence we extended the ammonium carbonate use for 2-aminopyrane synthesis.

RESULT AND DISCUSSIONS

Being a salt ammonium carbonate has less solubility in organic solvents but more in water. Our earlier experimentation proved the reactivity of ammonium carbonate in aqueous ethanol medium for organic reaction. Hence we selected the same medium for 2-aminopyrane synthesis. To optimise the reaction condition we selected benzaldehyde as prototype. The 10 mol% ammonium carbonate was added to stirring mixture of

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ONE POT SYNTHESIS OF PYRANOPYRAZOLES USING SODIUM LACTATE AS AN EFFICIENT CATALYST

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Keywords: catalyst; green synthesis; one pot; pyranopyrazole; sodium lactate.

An efficient one pot synthesis of pyranopyrazoles has been achieved by the four-component condensation of hydrazine hydrate, ethyl acetoacetate, aldehydes and malononitrile using sodium lactate as a catalyst in aqueous ethanolic medium under reflux condition. The method is simple and green to afford pyranopyrazoles in a short time. It provides a new base catalyst that readily gives product from moderate to excellent yields.

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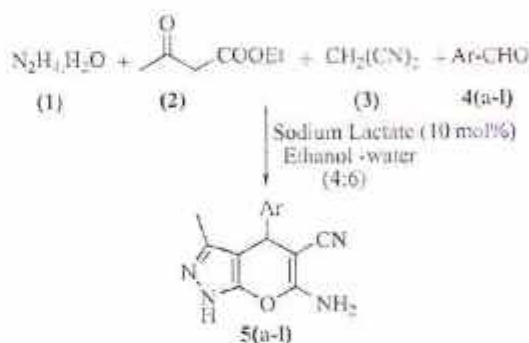
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Introduction

Addition of three or more starting materials in one pot and their transformation to final product without isolation of intermediate provides a significant tool for organic synthesis. After the Strecker's amino acid synthesis, many successful attempts were made for organic transformations such as the synthesis of pyranopyrazoles which is one of the most important heterocycles of great biological significance. Pyranopyrazolescaffolds are reported for various biological activities such as analgesic, anti-inflammatory,¹ antibacterial,² anti-microbial,³ and antitumor activity.⁴

Many methods are reported for the synthesis of pyranopyrazoles involving the use of three or four component condensation using CeCl_3 ,⁵ InCl_3 ,⁶ $\text{La}(\text{NO}_3)_3$,⁷ ionic liquids such as $[(\text{CH}_2)_4\text{SO}_3\text{HMIM}][\text{HSO}_4]$,⁸ $[\text{H-NMP}][\text{MeSO}_3]$,⁹ cetyltrimethylammonium chloride,¹⁰ amino acids such as glycine,¹¹ L-tyrosine,¹² nano-particles such as CuI ,¹³ Fe_3O_4 ,¹⁴ $\text{Fe}_3\text{O}_4@\text{SiO}_2$,¹⁵ 1,3,5-triazine-2,4,6-triamine modified nano rice husk silica,¹⁶ MgO ,¹⁷ ZnO ,^{18,19} and vitamin B₁ on silica coated ferrite ($\text{Fe}_2\text{O}_3@\text{SiO}_2$) nanoparticles.²⁰ Some heterogeneous catalysts like cerium (IV) carboxymethylcellulose,²¹ acidic montmorillonite K-10 clay²² are also documented for the one pot synthesis of pyranopyrazoles. Organic acids catalysing the synthesis of these heterocycles include citric acid,²³ and L-Proline.²⁴ Pyranopyrazoles can also be synthesized by using organic base catalysts like triethyl amine,²⁵⁻²⁷ triethanol amine,²⁸ piperazine, piperidine, pyrrolidine and morpholine,²⁹ salts like ammonium chloride,³⁰ and sodium benzoate.³¹

sodium lactate as a new environmentally benign base catalyst for the four-component synthesis of pyranopyrazoles from hydrazine hydrate, ethyl acetoacetate, malononitrile and various aldehydes (Scheme 1).



Scheme 1. Four component pyranopyrazole synthesis.

Experimental

Melting points were recorded in open capillaries and are uncorrected. Structures of the synthesized products were assigned on the basis of spectral analysis. IR spectra were recorded on Shimadzu IR Affinity 1 spectrophotometer using KBr pellets. ¹H NMR spectra were recorded in DMSO-d_6 on a BRUKER AVANCE II 400 MHz spectrometer and the chemical shifts were expressed in ppm relative to TMS. Mass spectra were recorded on a Macro mass spectrometer by Electron Spray technique. Sodium lactate (60 %) solution was purchased from Loba Chemicals Pvt. Ltd. Progress of the reaction was monitored on silica pre-coated TLC plates in 40 % ethyl acetate: n-hexane.

General procedure

A mixture of ethyl acetoacetate (1 mmol), hydrazine hydrate (1 mmol) and sodium acetate solution (10 mol %) was mixed thoroughly. To it 40 % aqueous ethanol (5 mL) was added followed by aldehyde (1 mmol) and malononitrile (1 mmol) and the resulting mixture was stirred for a while and then refluxed for appropriate time (Table I). After completion of reaction, as monitored by TLC, the reaction mixture was allowed to cool and then 50 mL

However many of these methods have several drawbacks such as costly catalysts, harsh reaction condition and poor yields. In addition, the problem of waste remains an important consideration. In the present work we report



SYNTHESIS OF NOVEL SUBSTITUTED-BENZO[d]THIAZOLE-2,4-DICARBOXAMIDES HAVING KINASE INHIBITION AND ANTI-PROLIFERATIVE ACTIVITY

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Keywords: Benzo[d]thiazoles; carboxamides; anticancer activity; kinase inhibitors.

A series of novel derivatives containing N¹-(4-fluorophenyl)-N²-substituted-benzo[d]thiazole-2,4-dicarboxamides were synthesized via an efficient, mild and convenient multistep reaction protocol with excellent yields. The structure of the synthesized compounds were confirmed by IR, ¹H NMR, ¹³C NMR, ¹⁹F NMR, mass spectra, elemental analysis and purity was checked by HPLC. All synthesized compounds were screened for anticancer activity against A-549 and Du-145 cancer cell lines by MTT assay. The preliminary bioassay suggests that most of the compounds show anti-proliferation with different degrees. The synthesized compound shows IC₅₀ values in the range of 1.52-17.18 μM in both cell lines. The compounds having electron donating groups had higher anticancer activity compared compounds with electron withdrawing substitutions.

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INTRODUCTION

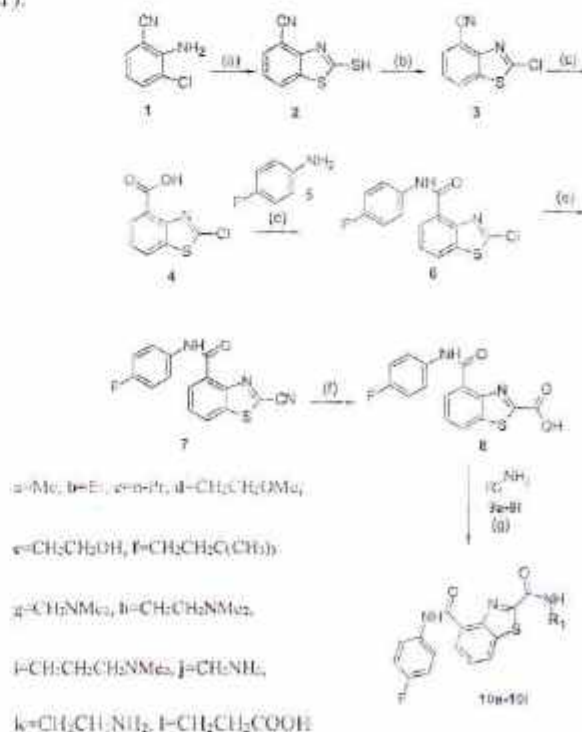
The kinases plays important role in cell functioning. There are over 500 kinases comprising in the human kinome, and all are associated with the functioning of cells.¹ Different types of kinases are responsible for different functioning of cells, some kinases are target of rapamycin (TOR) signaling for cell growth.²⁻³ Some are protein tyrosine kinase inhibitors. By considering the importance of kinases we need to develop new kinase inhibitors with diversified activity.

In present work we have chosen substituted thiazol nuclei and its derivatives for cell line and kinases study. Substituted benzothiazole are known for diversified biological activities like anti-tubercular,⁴ MAP kinase inhibitors,⁵ Kinases plays key role in cancer initiation and progression.^{6,7} Thiazoyl-sulfonamides act as carbonic anhydrase inhibitors⁸ and anticancer.⁹ Some derivatives comprising thiophene nuclei acts as anti-proliferative agents.¹⁰⁻¹² Neural precursor cell expressed, developmentally down-regulated 8 (NEDD8) activating small molecule-drug conjugates enzymes inhibitors,¹³ Raf kinase inhibitor protein (RKIP),¹⁴ poly-ADP-ribose polymerases (PARP) and topoisomerase (TOPO) inhibitors.¹⁵ Some benzthiazole forms key building block of some of the biologically active derivatives.¹⁶⁻¹⁷ By considering the diversified biological activity of benzo[d]thiazol and continuation of our research

work,¹⁸⁻²⁰ we have synthesized a series of substituted -benzo[d]thiazole derivatives and all the synthesized compounds were tested for their biological activity in cell line and enzymatic study.

RESULTS AND DISCUSSION

We have synthesized a series N¹-(4-fluorophenyl)-N²-substituted-benzo[d]thiazole-2,4-dicarboxamidey (10a-10l) starting from easily available 2-amino-3-chlorobenzonitrile (1).



Scheme 1. Synthesis of N¹-(4-fluorophenyl)-N²-substituted-benzo[d]thiazole-2,4-dicarboxamides (10a-10l).

An Efficient Protocol for the One Pot Synthesis of Pyranopyrazoles in Aqueous Medium using Triethanolamine as a Catalyst



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Abstract

Triethanolamine is an efficient and green catalyst for the synthesis of 6-amino-1, 4-dihydro-4-substituted-3-methylpyrano-[2, 3-c] pyrazole-5-carbonitrile in aqueous medium reflux conditions. The procedure is easier, eco friendly, simple with easy workup affording good yield of the corresponding products.

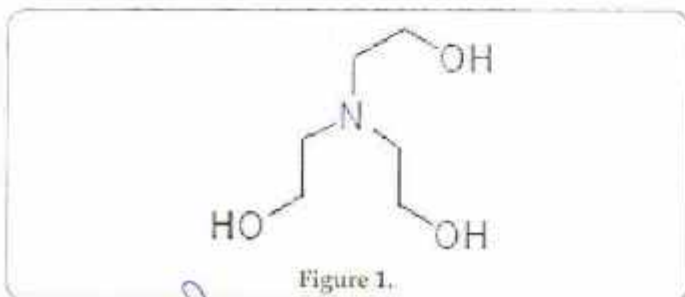
Keywords: Multi component reaction; Water media; Pyranopyrazole; Catalyst; Triethanolamine

Introduction

The present scenario for organic synthesis indicates the crave for green and economical synthesis of organic compounds. One of it is multi component synthesis. Strecker's synthesis for amino acids was the first report on multi component reaction [1]. Last few decades show large development in it. The main aim of such reactions is to fasten the reaction rate by reducing number of steps involved and eventually increase the yield of reaction. In this context to achieve great efficiency catalysts are employed. Catalysts such as Nano α - Al_2O_3 supported ammonium dihydrogenphosphate [2], tungstate sulfuric acid [3], $\text{Fe}_x\text{-Ti}_x\text{O}_y/\text{SO}_3\text{H}$ nanoparticles [4], nano-titania sulfuric acid [15-nm TSA] [5], nanostructured MgO [6], $\text{H}_{11}[\text{NAP}_5\text{W}_{10}\text{O}_{110}]$ [7] and ZnO Nanoparticles [8] were used.

Organic catalysts such as Triethylamine [9], DABCO [10], Tris-hydroxymethyl aminomethane [11] are also reported in various organic transformations. Triethanolamine contains basic tertiary amine and primary alcoholic part (Figure 1).

It is used for activation of both CO_2 and epoxides to convert them in to cyclic carbonates [12]. It is also reported as a ligand for copper catalyzed hydroxylation of aryl halides in aqueous medium [13]. It is used as aqueous solvent for controllable preparation of ZnO nano flowers in sol gel technique [14]. Its aqueous solution is reported as electrolyte in CO_2 Photo electro-conversion catalyzed by Cu-Doped Graphene-Titania Catalyst [15]. Also it is found to increase the rate of oxidation of mesitylene catalyzed by cobalt bromide [16]. It is used as sacrificial electron donor in photocatalytic system [17]. Furthermore, it improved the catalytic performance of $\text{CuBr}/\text{PMDETA}$ in the atom transfer radical polymerization [18]. It is also used as phase transfer catalyst for synthesis of 1-(arylsulfonyl) aryl/heterylmethanes [19]. It is used as medium for synthesis of 3-substituted coumarins using L-proline as a catalyst [20]. It is reported as catalyst in 10 mol% for synthesis of 2-amino-3-cyano-4H-pyran derivatives under ultrasound irradiation at 60°C [21].



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Adsorption Studies of Acid Red 73 on Parthenium hysterophorus L.

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Abstract

The adsorption behavior of Acid red 73 onto Parthenium hysterophorus L from aqueous solution was investigated. Adsorption kinetics, equilibrium, and thermodynamics were investigated as a function of initial concentration and temperature. Three kinetic models – the pseudo first-order, second order and Elovich were used to investigate the adsorption mechanism. Evaluation of kinetic models showed that the pseudo first order kinetic model was found to correlate the experimental data. The adsorption data were modeled by using Langmuir, Freundlich and Temkin adsorption isotherms. The data were well represented by Freundlich isotherm equation and the calculated thermodynamic parameters indicated a spontaneous and exothermic nature of the adsorption process.

Key words: Parthenium L., Acid Red 73, Adsorption kinetics, Thermodynamics.

Introduction

In this work, the ability of PL to remove Acid Red 73 from aqueous solution by adsorption was investigated. Many industries like textile, leather, paper, cosmetic, plastic, painting, food and pharmaceuticals use the various dyes¹. Most of the used solutions containing such dyes are discharged as effluents. Some of the dyes or their metabolites are known to be toxic, carcinogenic and mutagenic². Many dyes are stable to light and the oxidizing agent, hence difficult to degrade. The dyes even at lower concentration impart color to water bodies; prevent photosynthesis and poses danger to aquatic life^{3,4,5}. The removal of dyes from waste water is very important from the environmental point of view⁶. There are many processes used for removal of colored dye from industrial effluent which are like coagulation, flocculation, chemical oxidation, ion exchange, biodegradation, electrolysis, photo catalysis, and adsorption. Adsorption is one of the most effective processes used for the dye removal if the adsorbent is effective, eco-friendly and readily available. Literature survey shows that activated carbon is the most effective adsorbent for the adsorption of dyes but it is expensive and hence there is an increasing need for equally effective and cheaper adsorbent.

Many investigations have been done on the feasibility of low-cost material as the adsorbent coir pith^{7,8}, peanut hull⁹, rice husk¹⁰, baggaspith¹¹, Parthenium hysterophorus L^{13,14}, Vilaytituisi¹⁵ and agricultural wastes.



Study on Physicochemical Parameters of Brewery Industry Effluents of M. I. D. C. Aurangabad

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Abstract

The physicochemical parameters of effluents of brewery industry situated at M.I.D.C. Waluj, Aurangabad (M.S.) have been studied for three months. The result indicates that the parameters like Temperature, TDS, TSS, DO, BOD, COD, Chlorides, and Sulphates in untreated effluents are above ISI limit. The investigation of parameters of treated effluents shows that they are within permissible limit and water can be used for irrigation purpose.

1. Introduction

Water is the basis of life. In India dams, lakes, ponds, and groundwater can be used for domestic, agricultural, and industrial purposes. The overexploitation of these resources has produced several environmental problems and water pollution is one of them. In developing country like India industrialization is the need of the hour but it has created the uneven distribution of population leading to urbanization which adversely affects the environmental resources and ecological system.

The water resources are contaminated by biological and industrial pollutants. In brewery industries, beer and other breweries of low alcoholic content products are manufactured. In brewery plant, the major effluent is fermentation residue. Effluents are also manufactured from yeast preparation, yeast recovery, washing of brewing vessels and bottles. The quantity of effluent water produced from brewing is about 8 to 12 times the volume of beer produced. The effluents

from brewing plant are usually acidic and contain appreciable quantities of carbohydrates and consequently, its BOD is high. The effluents of dairy industries were analyzed by others^{1,2}.

The present study aims to analyze physicochemical parameters of untreated and treated effluents.

2. Materials and Methods:

The M.I.D.C. Waluj, Aurangabad (M.S.) area was selected for a present study where various industries are situated and selected brewery industry is one of them. The water samples were collected manually in polythene bottles³ inside the plant at regular intervals i.e. during Oct. Nov. and Dec. and analyzed for various physicochemical parameters like pH, TS, TDS, TSS, DO, BOD, COD, Chlorides and sulphates.

The physical parameters like pH and Temperature were measured with pH meter and thermometer on the spot. The dissolved oxygen in the samples was determined by


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IMPACT OF SUGAR INDUSTRY ON WATER QUALITY IN EASTERN MARATHWADA

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Abstract : India is the largest sugar producing country in the world. After Textile industry, Sugar industry is the second largest industry in the nation. Maharashtra is one of the important sugar producing states in India. Konkan, Vidarbha, Marathwada are some of the regions of Maharashtra. In Marathwada alone there are more than thirty sugar factories. Sugar industries largely affect the human life in number of ways. Its disturbance to ecosystem by Air pollution, Soil pollution, Water pollution is some of them. Four sugar factories were selected from eastern marathwada for the study. One was Shankar co-operative sugar factory, situated at Kusumnagar, Bhokar dist Nanded. Second was Godawari manar sugar factory situated at Shankar nagar district Nanded. Third was the Puma Sugar Factory, Wasmatnagar, district Hingoli. And the last was Godavari -Dudhana Sugar Factory, Pathari district Parbhani. Three sampling stations were selected from each factory area. The sampling and testing of sample were carried out for one year (January 2016 to December 2016). All twelve samples were tested for various Physico-Chemical parameters like temperature, colour, pH, ORP, conductivity, TDS, COD, BOD, DO, Hardness, Calcium, magnesium, chloride and sulphate.

Key words: Sugar factories, Sewage, Pollution.

INTRODUCTION:

Water is unique and ubiquitous on earth. It is important for life and dissolves number of substances into it. When various constituent get dissolved in water more than its natural limit then such water is considered as polluted water and the process as Water pollution.

Numbers of sources are responsible for water pollution for example Natural source, urban source, agricultural source, industrial source extra.

In today's life, industry contributes maximum for water pollution. The major industrial pollutants are variety of chemicals. Many times these may be waste chemicals or byproducts or waste products such as pulp and paper mills, coal washeries, petroleum refineries, chemical fertilizer plants, dyes and colour industries, textile industries, distilleries, leather industry, sugar factories and many more.

In most of cases, waste and byproducts are emptied directly into natural water bodies or buried in ground. These underground buries finally find their way into water. In this way water gets polluted.

In present study, contribution of sugar factories for water pollution from eastern Maharashtra was considered.

MATERIALS AND METHODS :

Experimental:

The physico-chemical analysis of collected samples is presented in Tables 1,2,3, and 4. All domestic, industrial and agricultural effluents affect in some way the normal life. When water is unacceptable for its normal usage, then it is said to be polluted.

Polluted water is responsible for a very large number of mortalities and in capacitance in the world. It leads to steady decline in fisheries and also affect irrigated land. The samples were checked for various parameters. All chemicals and reagents used were of AR grade.

RESULTS AND DISCUSSION :

Maximum values of temperature during present investigation were recorded in summer and minimum in winter. The findings are in good agreement with those of Pulhria¹, Verma² and Ganpati³. The conductivity of water depends upon the concentration of ions. In present study there is seasonal variation in the values. Similar trend was also observed by Mittal⁴, Imeyborne⁵ and Adebisi⁶. Water having conductivity more than 20 $\mu\text{hos}/\text{cm}$, is not suitable for irrigation.

In case of Total dissolved solids, maximum values were recorded in summer. TDS values of selected samples are found much higher. Maximum value was recorded at kusumnagar, Nanded. General trend was in agreement with Gonsalves⁷ and Joshi⁸.

Dissolved Oxygen (DO) content was much higher than 3 ppm which is the prohibited ISI standard⁹. Maximum D.O. values were observed at winter. This was in agreement with Trivedi¹⁰ and Saxena¹¹.

Biological oxygen demand (BOD) is indicative degree of pollution due to dilution low values during monsoon. Similar observations were recorded by Shaw. BOD values more than 8 are considered polluted water.

Chemical oxygen demand (COD) values give clear indication of organic pollution. These values show seasonal variation.

The pH values of water were changed drastically with time due to exposure to air; biological activity etc. The significant change in pH was due to disposal of industrial waste.

Oxidation-Reduction Potential (ORP) values show that there is continuous load of organic pollution, which is in agreement with Gautam¹².

Admissible chloride level is up to 250 ppm. Higher chlorides are indications of presence of organic matter which is also given by Thresh.

Recommended upper limit for sulphate ions is 250 ppm, and sample values are found within limit.

Total hardness is important parameter of gravity of



A SIMPLE, EXPEDITIOUS AND GREEN PROCESS FOR KNOEVENAGEL CONDENSATION OF PYRAZOLE ALDEHYDES

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Keywords: Pyrazole aldehyde, malononitrile, Knoevenagel condensation, ammonium carbonate, aqueous medium.

Knoevenagel condensation of pyrazole aldehydes with malononitrile is selectively carried out using ammonium carbonate as a mild, cheap, efficient and selective catalyst, in aqueous media at ambient temperature under sonication. This method is green and providing an expeditious way for Knoevenagel condensation of pyrazole aldehyde.

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Introduction

Emil Knoevenagel (in 1890) developed a method for the synthesis of substituted alkenes, by the condensation of an aldehyde with active methylene compounds in the presence of base and water. Knoevenagel condensation is typical C-C bond forming reaction in organic synthesis. This reaction is useful to generate a variety of intermediates which are used in the synthesis of pharmaceutical precursors; because of this, Knoevenagel condensation has been extensively studied by researchers. Scientist and academicians are still inventing novel methods and catalysts for Knoevenagel condensation. Several methods have been developed by using the microwave,¹ or ultrasonication,² photochemical condensations with fruit extract as a catalyst,³ solvent free conditions,⁴ Recently Franca Bigi et al.,⁵ reviewed Knoevenagel reactions in an aqueous medium with and without a catalyst. According to Franca although reaction involves a dehydration step, the reaction can be carried out in water. Following this interpretation, we have carried out the Knoevenagel reaction of pyrazole aldehyde in water but resulted in lower yield due to less solubility of pyrazole aldehyde. Then we have carried out the reaction in the water-ethanol mixture and obtained a high yield of products; these results prompted us to investigate this reaction further.

In literature several methods have been reported for Knoevenagel condensation by using different solvents and homogeneous or heterogeneous catalyst such as, Ti(O-*i*-Pr)₃,⁶ 1/2K₂CO₃,⁷ Ti(O-*i*-Pr)/pyridine,⁸ calcined egg shells,⁹ hydroxyapatite supported CsCO₃,¹⁰ amino-functionalized mesoporous silica,¹¹ mesoporous Ni-Fe hydrotalcite,¹²

amino-functionalized mesoporous zirconia,¹³ CaMg(CO₃)₂,¹⁴ microporous carbon nitride,¹⁵ proline functionalized polyacrylonitrile fibre,¹⁶ sevelamer,¹⁷ basic ionic liquid supported on hydroxylapatite-encapsulated γ -Fe₂O₃ nanocrystallite,¹⁸ Ionic liquids,¹⁹⁻²² and very recently without catalyst.²³⁻²⁴ To eliminate or reduce some harsh reaction conditions, harmful and expensive reagents and solvents, we have developed a green method, for Knoevenagel condensation of substituted pyrazole aldehydes with malononitrile in an aqueous medium, using ammonium carbonate as cheap, environmentally friend catalyst. The striking features of reaction are shorter reaction time, ambient reaction temperature, cost effective, simple workup procedure, an aqueous medium (Scheme 1).

Experimental

All chemicals used were of the synthetic grade. The solvents were distilled before use. The progress of the reaction was monitored by TLC using ethyl acetate: n-hexane system. Melting points were recorded by using the open capillary method and are uncorrected. The Ultrasonicator used was made by Cyberlab Ultrasonic Sterilecleaner model number CB2080 with operation voltage 220 V AC and electric cycle 50/60 Hz. IR spectra were recorded on Shimadzu IR Affinity 1 instrument using KBr discs. ¹H NMR was recorded on BRUKER Avance II 400 NMR Spectrometer using DMSO d₆ as a solvent. The mass was recorded on WATERS, Q-TOF Micro mass (ESI-MS) using methanol as a solvent.

General procedure for the Knoevenagel condensation

In 50 mL round bottom flask pyrazole aldehyde (1 mmol), malononitrile (1 mmol), were taken in 10 ml water- ethanol (1:1) mixture and stirred for 3-5 minutes to mix the reaction mixture; after that ammonium carbonate (20 mol %) was added. The resulting reaction mixture was stirred for 3-20 minutes at reflux temperature, and the reaction was monitored by TLC. After the completion of the reaction, the reaction mixture was allowed to cool down to room temperature and then filtered off, washed with water and dried. Similarly, other derivatives were also prepared (Table-2). Similar results were obtained when the reaction were carried out using sonication method.

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Synthesis and Anti-microbial Activity of Novel Pyrrolidine Containing Chalcones and Pyrazolines

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Abstract

4-(pyrrolidin-1-yl)benzaldehyde(1) was condensed with acetophenone to give chalcones (3a-3i) which are further cyclized with hydrazine hydrate to afford pyrazolines (4a-4i) by conventional and non-conventional route. The synthesized compounds were evaluated for antifungal and antibacterial activities.

Keywords: Chalcones, Pyrazolines, Ultrasound

Introduction

Heterocyclic compounds are gain much more importance in the field of pharmaceuticals, most biologically important compounds used currently contains heterocyclic ring as a backbone of their structure. 1,3-Diarylprop-2-en-1-ones, generally called as chalcones are important role in the organic chemistry, they act as synthones for many important heterocycles. Chalcones act as precursor for flavonoids and isoflavonoids in plants.¹⁻² The derivatives of chalcones are reported to possess many important pharmacological activities like antiviral,³ antibacterial,⁴ antifungal,⁵ anticancer,^{6,7} antiplasmodial,⁸ antifilarial.⁹ The chalcone derivatives are also reported as anti-ulcer¹⁰ and lipid lowering agents.¹¹

Chalcones on reaction with hydrazine hydrate forms pyrazolines, a five membered nitrogen containing heterocycles. Various pyrazoline and derivatives of pyrazolines were reported for important pharmaceutical and biological activities.¹² Pyrazolines were reported as antibacterial,¹³ antifungal, anti-tubercular,¹⁴ antioxidant,¹⁵ analgesic, anti-inflammatory¹⁶ and anticancer agents.¹⁷ Pyrrolidine, a five membered saturated nitrogen containing heterocyclic ring, had an important role in the structural backbone of many biologically important compounds. Pyrrolidine derivatives were reported in the literature as antifungal,¹⁸ antibacterial,¹⁹ anticonvulsant,²⁰ antitumor,²¹ antihypertensive,²² and sodium channel blocker agents.²³ These finding promotes us to synthesis the pyrrolidine incorporated novel chalcones and pyrazolines derivatives. The literature survey shows that there was no such report for the pyrrolidine incorporated chalcone and pyrazolinederivatives. In continuation of our research work to synthesis pyrrolidine containing heterocycles^{24,25} we report the synthesis of pyrrolidine containing chalcones and pyrazolines.

Experimental

All the chemical were purchased from sigma-aldrich, used without further purification. The melting points were recorded by open capillary method and are uncorrected. H^1 NMR spectra were recorded on Mercury Plus Varian in DMSO d_6 at 400 MHz using TMS as an internal standard. Mass spectra were recorded on Micromass Quattro II using electrospray ionization technique. The progress of



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Synthesis and Antimicrobial Screening of Novel 4-aryl-6-(4-(pyrrolidin-1-yl)phenyl)pyrimidin-2-amine

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ABSTRACT

In the present work 4-aryl-6-(4-(pyrrolidin-1-yl)phenyl)pyrimidin-2-amine were synthesized by reacting chalcones with guanidine hydrochloride. The synthesized compounds were tested for antibacterial and antifungal activity.

Keywords: Pyrrolidine, Chalcone, Pyrimidine, Antibacterial activity, Antifungal activity

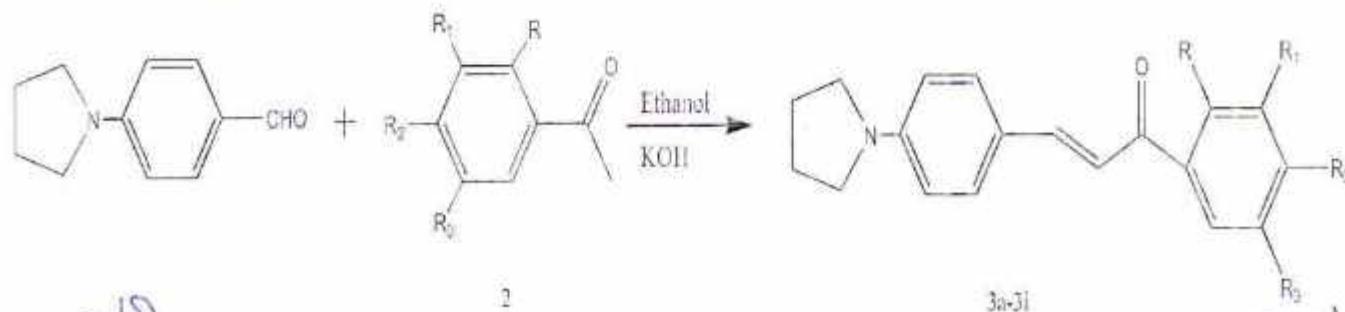
INTRODUCTION

A wide variety of heterocyclic compounds plays an important role in the pharmaceutical fields. Most of the commercially available drug molecules contains heterocyclic ring as a structural backbone. Pyrimidine ring is present in many biological compounds [1]. Pyrimidine derivatives have reported as anti-histaminic agents [2], antimicrobial agents [3], antitubercular agents [4], antifungal agents [5], anti-tumor agent [6], anticancer agent [7], analgesic, anti-inflammatory agents [8], antipyretic [9,10], antioxidant agents [11]. In the continuation of our research work to synthesis pyrimidine containing heterocyclic compounds [12-14], we are reporting the synthesis of pyrrolidine containing pyrimidine derivatives.

MATERIALS AND METHODS

Chemistry

The entire chemicals were purchased from Sigma-Aldrich, used without further purification. The melting points were recorded by open capillary method and are uncorrected. ¹H-NMR spectra were recorded on Mercury Plus Varian in DMSO-d₆ at 400 MHz using Tetramethylsilane (TMS) as an internal standard. Mass spectra were recorded on Micromass Quattro II using electrospray ionization technique. The progress of reaction was monitored by Thin Layer Chromatography (TLC) (silica, 80:20 hexane/ethyl acetate).



Scheme 1: Synthesis of (E)-1-aryl-3-(4-(pyrrolidin-1-yl)phenyl)prop-2-en-1-one (3a-3i)

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Adsorption of Acid Red 14 from Aqueous Solution by Parthenium L. (Carrot Grass): Equilibrium, Kinetic and Thermodynamic Studies.

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Abstract

In present work, adsorption experiments were carried out for the removal of Acid red 14 from aqueous solution using Parthenium L. The results have shown that, the amount of dye adsorption increases with increasing the initial concentration of the dye and temperature. The adsorption kinetic data were analysed by using various kinetic models. It was found that the pseudo-second order kinetic model was the most appropriate model, describing the adsorption kinetics. Adsorption isotherms of Acid Red onto the Parthenium L were determined at 303, 308, 313 and 318 K. Equilibrium data were fitted to the Langmuir, Freundlich and Temkin isotherm models. Thermodynamic parameters such as ΔG , ΔH and ΔS were calculated. The negative values of ΔG indicate that the adsorption is spontaneous in nature and the positive value of ΔH shows the endothermic nature of the process.

Key words: Parthenium L, Acid red 14, adsorption, kinetic, thermodynamics.

Introduction

Synthetic dyes are one of the main pollutant groups of water and wastewater. Dye contamination in wastewater causes problems in several ways: the presence of dyes in water, even in very low quantities, is highly visible and undesirable; color interferes with penetration of sunlight into waters; retards photosynthesis; inhibits the growth of aquatic biota and interferes with gas solubility in water bodies¹⁻⁵. The dyes cannot be decomposed easily⁶⁻⁷. Direct discharge of dyes containing effluents into environment may cause the formation of toxic carcinogenic breakdown products. The highest rates of toxicity were found amongst basic and diazo direct dyes^{8,9}. Therefore, it is highly necessary to reduce dye concentration in the wastewater. The conventional methods for treating dye containing wastewaters are electrochemical treatment¹⁰, coagulation and flocculation¹¹, chemical oxidation¹², liquid-liquid extraction¹³ and adsorption¹⁴⁻¹⁷. Adsorption has been shown to be an effective way for removing organic matter from aqueous solutions in terms of initial cost, simplicity of design, ease of operation and insensitivity to toxic substances. A large number of plant based products like rice husk, teakwood bark, cotton waste¹⁸, neem leaf powder¹⁹, banana pith²⁰ and vilyati tuls²¹ are used as adsorbent.

The main objective of present work was to evaluate the adsorption aptitude of Parthenium L for the removal of Acid Red 14 as a model compound for basic dyes. Acid red 14 is a synthetic red food dye from the azo dye group. It is used for the purposes where the food is heat-treated after fermentation. Azo dyes generally have been known to be carcinogenic over 60 years and are linked particularly, to bladder cancer²². Acid red 14 can cause allergic or intolerance reaction, particularly amongst those with an aspirin intolerance. Other reactions can include a rash similar to nettle rash and skin swelling. Asthmatics



Physico-Chemical Studies of Fluoride in ground water of Sindkhed Raja, District Buldana (M.S.)

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ABSTRACT:

Major parts in the world are facing various health problems concerned with the quality of drinking water. Pollution by heavy metals, pesticides, hardness, TDS are some important contributing factors to the water pollution. Increased fluoride concentrations are also one of the serious menace found in drinking water samples. For the study of fluoride levels in drinking water 40 ground water samples were collected from different areas of 20 villages of Tahsil Sindkhed Raja of district Buldhana (M.S.). They were analyzed for fluoride content. The maximum fluoride concentration was found to be 2.3 ppm and the minimum concentration found was 0.7 ppm.

Key words: Fluoride, tooth decay, fluorosis, dug well, bore well.

INTRODUCTION:

The increased fluoride concentration in ground water resources has now become a major health related problem in many countries. The whole world, more or less is suffering from this geochemical issue. More than 15 states and 100 districts in India are suffering from fluoride content in drinking waters. The natural sources of Fluoride ion are from rock minerals. Its concentration depends upon type of rock strata porosity of rocks, temperature, rain-fall, vegetation, oxidation-reduction potential, chemical composition of rocks, pH and also depth of

SYNTHESIS AND ANTIMICROBIAL SCREENING OF NOVEL 3-ARYL-2(4-(PYRROLIDIN-1-YL) PHENYL) THIAZOLIDIN-4-ONES

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A series of novel 3-aryl-2(4-(pyrrolidin-1-yl) phenyl) thiazolidin-4-ones has been synthesized and screened for antibacterial activity. From the synthesized compounds 4a, 4d and 4f show moderate antibacterial activity.

4-Thiazolidinones, one of the members of sulfur and nitrogen containing heterocycles are the core structure of a number of biologically important compounds¹. These are reported to exhibit bioactivities like anticonvulsant², antimicrobial³, anti-diarrheat⁴, antidiabetic⁵, anti HIV⁶, anticancer⁷, antihistamine⁸, antifungal⁹, antioxidant¹⁰, anti YFV (Yellow Fever Virus)¹¹, antitubercular¹², analgesic, anti-inflammatory¹³ activities.

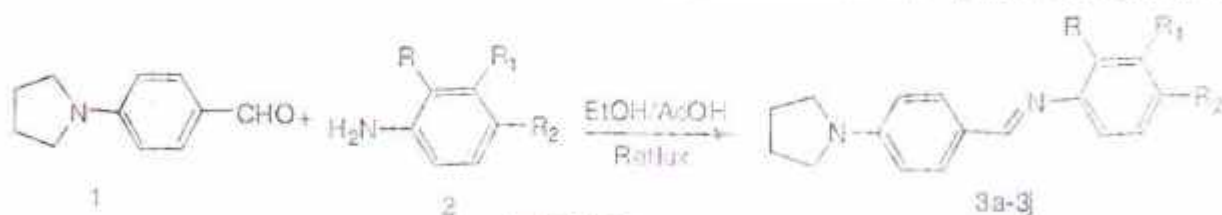
Five member heterocyclic compounds and their derivatives have been reported to show important biological properties¹⁴. One of the member from this i.e. Pyrrolidine ring act as an intermediate for many pharmaceuticals¹⁵, food, pesticide¹⁶, paints, textile and polymer materials¹⁷. Pyrrolidine derivatives have been reported to show different important biological activities like anticancer¹⁸.

So present study was undertaken to synthesise 4-thiazolidinone containing pyrrolidine moiety by reacting Schiff base with mercapto acetic acid.

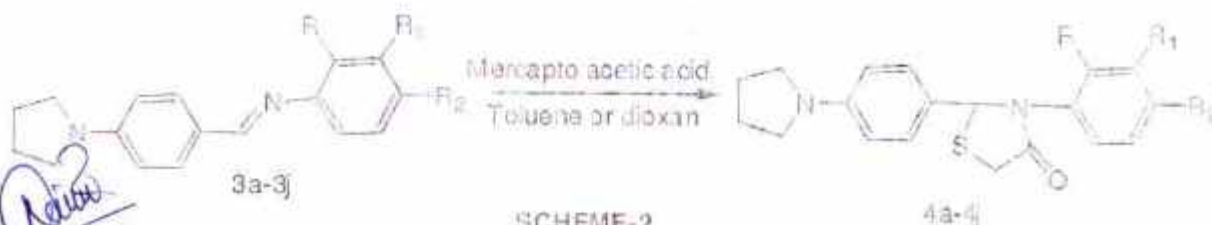
In the present work Schiff bases (imines) 3a-3j were prepared by reacting aldehyde and various aromatic amines. The 4-thiazolidinones 4a-4j were prepared by reacting imines with mercapto acetic acid using toluene or dioxan as solvent, in both solvent system the yield is nearly same only the time consumption is different.

Antimicrobial activity

Compounds 3a-3j and 4a-4j were screened for in vitro antimicrobial activity against *Pseudomonas aeruginosa* (ATCC 27853), *Staphylococcus aureus* (ATCC 25923), *E. Coli* (ATCC25922) and *Candida sp.*, using disc diffusion method. Each compound was dissolved in DMSO to get concentration of 50µg/mL. Discs of Whatmann filter paper no. 41 (6 mm) were



SCHEME-1



SCHEME-2

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Reuse of Waste Water from Laboratories and Hostels of Aurangabad City Maharashtra (M.S.)

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Abstract

This particular paper emphasizes on the human waste pollution and laboratory waste's from different college laboratories and hostels in Aurangabad city, Maharashtra (M.S.).

The laboratory waste samples are investigated by conducting number of tests that has given in tabular form below giving the indication of a sizable pollution of waste which must be seriously thought over, because heavy range of pollution and large use of chemicals in laboratory gives pollution on remarkable range's in case of human waste pollution which is also an important aspect.

In short combination of laboratory waste samples and samples of hostels of various colleges and university were extensively studied. There is good scope to minimize the pollution of these waters not only the pollution is minimized but also the re-utilization of these waste waters can be done and used for at least washing the clothes and washing the kitchen ware.

This is an important achievement with an effort carried out by doing extensive research work. Due to tremendous downfall in rain every season, it is a need of time to think the re-utilization of water.

Key Words : Waste water recycle, reuse, LAS, Anionic, Cationic, Non-Ionic Surfactants.

Introduction

In living organisms, various living processes take place, part of it is to get rid of the unwanted materials otherwise it may cause harm to the organisms due to the toxins present in the wastes. The biological process for getting rid of the body wastes is termed as excretion and occurs in the manner in all living organisms. In humans it can be explained as man eliminates unwanted water, salts and gases like carbon dioxide through skin, lungs respectively and also some other wastes like bile wastes, wastes from the kidney etc. are also expelled.


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SONICATED ASSISTED SYNTHESIS OF BENZIMIDAZOLES, BENZOXAZOLES AND BENZOTHIAZOLES IN AQUEOUS MEDIA

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ABSTRACT

Ammonium nickel sulphate [(NH₄)₂SO₄·NiSO₄·6H₂O] was found as a new catalyst to synthesis 2-aryl benzimidazole, 2-aryl benzothiazole and 2-aryl benzoxazole in aqueous media under sonication irradiation. This procedure is an eco-friendly, efficient and provides simple workup and good yield.**Keywords:** - Benzimidazole, benzothiazole, benzoxazole, aqueous media, sonication, ammonium nickel sulphate.

INTRODUCTION

The benzimidazoles, benzoxazole and benzothiazoles are an important heterocyclic nucleus which has been widely used in medicinal chemistry¹⁻³. These heterocycles are an important pharmacophore⁴⁻⁶ in drug discovery and good intermediate⁷ in synthesis of many important organic compounds. These heterocycles shows different pharmacological properties such as antibacterial⁸, antiviral⁹, antifungal¹⁰, anticancer¹¹, antischistosomal¹² and immunosuppressant¹³.

These heterocycles can be prepared by condensing carboxylic acid¹⁴, acid chloride¹⁵⁻¹⁷, orthoester^{18,19}, esters²⁰ and aldehydes²¹⁻²⁴ with *o*-phenylenediamine, *o*-aminophenols and *o*-aminothiophenols, dehydration of *o*-acylamino phenols²⁵, reaction of *o*-quinones with amines²⁶ and Beckmann rearrangement of *o*-acylphenoximes²⁷. The most common method of synthesis of these heterocycles includes condensation of *o*-phenylenediamine, *o*-aminophenol or *o*-aminothiophenol with suitable aldehyde²⁸⁻³². Most of these procedure have their own advantages and disadvantages, thus there is still a need to search better ecofriendly procedure.

The toxic and volatile natures of many organic solvents have posed serious environmental problems. Due to this organic reaction in aqueous media have attracted much attention in synthetic organic chemistry because water is one of the most abundant, cheap and environmental friendly solvent however there are very few reports for synthesis of 1,3 benzoxazoles in aqueous media.

Ultrasonic irradiation has been established as an important technique in synthetic organic chemistry. It has been used as an efficient energy source for the organic reactions. Simple experimental procedure, very high yields, increased selectivity and clean reaction of many ultrasound induced organic transformations offers additional convenience in the field of synthetic organic chemistry³³⁻³⁵. These finding promotes us to investigate the synthesis of benzimidazoles, benzoxazole and benzothiazoles in aqueous media.

EXPERIMENTAL

Baudouin Soxhess (35 kHz) ultrasonic bath was used for ultrasonic irradiation. ¹H NMR spectra were recorded on Mercury Plus Varian in DMSO-*d*₆ at 400 MHz using TMS as an internal standard. Mass spectra were recorded on Micromass Quattro II using electrospray ionization technique, showing (M+H)⁺ peak as a base peak. The progress of the reactions was monitored by TLC (silica, 80:20 hexane/ethyl acetate).

General Procedure for the Preparation of 3a-3l

o-phenylene diamine (1mmol), aromatic aldehyde (1.1mmol) and water (10mL) were mixed in 25mL single neck round bottom flask, and to this Ammonium Nickel Sulphate (10 mol %) was added. The reaction mixture was sonicated at room temperature (25°C) for the appropriate time (Table 2, entries 1-12), and the progress of reaction was monitored by TLC. After completion of reaction, the mixture was extracted with ethyl acetate (2×10mL). The combined organic layer was dried over anhydrous Na₂SO₄ and evaporated under reduced pressure; the crude material was purified by column chromatography over silica gel to afford products 3a-3l with high purity.

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Selected spectral data

2-phenyl-1H-benzimidazole 3a

¹H NMR(400MHz DMSO-*d*₆) δ 12.7 (s, 1H, NH), 7.95(m, 2H, ArH), 7.25-7.35(m, 5H, ArH), 7.05(2H, ArH); *m/z* 195(M+H). Elemental analysis Calcd. for C₁₀H₉N₂: C, 80.39; H, 5.19; N, 14.42; Found: C, 80.42; H, 5.17; N, 14.41.

2-(4-methoxy phenyl)-1H-benzimidazole 3b

¹H NMR(400MHz DMSO-*d*₆) δ 3.86(s, 3H, OCH₃), 7.09-7.11(d, 2H, *J* 9.2Hz, ArH), 7.16-7.18(m, 2H, ArH), 7.53-7.56(m, 2H, ArH), 8.08-8.11(d, 2H, *J* 8.8Hz, ArH); *m/z* 225 (M+H). Elemental analysis Calcd. for C₁₄H₁₃N₂O: C, 74.98; H, 5.39; N, 12.49. Found: C, 75.03; H, 5.36; N, 12.45.

2-(4-nitrophenyl)-1H-benzimidazole 3c

¹H NMR(400MHz DMSO-*d*₆) δ 12.5 (s, 1H, NH), 8.20 (d, 2H, ArH), 7.6 (d, 2H, ArH), 7.3 (m, 2H, ArH), 7.1 (m, 2H, ArH); *m/z* 229(M+H). Elemental analysis Calcd. for C₁₂H₉N₃O₂: C, 68.28; H, 3.97; N, 12.25. Found: C, 68.20; H, 4.01; N, 12.28.

3-Chloro-2-(4-methoxyphenyl)-1H-benzimidazole 3d

¹H NMR(400MHz DMSO-*d*₆) δ 7.97 (d, *J* 9.2 Hz, 2H), 7.36 (s, 1H), 7.67 (d, *J* 8.1 Hz, 1H), 7.35 (d, *J* 8.1 Hz, 1H), 6.92 (d, *J* 9.2 Hz, 2H), 3.75 (s, 3H); *m/z* 276 (M+H). Elemental analysis Calcd. for C₁₄H₁₁ClN₂O: C, 65.09; H, 4.29; N, 10.83. Found: C, 65.05; H, 4.25; N, 10.80.

3-Chloro-2-(4-nitrophenyl)-1H-benzimidazole 3e

¹H NMR(400MHz DMSO-*d*₆) δ 8.52 (d, *J* 9.4 Hz, 2H), 7.96 (d, *J* 9.4 Hz, 2H), 7.85 (s, 1H), 7.71 (d, *J* 8.2 Hz, 1H), 7.32 (d, *J* 8.2 Hz, 1H); *m/z* 274 (M+H). Elemental analysis Calcd. for C₁₂H₉ClN₃O₂: C, 57.05; H, 2.95; N, 15.35. Found: C, 56.98; H, 3.01; N, 15.30.

3-Chloro-2-(4-N,N-dimethylaminophenyl)-1H-benzimidazole 3f

¹H NMR(400MHz DMSO-*d*₆) δ 7.94 (d, *J* 8.9 Hz, 2H), 7.85 (s, 1H), 7.66 (d, *J* 8.3 Hz, 1H), 7.37 (d, *J* 8.3 Hz, 1H), 6.82 (d, *J* 8.9 Hz, 2H), 3.35 (s, 6H); *m/z* 272 (M+H). Elemental analysis Calcd. for C₁₄H₁₄ClN₃: C, 66.30; H, 5.19; N, 15.46. Found: C, 66.38; H, 5.12; N, 15.40.

2-(3-nitrophenyl)-1H-benzimidazole 3g

¹H NMR(400MHz DMSO-*d*₆) δ 12.9 (s, 1H NH), 8.90 (s, 1H Ar H), 8.50 (d, 1H Ar H), 8.10 (d, 1H Ar H), 7.70 (d, 1H Ar H), 7.50 (m, 2H ArH), 7.2 (m, 2H ArH); *m/z* 240(M+H). Elemental analysis Calcd. for C₁₁H₉N₃O₂: C, 65.27; H, 3.79; N, 17.56. Found: C, 65.22; H, 3.79; N, 17.62.

2-pyridin-3yl-1H-benzimidazole 3h

¹H NMR(400MHz DMSO-*d*₆) δ 13.05 (s, 1H NH), 9.35(d, 1H ArH), 8.75(m, 1H ArH), 8.60(m, 1H ArH), 7.70(m, 3H ArH), 7.40 (m, 2H ArH); *m/z* 196(M+H). Elemental analysis Calcd. for C₁₀H₇N₃: C, 73.85; H, 4.65; N, 21.52. Found: C, 73.90; H, 4.60; N, 21.50.

2-(2,3-Dimethoxyphenyl)-1H-benzimidazole 3i

¹H NMR(400MHz DMSO-*d*₆) δ 12.19 (s, 1H, NH), 7.84 (dd, 1H, *J*

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Adsorption of Benzo Fast Scarlet from Aqueous Solution by Parthenium L. (Carrot Grass): Equilibrium and Kinetic Studies.

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Abstract

In present work, adsorption experiments were carried out for the removal of Benzo Fast Scarlet from aqueous solutions using Parthenium L. The results have shown that, the amount of dye adsorption increases with increasing the initial concentration of the dye and temperature. The adsorption kinetic data were analysed by using various kinetic models. The correlation coefficient and comparison between theoretical and experimental values of adsorption showed that the first order kinetic model was the most appropriate model, describing the adsorption kinetics. The statistical values explain the better fitting of first order model. The kinetic experimental results were fitted to adsorption diffusion models like film diffusion, intra-particle diffusion model one suggested by Weber-Morris and another by Dumwald-Wagner. Equilibrium data were fitted to the Langmuir, Freundlich and Temkin isotherm models. In all above three isotherm models the values of correlation coefficient of Freundlich isotherm are comparatively greater than Langmuir isotherm and Temkin isotherm. Freundlich isotherm model fits better for adsorption of Benzo Fast Scarlet onto Parthenium L. other than two models.

Key words: Parthenium L, Benzo Fast Scarlet, adsorption, kinetic, thermodynamics.

Introduction

Synthetic dyes are one of the main pollutant groups of water. The presence of dyes contamination in water, even in very low quantities, is highly visible and undesirable; color interferes with penetration of sunlight into waters; retards photosynthesis; inhibits the growth of aquatic biota and interferes with gas solubility in water bodies¹⁻⁵. The dyes cannot be



Fe_{0.2}Al_{1.8}Zn₁O₄ Composite: An Efficient Catalyst for the Synthesis of 1, 4-Dihydropyridine Derivatives

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Authors' contributions

This work was carried out in collaboration between all authors. Author VMJ performed the said work. Author RPP designed the study and wrote the protocol. Authors SUT and SSK managed the analyses of the study and wrote the draft of manuscript. Authors SKV and AMZ managed the statistical analysis and provide the catalyst. Authors SBS and KLA managed the literature searches. All authors read and approved the final manuscript.

Original Research Article

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ABSTRACT

A simple and rapid protocol has been developed for the synthesis of 1, 4-dihydropyridine derivatives in short reaction time to afford the products in excellent yield. Operational simplicity, clean reaction, high yield, simple work up are the significant advantages of the present protocol.

Keywords: Fe_{0.2}Al_{1.8}Zn₁O₄; Aldehyde; 1, 4-Dihydropyridines; EAA.

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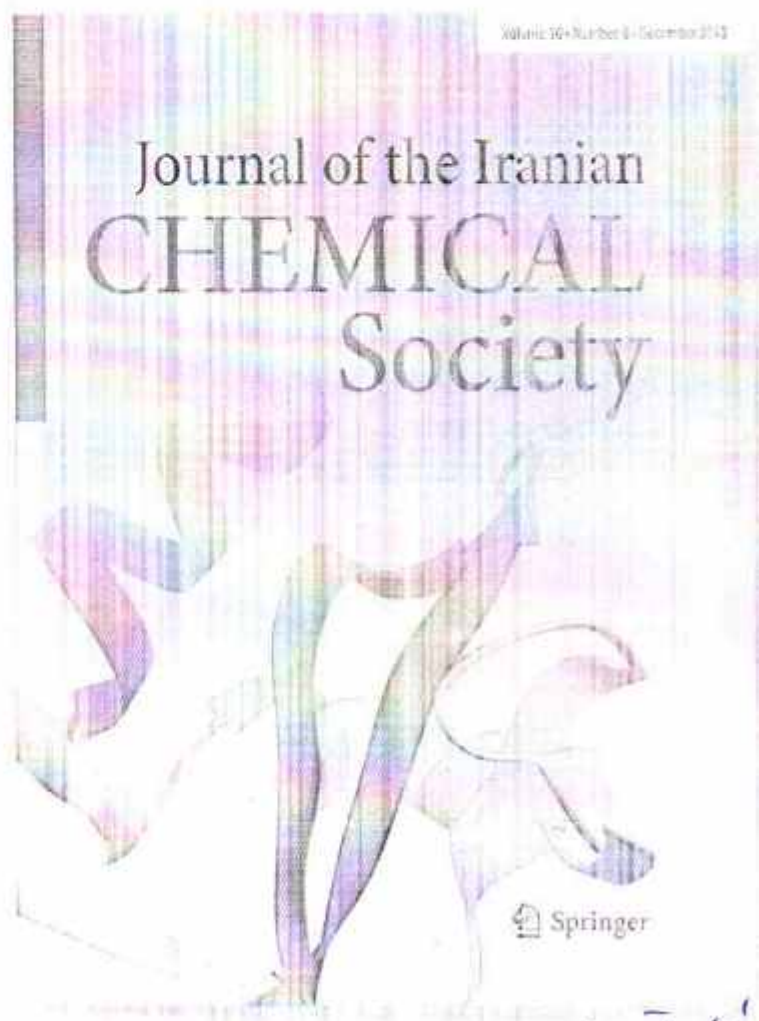
*Kinetic and thermodynamic study
of adsorption of methylene blue and
rhodamine B on adsorbent prepared from
Hyptis suaveolens (Vilayti Tulsi)*

**Sandeep D. Pardeshi, Jayant P. Sonar,
A. M. Zine & S. N. Thore**

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The water quality assessment at historical places, Ellora caves and Khultabad area of Aurangabad region

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ABSTRACT

Assessment of drinking water quality which involves physicochemical parameters revealed that the sample characteristics are varied considerably. In all, nine water samples were selected, out of which four samples were from Ellora caves and five from Khultabad. The water samples were assessed for parameters such as Temperature, pH, BOD, COD, Hardness, SO_4^{2-} , Nitrate and Fluoride. The period of assessment was from September to December 2008.

Key words: Physicochemical parameters, Well water, Bore-well water, Tank.

INTRODUCTION

With its many fold shining aspects, Aurangabad is also world famous for its historical Ellora caves and Mughal emperor Aurangzeb's Tomb at Khultabad. These places are 33 and 30 km. away respectively from Aurangabad. The ancient town Ellora is situated on the bank of river *Yalganga* which originates from nearby basaltic mountains of Deccan plateau. The location of Ellora is $20^{\circ} 00' N$ and $75^{\circ} 10' E$. It is also famous for its pilgrim the *Ghrishneshwar Temple*, one of twelfth *Jotirlinga* of lord Shiva. The *Vishwakarma Shivalaya Kund* which is also called as *Ahilyabai Holkar Tank* and *Janardhan Swami Matha* are another specialties of Ellora. Thousands of people from every corner of world visit Ellora. Therefore it was proposed to assess the water quality of this area.

Four sampling sites are from Ellora as Shivalaya Kund, Ghrishneshwar Temple well, well from Janardhan Swami matha and bore well sample

from Pawan Ganpati mandir area. Another sampling station selected was Khultabad, situated to south east of Ellora. The mughal emperor Aurangzeb's Tomb and Bhadramaruti mandir are in Khultabad. The famous hill stations "Mhalsma" and "Shulibhanjan" are near by places. Five sampling sites were selected from Khultabad area, out of them "Dharam Talab" and "Pangra Talab" and paronka talab were tanks. One sample was from well at "Bhadramaruti Temple" and the other was from bore well situated at the centre of town.

MATERIAL AND METHODS

All samples were collected in 500 ml sterilized bottles for physicochemical analysis. AR grade chemicals were used for preparation of reagents in double distilled glass water. Physical parameters like Temperature, pH were measured on the spot by using water analysis kit. Remaining parameters were determined by using standard procedures¹.


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Potentiometric Study of Mixed Ligand Complexes of Sulphur Containing Ligands and Amino Acids with Zn(II)

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The pH-metric study of ZnAB mixed ligand system [A = mercaptosuccinic acid (MSA), 2-mercaptopropionylglycine (2-MPG) and B = glycine (gly), alanine (ala), valine (val), cysteine (cys) and penicillamine (pen)] in aqueous solution at $26 \pm 0.5^\circ\text{C}$ and 0.1 M (NaClO₄) ionic strength shows the presence of mixed ligand complexes. In ZnAB complexes five-membered rings are formed due to the coordination of ligands with metal. The value of $\Delta \log K$ shows the preferential formation of ternary complexes.

Key Words: Potentiometric, Zn(II), Mixed ligand complexes, Sulphur, Amino acids.

INTRODUCTION

Zinc is one of the 40 naturally occurring elements that has been detected in living bodies which is essential for healthy human life¹. The hormone insulin, a zinc protein, is a very important drug. Insulin lowers blood glucose and hence is used for administering to diabetic patients¹. Zinc is present in carboxypeptidase-A, a pancreatic enzyme which catalyses the hydrolysis of terminal peptide bond at the carboxylate end in proteins and peptides. In trace amounts zinc is essential for life due to its role in metalloenzymes, but even in moderate low concentration it causes emesis and gastro intestinal irritation¹. It is interesting, therefore, to study the complexes of Zn(II) and sulphhydryl compounds. The complexation of sulphur containing ligand depends upon the soft character of mercaptosulphur² of sulphhydryl group.

EXPERIMENTAL

The ligands used were of AnalaR quality. They were purified by crystallization and purity was checked by the melting point. The solutions of the ligands were prepared in glass-distilled water. The Zn(II) solution was prepared by dissolving requisite amount of AR grade zinc nitrate in doubly distilled water and standardized against EDTA³ solution. The solution of sodium hydroxide was prepared⁴ in carbonate-free distilled water and standardized against potassium hydrogen phthalate potentiometrically⁵. The sodium perchlorate and perchloric acid solution was prepared by taking requisite amount of the AnalaR sample in double distilled water. The aqueous solutions of ligands like 2-mercaptopropionylglycine (2-MPG) have a tendency to undergo oxidation by atmospheric oxygen; therefore


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Environ Biol Fish (2015) 98:207–211

N-(H)-MERCAPTOSUCCINIC ACID / 2-MERCAPTOPROPIONYL GLYCINE – AMINO ACIDS TERNARY COMPLEXES – A POTENTIOMETRIC STUDY

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ABSTRACT

Formation of ternary complexes of Ni(II) with mercaptosuccinic acid (MSA), 2-mercaptopropionic glycolic (2-MPG) and amino acids (AAs) has been studied in aqueous solution at 25 ± 0.5 °C and 0.05 M NaClO₄ and 0.02 M EDTA as supporting electrolyte. The stabilities of the ternary complexes were estimated by complex stability constants (log K₁₂₃) using potentiometric titration. Binding constants, in terms of log K₁₂₃ are reported.

Key words: Ternary complex, Nickel(II), 2-mercaptosuccinic acid, 2-Mercaptopropionyl glycolic

INTRODUCTION

Ternary complexes play an important role in various biological systems. The complexing between the metal ion and ligand groups, several coordination of metal ions and nutrient metal ions in biological systems. They also form of specific ligands to metal ions in mineral and aquatic systems. A range of studies reported¹⁻⁴ on systematic investigation of ternary complexes involving cobalt(II) central metal ions with 2-mercaptosuccinic acid (MSA) and 2-mercaptopropionyl glycolic (2-MPG) and transition metal ion Ni(II). Nickel, though in trace, is one of the most essential elements for healthy human life. It has been found that nickel is an important protein component in blood vessels of man and other mammals. Nickel activates many enzymes and stabilizes RNA and DNA against thermal denaturation^{5,6} and it is a constituent of many enzyme cofactors present in plants⁷. These are also in five different nickel dependent enzymes listed⁸.

The aim of present investigation is to study the ternary complexes of the type Ni(II)-MSA-amino acids and Ni(II)-2-MPG-amino acids. The complex equilibria of solution containing ligands is determined by mercapto sulphur, which is soft in character⁹. The mercapto group of these ligands participates in both redox and acid-base reactions¹⁰.

EXPERIMENTAL

The ligands MSA, 2-MPG, glycine, glycylglycine, alanine, valine, alpha-ketoglutaric acid, beta-alanine and para-aminic acid (PAS) have been used without further purification. All the solutions were


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HISTOLOGICAL CHANGES IN THE MALE GONAD OF FRESHWATER BIVALVE MOLLUSC, *INDONAI CAERULEUS*, EXPOSED TO ELEVATED TEMPERATURES DURING DIFFERENT SEASONS

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(Accepted 14 August 2012)

ABSTRACT: During summer (May), monsoon (July) and winter (January), the adult freshwater bivalve molluscs, *Indonai caeruleus* (Prashad, 1918) of 51-54 mm shell-length were collected from banks of Godavari river at Pathan and brought to the laboratory. After 24h acclimatization in laboratory conditions, they were exposed to normal water temperature (served as control), i.e. 28.5-31.0 °C, 25.5-26.0 °C and 21.5-23.0 °C during summer, monsoon and winter respectively. For experimental groups, the animals were exposed to rise in temperature i.e. 34.0 °C during summer, 30.0 °C during monsoon and 27.0 °C during winter seasons for 15 days. (The temperature of the water was maintained by AUTOMATIC RENA thermostats). The study revealed that, in control the dominance of spermatogenic phase occurs during summer, the developmental stages of spermatogonia found during monsoon and maturation and release spermatozoa occurs during winter seasons in *Indonai caeruleus*. Due to rise in temperature during all seasons, growth of gametes as well as their release were observed at expense of lipid globules and nutritive cells. The tubules of male gonads expanded more and connective tissue was observed to reduced, which was more pronounced at 30.0 °C and 27.0 °C during monsoon and winter seasons respectively. However, in experimental groups, normal development of male gametes were observed and they were released during late monsoon and winter. More release of spermatozoa by emptying of tubules were observed at 27.0 °C during winter season. The results of the experiments are discussed in the light of histological details of male gonads of bivalve molluscs.


Key words: Elevated temperature, male gonad, bivalve molluscs, Godavari river, different seasons.


INTRODUCTION

The reproductive physiology of molluscs is a special interest due to their importance as food for human beings. Besides this activities tends to concentrate among marine shores and freshwater systems and cause considerable toxic stress in addition to stresses caused naturally during summer, monsoon and winter due to sudden fluctuations in environment.

Many environmental factors are known to be affecting the physiology of bivalve molluscs. The phases of the reproduction i.e. gonad development, spawning and fertilization and development and growth of zygotes are functioning continuously with changes in environmental factors, (The temperature, pH, salinity, photoperiod etc.). The temperature and nutrition are the two factors that affect the physiology and composition of bivalve molluscs (Bayne *et al.*, 1976; Shpigel, 1989). World wide timing of the reproductive cycle from gametogenesis to spawning is regulated by an integration of environmental and endogenous factors (Sastry, 1979). The timing and duration reproductive activity are determined by some environmental factors (Lubet and Mann, 1987).

In bivalve molluscs, Synchronization of breeding periods with environmental conditions especially temperature, salinity, light and food for development and growth of progeny has been extensively reported (Andrews, 1979; Mackie, 1984). Reproductive cycle of the bivalve molluscs is generally controlled in response to the temperature (Sastry, 1968). Recent studies indicates that a reproductive response is produced through and integration of environmental factors. After attaining a certain physiological state, when organism exposed to required environmental pre-requisitions begins the gonad growth and gametogenesis in unisexual bivalves. The temperature was considered to be an important environmental factor which affect the survival activities and metabolic processes periodically (Widdows, 1973). The sequence of events related to growth of gonad, maturation and release of gametes and development of eggs are thermally sensitive (Kinne, 1962). The temperature also greatly influences the sexual maturity, spawning and development of life stages of aquaculture species. The influence of temperature on the reproduction of marine invertebrates including pelecypod molluscs has been reviewed by Giese, (1959), Vernberg and Vernberg (1972), Loosonoff, (1971) and Giese and Pearse, (1974).


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EFFECT OF RATE OF OXYGEN CONSUMPTION IN FRESHWATER BIVALVE MOLLUSC, *LAMELLIDENS CORRIANUS* FROM GODAVARI RIVER AT KAIGAON: IN THE EFFECT OF CEREBRALECTOMY AND INJECTION OF CEREBRAL EXTRACT DURING SUMMER.

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ABSTRACT

The adult bivalve molluscs, *Lamellidens corrianus* of 80-85 mm shell length and 11,552-13,600 gm body weight were subjected to (a) control (normal) (b) removal of both cerebral ganglia (c) injection of their cerebral extract to intact control as well as (d) injection of their extract to ganglia removed bivalves and (e) injection of low-cold distilled water to normal control for 12 days. The rate of oxygen consumption in bivalves from all four groups (including control) was measured on 2nd, 6th and 12th day. The study revealed that, the rate of oxygen consumption was significantly increased in cerebral ganglia removed, as well as cerebral ganglionic extract injected to ablated group on 2nd, 6th and 12th day compared to control. The rate also showed significant increase in injection of extract to normal control 2nd, 6th and 12th day. The rate of oxygen consumption showed more cerebral ganglia ablated group than extract injected one on 12th day.

KEY WORDS: Cerebralectomy, Cerebral ganglionic extract, freshwater bivalve molluscs, Oxygen consumption.

INTRODUCTION

In general, many exogenous environmental variables (Temperature, Salinity, pH, Light, Oxygen tension, Turbidity etc.) the rate of oxygen consumption in bivalve molluscs (Bayne, 1976; Samant and Agrawal, 1978). Most of the vital activities in bivalves are regulated by neuro-endocrine centers. The respiratory rate data of the animals reflect their general metabolic rate. The existence of neuro-endocrine modulations of metabolic rate will be the adaptive significance for the freshwater bivalves, which have to live in ever fluctuating environments. Comparatively, very work was done on the neuro-endocrine regulation in bivalve shell fishes and also comparatively, very less attention has been given on the role of neuro-endocrine centers in respiratory metabolism particularly from freshwater bivalves. In the field of neuroendocrinology, neuroendocrine regulation of oxygen consumption has been reported for annelids (Nagabhasham and Kulkarni, 1979), Hirudineae et al. (1980) has been shown that, neurohormones from pleurovisceral ganglia regulate the rate of oxygen consumption in gastropod molluscs. The role of cerebral and visceral ganglia in the respiratory metabolism has been reported by Mane et al. (1990) for estuarine clam, *Kateleyssa aquina*, Shinde (2007) for freshwater bivalve, *Lamellidens corrianus* from Godavari River at Kaigaon. Jadhav (2011) studied on *Lamellidens marginelle* from Parithan some reports are available on respiratory physiology of freshwater bivalves mollusc from India and abroad (Salanki and Lukasevics, 1967; Bayne, 1976; Zs-Nagy, 1974). In bivalve molluscs, two types of neuro-cycles like sudden changes in temperature, pH and salinity after cerebral neurosecretion and long cycle related to certain activities of reproduction and metabolism. Such neurosecretory cycles from neurosecretory cells was reported by Nagabhasham and Mane (1973) for estuarine clam, *Kateleyssa aquina* and by Kulkarni (1987) for freshwater bivalve, *Lamellidens corrianus*. Shinde (2010), reported the effect of mercury and cadmium chloride on oxygen consumption of freshwater crab *Barytelphusa canaliculata*. Recently, Shaikh et al. (2012), observed Behavioral changes in *Lamellidens marginelle* due to acute toxicity of cadmium.

Review of the literature shows that very little information is known on the neuro-endocrine regulation in respiratory metabolism of freshwater bivalves since many features of aerobic metabolism can be studied directed by measurement of the rate of oxygen consumption by isolated animals. Thus, considering the paucity of information on endogenous regulation in the respiratory metabolism (because the respiration is considered as one of the important aspect for understanding the physiological adaptation of a species). In bivalve shell fishes from the inland waters, hence the present study is taken on freshwater shell-fish, *Lamellidens corrianus* from Godavari River at Kaigaon.

MATERIALS AND METHODS

The adult freshwater bivalve molluscs, *Lamellidens corrianus* (80- 85 mm in shell length) were collected from banks of Godavari River at Kaigaon near Aurangabad, during summer season. After brought to the laboratory the shells of the bivalves were brushed and washed with water to remove the mud and fouling algal and fungal biomass. The bivalves were acclimatized for 24h. In laboratory conditions and subsequent experimentation without food. After 24 hr, acclimatization the animals were arranged in 5 groups, each group containing 15 animals in 10 lit. of aerated water. The first group of animals were served as normal control with intact ganglia and other four groups were experimental with (A) removal of both the cerebral ganglia, (B) injection aqueous ethanol (water + ethanol) 1:1 to control animal (C) same

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STUDIES ON SOME ABIOTIC AND BIOTIC FACTORS OF BHATANA WATER RESEVIORS, MAHARASHTRA (INDIA)

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ABSTRACT – Pollution creates many problems in world. pollution adversely affects the life of organisms & human .there are various types of pollution among them water pollution is the major pollution. Water is essential for life but contaminated water causes various serious problems in human being there are various views had been taken place about the origin of pollution there are human population explosion, sewage problems, combination of fuel use of fertilizers and pesticides, Industrialization, unplanned urbanization, deforestation etc. The present work related to some abiotic factors of water reservoir at Bhatana near Aurangabad. these water reservoir is largest rain fed water reservoir with rocky-cum sandy wall is built on one side and fields are present on other sides, water of reservoirs mainly servers as drinking, bathing washing and also for irrigation.

Keywords : Water pollution, Abiotic and biotic factor, Protozoan, Rotifers, Bhatana Reservoir.

INTRODUCTION

The few decades environment was undisturbed and non polluted which is suitable for human and other animals now fast deterioration of water quality is a major problem not only India but also all over the world in rural areas water reservoirs is normally useful for all kinds of human requirements like bathing, washing irrigation, aquaculture and even for drinking purpose also an attempt has been made in the present study to check the quality of water with respect to suitability of drinking of human and aquatic life.

The present study, deals with various biotic and abiotic factors. Author given the focus on biotic factors like protozoans and rotifers. The protozoans are identified during study are Cyst of *Balantidium coli*, *Entamoeba histolytica*, *Gardia lamblia*, *Arcella vulgaris* and *Amoeba* and the rotifers identified during the study are like *Brachionus*, *Cephalodella*, *Filinia*, *Keratella*, *Epiphanes* and *Lepadolea*. The abiotic factors are recorded by author are ambient temperature and water temperature, pH, dissolved oxygen.

MATERIALS AND METHODS

Water reservoirs of Bhatana is particularly used for drinking, irrigation and aquaculture keeping this in view the abiotic and biotic properties were studied over six months (Jan.2012 to June 2012).water samples were collected from water reservoirs in glass bottles these samples were studied for abiotic and biotic factors. The abiotic factors like temperature, pH by pH meter, dissolved oxygen by using Wrinklers Modified Methods for analysis

(APHA, 1998). The biotic factors like Protozoans and Rotifers were studied and identified and were carried out with help of Endomeson (1959); Mahajan (1965) and (Kaushtik and sharma, 1994).

RESULT AND DISCUSSION

All the sample of water were contaminated by microbes like Protozoans and Rotifers species the Protozoan species commonly found are Cyst of *Balantidium coli*, *Entamoeba histolytica*, *Gardia lamblia*, *Arcella vulgaris* and *Amoeba*. The protozoan population was recorded is highly during the months of April and May-2012, i.e, 20/L and their count remains low during months of June 2012, 10/L, due to dilution of water caused by rain. Among the protozoan group Cyst of *Balantidium coli* and *Entamoeba histolytica* was highest during months of March 16/L, April 18/L and May 20/L and Cyst of *Gardia lamblia* and *Arcella vulgaris*. *Amoeba* are reported during month of January 12/L, February 14/L and during June 16/L range. The *Arcella vulgaris* were collected from water reservoir are microscopic, yellow with brown colour consists aperture at the center which is circular, it has two to six finger like simple or branched structures around the body, this protozoans are free living (Ehrenberg, 1930 and Kotpal, 1988-1989).

In the present study rotifer was also found abundantly during investigation in Bhatana reservoir the species represents like *Brachionus*, *Cephalodella*, *Filinia*, *Keratella*, *Epiphanes* and *Lepadolea*. Rotifers are mainly freshwater forms and presence of these


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Roles of cerebral ganglia in the regulation of oxygen consumption of freshwater bivalve mollusc, *Lamellidens marginalis* from Nathisagar Dam summer season (M.S.) India

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Abstract

The adult bivalve molluscs, *Lamellidens marginalis*, 79-83 mm shell length and 13.100-13.981 gm body weight were subjected to (a) control (normal), (b) removal of both cerebral ganglia (c) injection of their cerebral extract to intact control as well as (d) injection of their extract to ganglia removed bivalves and (e) injection of ice-cold distilled water to normal control for 12 days. The rate of oxygen consumption in bivalves from all four groups (including control) was measured on 2nd, 6th and 12th day. The study revealed that, the rate of oxygen consumption was significantly increased in cerebral ganglia removed, as well as cerebral ganglionic extract injected to ablated group on 2nd, 6th and 12th day compared to control. The rate also showed significant increase in injection of extract to normal control 2nd, 6th and 12th day. The rate of oxygen consumption showed more cerebral ganglia ablated group than extract injected one on 12th day.

Key words : Injection of cerebral ganglionic extract, oxygen consumption, *Lamellidens marginalis*

Introduction

In general, many exogenous environmental factors (Temperature, Salinity, pH, Light, Oxygen tension, Turbidity etc.) the rate of oxygen consumption in bivalve molluscs (Bayne, 1970; Samant and Agrawal, 1978). Most of the vital activities in bivalves are regulated by neuro-endocrine centers. The respiratory rate data of the animals reflect their general metabolic rate. The

existence of neuro- endocrine modulations of metabolic rate will be the adaptive significance for the freshwater bivalves, which have to live in ever fluctuating environments. Comparatively, very work was done on the neuro-endocrine regulation in bivalve shell fishes and also comparatively, very less attention has been given on the role of neuro-endocrine centers in respiratory metabolism particularly from freshwater bivalves. In the field of neuroendocrinology, neuroendocrine regulation of oxygen consumption has been reported for crustaceans (Nagabushnam and Kulkarni, 1979).

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Study of zooplankton wheel animalcules (Rotifers) from Kholi Dam, Maharashtra (India)

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Abstract

The Zooplankton organisms occupy an important position in the food webs of aquatic ecosystem which has a significant role in transfer of energy. Zooplankton are the consumers of aquatic ecosystem. The Rotifers or wheel animalcules is one of the fascinating group of the Zooplankton. Rotifers are mostly free living, almost found in freshwater every where, generally rotifers are solitary some are sessile also, rotifers are the important group of Zooplankton community. Rotifers indicate trophic status of water bodies, rotifers used as food of fishes in water reservoirs and play an important role in fishery production. The present study deals with the Zooplankton rotifers in Kholi Dam.

Key words : Zooplankton, Rotifers, Kholi dam.

Introduction

The aquatic ecosystem consist plenty of Zooplankton among these in aquatic ecosystem zooplankton form an important group of aquatic organisms, most of the zooplankton feeds up on the primary producers from water and most of the higher animals depends on zooplankton for their food chain (Michael, 1973) among various zooplankton rotifers are the dominating group of Kholi dam which play a role in transfer of energy and helps to increase the production of fishes from Kholi dam. According to Hutchinson (1967) rotifers

are the most important soft bodied invertebrates, many works has been takes places pertaining to ecology of rotifers from various water reservoirs of Indian subcontinent by Anderson (1889), Edmondson and Hutchinson (1934), Dhanpathi (1974), Chandrasekhar and Koderkar (1995), Pradhan and Chakrabarty (2006) among these most of the studies are from northern and southern parts of India. In comparison to this less work has been done on rotifers from Marathwada region of Maharashtra in the aquatic ecosystem particularly less work has been done on zooplankton. In present study effort has been made to focus on the seasonal variations in rotifers population from Kholi dam.

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VARIATIONS IN THE RATE OF OXYGEN CONSUMPTION, AMMONIA EXCRETION AND O:N RATIO OF FRESHWATER BIVALVE MOLLUSC, *INDONATA CAERULEUS* IN RELATION TO BODY SIZE DURING SUMMER SEASON

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(Accepted 14 August 2012)

ABSTRACT - Considering the size specific variations in metabolic rates of bivalve shell-fishes we report here the size dependent variation in the O: N ratio in freshwater bivalve molluscs, *Indonata caeruleus* from the banks of Godavari river at Paithan, near Aurangabad. The freshwater bivalves with specific size i.e. small (42-48mm in shell-length) and large (56-63 mm in shell-length) were selected for determination of changes in the rate of oxygen consumption, rate of ammonia excretion and O:N (oxygen: nitrogen) ratio on April and May during summer. The adult bivalves with small size, showed high values of O:N ratio compared to large ones. The values of O:N ratio were found greater in large sized bivalves on May during summer season. The results are discussed in the light of metabolic processes in fresh-water bivalve molluscs.

Key words - size specificity, oxygen consumption, ammonia excretion, O:N ratio, bivalve molluscs freshwater

INTRODUCTION


The respiration rates could be used to evaluate mussel stress and overall fitness for survival and reproduction. The O: N ratio is an index of protein utilization in energy metabolism. O:N ratio are useful for assessing the relative contribution of protein to total catabolism (Bayne and Windows, 1978). The body weight or body size of the bivalve mollusc is an important parameter, which influencing the pattern of metabolic responses. In bivalve molluscs, the relationship between the rate of ammonia excretion and the body size can be variable due to a disproportionate reliance of protein catabolism for energy production. In aquatic animals, particularly in bivalve molluscs, regulation of chemical composition of the body fluid is an important function of the ionic and somatic regulation and of excretion which helps in the elimination of waste and conservation of useful metabolites for growth, maintenance and reproduction. In bivalve molluscs, several workers have studied nitrogenous excretory products and their reports revealed that ammonia is the dominant products and large amount of amino-nitrogen are lost (Bayne, 1976). Bayne and Scullard (1977) reported that amount of nitrogen lost as amino acids relative to ammonia varied with season and location of collection, the held in laboratory and the feeding regimen. Sugawa (1991) observed increased oxygen consumption and ammonia excretion linear with increase in weight and decreases with period of starvation in *abalone sulentus diversicolor*. According to Ganzalo and Cancino (1988) reported that oxygen consumption and ammonia excretion

of bivalve is a function of body weight. According to Barkai and Griffiths (1988) in abalone, 63% of energy content of the food consumed was lost as faeces and 32% expended on respiration. Energy losses in the form of ammonia excretion were negligible. While, Navarro and Torrijos (1994) reported that, energy utilized in oxygen uptake and ammonia excretion was depending on the season, temperature. A number of investigator have studied oxygen consumption, and ammonia excretion, according to environmental factors, turbidity (Grants and Thorpe, 1991), sized (Bhagde and Mane, 2005), time (Vitale and Friedl, 1984) growth (Bacon and MacDonald, 1991).

Review of literature revealed that very little information was available on fresh water bivalve molluscs from India. Howkins *et al* (1980) reported O:N ratio on *Perna viridis* and *Perna indica* from Cochin backwaters and recently Mathew and Menon (1993) reported heavy metal stress induced variation in O:N ratio in *Perna indica* and *Donax incarnates*. Considering the abundant distribution of bivalve molluscs along the banks of Godavari river and paucity of information on O:N in fresh water bivalves, the present study was undertaken on *Indonata caeruleus*.

MATERIALS AND METHODS

The freshwater bivalve molluscs, *Indonata caeruleus* with vary in body size were collected from banks of Godavari of river at Paithan, 45 km away from Aurangabad during summer (April-May). The animals


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STUDIES ON ZOOPLANKTON DIVERSITY OF KHANDALA DAM AURANGABAD DISTRICT (M.S.) INDIA

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Abstract

Zooplankton forms an important food components of fish life and helps to transfer energy from primary producer to secondary and tertiary consumer levels in food web, considering the importance of zooplankton community in ecosystem worked has been carried out to investigate the diversity in zooplankton from Khandala dam during the period Jan -2010 to Dec-2010. During the study different species of zooplankton observed in different season. High dissolved oxygen contents and high level of nutrient in water dam increase the full growth of zooplankton in water. The zooplankton community of Khandala dam consists of various species belonging to rotifer, cladocera, copepod and ostracoda among them the rotifers were found to be dominant group of zooplankton. Rotifer has the vital role to maintain the food chain in water bodies as they provide food for fishes in freshwater and helps it to increase the production of fishes. The attempt has been made to enlist and study of various species of zooplankton from Khandala dam.

Key words : Zooplankton, Khandala dam

Introduction

The zooplankton are the important organism in aquatic ecosystem and are the natural source of food for higher organism of aquatic ecosystem like fishes hence they are called as energy transducers. The mainly useful for the

increase of fish production from Khandala dam. According to Hutchinson (1967). The productivity of water reservoirs depends upon of the occurrence of zooplankton also depends on the favorable environmental conditions Ram Kumar and Prasad (2004). Zooplankton are microscopic they occupy a central position between autotrophes and heterotrophes and forms vary

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VARIATIONS IN THE RATE OF OXYGEN CONSUMPTION, AMMONIA EXCRETION AND O:N RATIO OF FRESHWATER BIVALVE MOLLUSC, *INDONALA CAERULEUS* IN RELATION TO BODY SIZE DURING SUMMER SEASON

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ABSTRACT – Considering the size specific variations in metabolic rates of bivalve shell-fishes we report here the size dependent variation in the O:N ratio in freshwater bivalve molluscs, *Indonala caeruleus* from the banks of Godavari river at Paithan, near Aurangabad. The freshwater bivalves with specific size i.e. small (42-48mm in shell-length) and large (56-63 mm in shell-length) were selected for determination of changes in the rate of oxygen consumption, rate of ammonia excretion and O:N (oxygen:nitrogen) ratio on April and May during summer. The adult bivalves with small size, showed high values of O:N ratio compared to large ones. The values of O:N ratio were found greater in large sized bivalves on May during summer season. The results are discussed in the light of metabolic processes in fresh-water bivalve molluscs.

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ON A NEW SPECIES OF THE GENUS *LAPWINGIA*, SINGH, 1952
(FAMILY: DILEPIDIDAE) FROM *VANELLA SPINOSA*,
AT VAZIRABAD, DISTRICT, MEDHAK, ANDHRA PRADESH, INDIA

B.V. JADHAV, S.S. NANWAR, V.K. JAIN*

Present paper deals with the description of a new species, *Lapwingia* *Spinosa* (Singh, 1952) from *Vanella spinosa* (L.) n. sp. It differs from all known species of the genus, in having quadrate tail setae, costellum small in size, oval in shape, weak short wide wavy (irregular) later in size and globular in shape, genital pore irregularly alternate, marginal setae transverse elongated, worms were collected, preserved in 4% formalin and stained with H&E (carmalum), all measurements are in micrometers.

LAPWINGIA AURANGABADENSIS n. sp.
(Figs. 1-5)

Description

(Based on single specimen)

Worms were collected from the intestine of a spiculated plant *Vanella spinosa* (L.) Vazirabad, Dist. Medhak, Andhra Pradesh, India, in the month of May, 1981. It is a considerably large, with a large number of proglottids. Scolex quadrangular in shape, broadly oval, well marked off from the strobila, measure: 0.29 x 0.27 in length, 0.71 x 0.37 in breadth, costellum small in size, oval in shape, feebly and blunt (and sometimes 0.05 in length, 0.110 in breadth). It arises with a long neck of tubercles, over the female genital member small in size, curved, basal a one and supra genital pore and a pair of setae in length and 0.15 x 0.09 in breadth. It differs from *Lapwingia* *spinosa* (Singh, 1952) in having the scolex arranged in two pairs, the proglottid 12-15 in length, 0.15-0.20 in breadth, the tail setae 1.5-2.0 in length, 0.15-0.20 in length and 0.100 in breadth.

Neck short, with one pair of 1.2 x 0.32 in length and 0.25 x 0.11 in breadth. Male genitalia large in size almost two and half the size of female genitalia, measure: 0.45 x 0.35 in length and 0.45 x 0.35 in breadth. Genes 15. Gen member small in size, rounded in shape, enclosing the ovary, marginal setae of ovary tubercles, 0.15 x 0.100 in diameter. The difference that exists, involved later, the pair of setae supra genital pore tubercles, etc.

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Haematological investigation and severity of haemoglobin deficiency in rural population around vajapur tehsil of aurangabad district (M.S.)

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ABSTRACT

The present study intends to evaluate the haematological parameters among the rural population of Vajapur tehsil. During a period of four months i.e. June 2011 to September 2011. During this period of four month total number of 500 samples were examined for haemoglobin deficiency. Anaemia, out of which 281 samples of male and 410 samples of female of different age groups. The percentage being about 65.00% and 84% in male and female population were anaemic in rural population of Vajapur tehsil.

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Introduction

Common Name: Haemoglobin. Alternative Name: Hemoglobin

The haemoglobin level is expressed as the amount of hemoglobin in grams (gm) per decilitre (dl) of whole blood, a measure being 100 millilitres. The normal ranges for haemoglobin depend on the age and, beginning in adolescence, the sex of the person. The normal ranges are: Newborns: 17-22 gm/dl. One (1) week of age: 15-20 gm/dl. One (1) month of age: 11-15 gm/dl. Children: 11-13 gm/dl. Adult males: 14-18 gm/dl. Adult women: 12-16 gm/dl. Men after middle age: 12.4-14.9 gm/dl. Women after middle age: 11.7-13.8 gm/dl. All of these values may vary slightly between laboratories. Some laboratories do not differentiate between adult and "after middle age" haemoglobin values. Low hemoglobin is referred to as being anemic. There are many reasons for anemia. Some of the more common reasons are: loss of blood (traumatic injury, surgery, bleeding colon cancer), nutritional deficiency (iron, vitamin B12, folate), bone marrow problems (replacement of bone marrow by cancer, suppression by chemotherapy, drug, kidney failure), and abnormal hemoglobin (sickle cell anemia).

Rural India contains over 88% of India's total population with half of it living below poverty line, struggling for better and easy access to health care and services. Health issues confronted by the rural people are diverse and many – from severe malnutrition, uncontrolled diabetes, from a badly infected wound to cancer. The National Rural Health Mission (NRHM) was launched in April 2005 by the Government of India. The goal of the NRHM is to provide effective healthcare to rural people with a focus on 18 states, which have poor public health facilities and/or weak infrastructure. According to WHO there should be one qualified doctor for every 3500 people and one well equipped hospital for every 10000 people but these are far away from these in rural area.

Studies from India have consistently shown an association between anaemia and under-nutrition, and the occurrence of anaemia in undernourished children and in those belonging to the poor socio-economic strata are a well-documented fact. Past studies have also revealed that anaemia was a major health problem among the well-nourished school children who belonged to the upper and middle socio-economic classes also. The low-cost food that is generally affordable to the poor is low in nutritional value and high in fats, sugars and additives and therefore, obesity is sometimes a sign of poverty and malnutrition.

The rural population, who are the prime victims of the policies, work in the most hazardous atmosphere and live in abject living conditions. Unsafe and unhygienic food practices, unclean water, poor nutrition, substandard habitats, and degraded and unsanitary environments are challenges to the public health system. The majority of the rural population are self-employed, artisans and labourers, with limited resources that they spend chiefly on food and necessities such as clothing and shelter. They have no money left to spend on health. The rural poor – the worker who strives hard under adverse weather conditions to produce food for others, is often the first victim of epidemics. This present paper attempts to review critically the current health status of India, with a special reference to the rural population of the region of the twenty first century.

Vajapur, situated on the Narmada river about 40 miles west of Aurangabad is 19° 36' 22" north latitude and 74° 16' 14" east longitude, is a municipal town and headquarters of the taluka of the same name. The people of Vajapur taluka are mostly dependent on farming. Literacy percentage is about 50%. This area is comes under low sun fall so socioeconomically this area is backward.

Material and methods:

During the course of present investigation, 500 rural area were visited from June 2011 to September 2011.

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Effect Of Low Count Of Leucocytes In The Rural People

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Abstract:

Blood is a liquid connective tissue useful to transport the inter cellular substances called as plasma human blood is circulated through the blood vessels. There are two main components of the blood these are blood corpuscles and blood plasma. The plasma contains the important inorganic and organic substances which are useful for body. The blood cells present in plasma are erythrocytes, Leucocytes, and thrombocytes. All finger cells carry the important functions of the body like the exchange of gases by erythrocytes the leucocytes helps in phagocytosis and thrombocytes helps in coagulation of blood. The number of each type of blood cells is different in human beings and in normal person the concrete blood count is specific. Where as in abnormal person the blood count is increases or decreases. Abnormal increases in blood cells causes many diseases in human beings as well as decreases in count of blood cells also causes diseases in human. Also number of leucocytes are increases above the normal level then it causes the Leucocytosis and when number of leucocytes are decreases below the normal level it causes Leucopenia. The Leucopenia is harmful as it decreases the ability of the body to fight against the infection and decreases the immune system of the body. In present study attempts has been made to study of Leucopenia cases and their symptoms among the rural area of Shirsor.

1. Introduction

Blood is a liquid connective tissue which is useful as the transporting system of the body. Blood consists of free cells and a fluid intercellular substance called as plasma in man's blood is circulated through a definite channel like vessels, arteries, veins and capillaries. There are two components of blood like liquid components and corpuscle components. The plasma is a liquid components of blood as it is composed of 91 to 92 % of water and it also consists proteins like globulins, albumins, fibrinogen, prothrombin etc. As well as some inorganic constituents like sodium, potassium, calcium, magnesium and phosphorus are also present in plasma. Plasma also contains organic constituents such as proteins, inorganic substances, fats, phospholipids, cholesterol and cholesterols, carbohydrates, glucose, fructose, galactose, hormones and antibodies and enzymes etc. Some amount of bilirubin, carotene and xanthophyllin is also present in the plasma. The plasma constitutes about 55 % of the total blood. R. Nagabhusham, Kodurkarim and Srinivas R. (1988), the blood corpuscles are remain floating in the. There are three types of blood corpuscles present in blood, like Erythrocytes, leucocytes, and Thrombocytes. The erythrocytes are oval biconcave in structure present in blood. In adult male the number of erythrocytes about 5.0 millions per cubic millimetre of blood, whereas it is about 4.5 millions per cubic millimetre in adult female these erythrocytes are specialized cells for transport of respiratory gases like oxygen and carbon dioxide. Thrombocytes are minute colourless non nucleated and specially play role in clotting of blood the leucocytes are amoeboid cells with prominent nucleus and also called as white blood cells. It is about 8000 per cubic millimetre of blood. R. Nagabhusham, Kodurkarim and Srinivas R. (1988). The number of white blood cells may varies from 4500 to 10000 per cubic millimetre these are specially made for phagocytosis hence also called as soldier of body. The increase in number of leucocytes in blood causes leucocytosis where as decreases in number of white blood cells causes Leukopenia a harmful disease. Which decreases the ability of body to fight against diseases and infections. Now a days the Leucopenia is the major problem in rural area. The attempt has been made to study the different cases of Leucopenia among the people of rural area of Shirsor during six months of period between June 2012 to November 2012.

2. Materials And Methods

For the study of various cases of the effect of low leucocytes count from the rural area Shirsor author visited to different pathology laboratory and local medical practitioners and data is collected from Smt. these places. From the pathology laboratory different tests are regularly taking place by fully autohaemology cell counter technique. The various tests of haemoglobin, Red blood count,

SIZE SPECIFIC CHANGES IN THE RATE OF OXYGEN CONSUMPTION, AMMONIA EXCRETION AND O:N RATIO OF FRESHWATER BIVALVE MOLLUSC, *LAMELLIDENS MARGINALIS* (LAMARK) FROM JAYAKWADI DAM AT PAITHAN DURING WINTER SEASONS

Mangesh Jadhav and Vasant Bawane

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ABSTRACT

Considering the size-specific variations in metabolic rates of bivalve shell-fishes reported here the size dependent variation in the O:N ratio in freshwater bivalve mollusc, *Lamellidens marginalis* (Lamark) from Jayakwadi dam at Paithan, near Aurangabad. The freshwater bivalves with specific size i.e. small (61-67mm in shell-length) and large (70-76 mm in shell-length) were selected for determination of changes in the rate of oxygen consumption, rate of ammonia excretion and O:N (Oxygen : Nitrogen) ratio on December and January during winter season. The adult bivalves with small size, showed high values of O:N ratio compared to large ones. The values of O:N ratio were found greater in large sized bivalves on January during winter season. The results are discussed in the light of metabolic processes in freshwater bivalve molluscs.

KEYWORDS: Size specificity, oxygen consumption, ammonia excretion, O:N ratio, bivalve molluscs freshwater

INTRODUCTION

The respiration rates could be used to evaluate mussel stress and over all fitness for survival and reproduction. The O:N ratio is an index of protein utilization in energy metabolism. O:N ratio are useful for assessing the relative contribution of protein to total catabolism (Bayne and Widdows, 1978). The body weight or body size of the bivalve mollusk is an important parameter, which influencing the pattern of metabolic responses. In bivalve mollusks, the relationship between the rate of ammonia excretion and the body size can be variable due to a disproportionate reliance of protein catabolism for energy production. In aquatic animals, particularly in bivalve molluscs, regulation of chemical composition of the body fluid is an important function of the ionic and somatic regulation and of excretion which helps in the elimination of waste and conservation of useful metabolites for growth, maintenance and reproduction. In bivalve molluscs, several workers have studies nitrogenous excretory products and their reports revealed that ammonia is the dominant products and large amount of amino- nitrogen are lost (Bayne, 1976). Bayne and Scullard (1977) reported that amount of nitrogen lost as amino acids relative to ammonia varied with season and location of collection, the held in laboratory and the feeding regiment. Segawa (1991) observed increased oxygen consumption and ammonia excretion

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Review of literature reveled that very little information was available on fresh water bivalve molluscs from India. Hawkins et al. (1986) reported O:N ratio on *Perna viridis* and *Perna indica* from Cochin backwaters and recently Mathew and Manon (1995) reported heavy metal stress induced variation in O:N ratio in *Perna indica* and *Donax incarnates*. Considering the abundant distribution of bivalve molluscs along the banks of Godavari river and paucity of information on O:N in fresh water bivalves, the present study was undertaken on *Lamellidens marginalis*.

STUDIES ON SOME ABIOTIC AND BIOTIC FACTORS OF BHATANA WATER RESERVOIRS, MAHARASHTRA (INDIA)

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ABSTRACT – Pollution creates many problems in world, pollution adversely affects the life of organisms & human, there are various types of pollution among them water pollution is the major pollution. Water is essential for life but contaminated water causes various serious problems in human being there are various views had been taken place about the origin of pollution there are human population explosion, sewage problems, combination of fuel use of fertilizers and pesticides, Industrialization, unplanned urbanization, deforestation etc. The present work related to some abiotic factors of water reservoir at Bhatana near Aurangabad, this water reservoir is largest rain fed water reservoir with rocky-cum sandy wall is built on one side and fields are present on other sides, water of reservoirs mainly serves as drinking, bathing washing and also for irrigation.

Keywords : Water pollution, Abiotic and biotic factor, Protozoan, Rotifers, Bhatana Reservoir.

INTRODUCTION

The few decades environment was undisturbed and non polluted which is suitable for human and other animals now fast deterioration of water quality is a major problem not only India but also all over the world in rural areas water reservoirs is normally useful for all kinds of human requirements like bathing, washing irrigation, aquaculture and even for drinking purpose also an attempt has been made in the present study to check the quality of water with respect to suitability of drinking of human and aquatic life.

The present study, deals with various biotic and abiotic factors. Author given the focus on biotic factors like protozoans and rotifers. The protozoans are identified during study are Cyst of *Balantidium coli*, *Entamoeba histolytica*, *Gardia lamblia*, *Arcella vulgaris* and *Amoeba* and the rotifers identified during the study are like *Brachionus*, *Cephalodella*, *Filinia*, *Keratella*, *Epiphanes* and *Lepadella*. The abiotic factors are recorded by author are ambient temperature and water temperature, pH, dissolved oxygen.

MATERIALS AND METHODS

Water reservoirs of Bhatana is particularly used for drinking, irrigation and aquaculture keeping this in view the abiotic and biotic properties were studied over six months (Jan.2012 to June 2012). water samples were collected from water reservoirs in glass bottles these samples were studied for abiotic and biotic factors. The abiotic factors like temperature, pH by pH meter, dissolved oxygen by using Winkler's Modified Methods for analysis


(APHA, 1998). The biotic factors like Protozoans and Rotifers were studied and identified and were carried out with help of Endomeson (1959); Mahajan (1965) and (Kaushik and sharma, 1994).

RESULT AND DISCUSSION

All the sample of water were contaminated by microbes like Protozoans and Rotifers species the Protozoan species commonly found are Cyst of *Balantidium coli*, *Entamoeba histolytica*, *Gardia lamblia*, *Arcella vulgaris* and *Amoeba*. The protozoan population was recorded is highly during the months of April and May-2012, i.e, 20/L and their count remains low during months of June 2012, 10/L, due to dilution of water caused by rain, Among the protozoan group Cyst of *Balantidium coli* and *Entamoeba histolytica* was highest during months of March 16/L, April 18/L and May 20/L, and Cyst of *Gardia lamblia* and *Arcella vulgaris*, *Amoeba* are reported during month of January 12/L, February 14/L and during June 10/L range. The *Arcella vulgaris* were collected from water reservoir are microscopic, yellow with brown colour consists apparatus at the center which is circular, it has two to six finger like simple or branched structures around the body, this protozoans are free living (Ehrenberg, 1930 and Kotpal, 1988-1989).

In the present study rotifer was also found abundantly during investigation in Bhatana reservoir the species represents like *Brachionus*, *Cephalodella*, *Filinia*, *Keratella*, *Epiphanes* and *Lepadella*. Rotifers are mainly freshwater forms and presence of these


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Editor



महात्मा गांधी राष्ट्रीय ग्रामीण हमी योजना : एक दृष्टीक्षेप

विष्णू प्रल्हाद शिंगारदेव
मंशोधक विश्वार्थी

प्रस्तावना :

महात्मा गांधी राष्ट्रीय ग्रामीण रोजगार हमी योजना ही केंद्र शासनानेची महत्वाकांक्षी योजना राहिल्याने अधिक लोकप्रिय झालेली आहे. गोरगरीबांच्या उपचिक्तेच्या मंगलासाठी पाया मजकूर करणे, सामाजिक सहभागाची सुनिश्चिती व पंचायत राज संस्था बळकट करणे ही या योजनेची मुख्य वैशिष्ट्ये आहेत. याद्वारे वैयक्तिक व सार्वजनिक स्वरूपाच्या कामांच्या मागणीमध्ये निश्चिंतच वाढ होऊन आहे. सन 2017-18 च्या तुलनेत सन 2018-19 मध्ये कामांच्या मागणीत वाढ होऊन कामांच्या संख्येतही वाढ झालेली आहे.

सदर योजनेचे नाभ सर्वापर्यंत पोहोचवणे यासाठी विभागाचे दुर्चिक्ते, वसंमानपधार्ताळ हाडिगण, योजनेचा स्टॉन व चिक्तरथ यांच्या माध्यमातून तसेच एक दिवस मजुरांमोवत इत्यादी नवीन संरूपणा कार्यान्वित केल्या आहेत.

जलयुक्त शिवार अभियानामोवत सांगड घालून जनसंघर्षनाच्या कामांवर भर दिल्यामुळे गावातील पाण्याच्या साठ्यात निश्चित वाढ होईल. गावाचा सवर्गीण विकसम होण्याकरिता योजनेंतर्गत पांथण रस्ता, गोठा, नॅडेप कंपोटींग, वनीकरण, इत्यादी कामे घेण्यात आलेली आहेत.

राज्य रोजगार हमी योजना विभागामार्फत "माणेल त्याला शेततळे" ही महत्वाकांक्षी योजना सुरु करण्यात आली असून त्या अंतर्गत 16 मे, 2019 अखेर 1,21,829 इतकी शेततळी पूर्ण करण्यात आली तर 3,390 इतकी शेततळी प्रगतीपथावर आहेत.

नागपूर विभागातील गडचिरोली, भंडारा, चंद्रपुर, गोंदिया व नागपूर या पाच जिल्ह्यांना घडक मिचत विहीर अंतर्गत एकुण 11,614 विहीरींचा लक्षांक देण्यात आला असून 20 मे, 2019 अखेर 10,908 मिचत विहीरी पूर्ण करण्यात आल्या, तर 686 इतक्या विहीरींची कामे प्रगतीपथावर आहेत. तसेच "समृद्ध महाराष्ट्र जनकल्याण योजना" अंतर्गत अनुजेय वैयक्तिक व सार्वजनिक लामाची 11 प्रकारची कामे सन 2017-18 व 2018-19 या वर्षांमध्ये प्राधान्याने मोठ्या प्रमाणात रावविण्यात आलेली आहेत.

योजनेची पार्श्वभुमी

महाराष्ट्र रोजगार हमी अधिनियमाची अंमलबजावणी 1977 पासून महाराष्ट्रात सुरु झाली. राज्यात महाराष्ट्र रोजगार हमी अधिनियम, 1977 नुसार दोन योजना सुरु होत्या.

- 1) ग्रामीण भागात अकुशल व्यक्तींकरिता रोजगार हमी योजना.
- 2) महाराष्ट्र रोजगार हमी अधिनियम, 1977 कलम 12 (ई) नुसार वैयक्तिक लामाच्या योजना.

सदर योजनांचा राज्य शासनाच्या निधातून अर्थसहाय्य केले जात होते.

सन 2005 मध्ये केंद्र शासनाने संपूर्ण भारतात राष्ट्रीय ग्रामीण रोजगार हमी कायदा (विद्यमान नाव - महात्मा गांधी राष्ट्रीय ग्रामीण रोजगार हमी कायदा) लागू केला. तसेच केंद्र शासनाने ज्या राज्यांनी पूर्वीपासून रोजगार हमी अधिनियम मंजूर केला होता, अशा राज्यांना केंद्र शासनाच्या अधिनियमातील कलम 28 अन्वये त्यांचा कायदा रावविण्याची मुभा दिली होती. तदनुसार महाराष्ट्र शासनाने सन 2006 मध्ये पूर्वीचा कायदा

१७. प्रधानमंत्री ग्रामीण आवास योजना आणि ग्रामीण विकास आढावा

भिंगारदेव विष्णू प्रल्हाद
संशोधक विद्यार्थी.

प्रस्तावना

स्वातंत्र्यप्राप्तीसोबतच भारत एक कल्याणकारी राष्ट्र राहिलेले आहे. देशातील जनतेचे कल्याण साध्य करणे हा त्याचा प्रमुख उद्देश आहे. ग्रामीण दारिद्र्य, गरीबी, बेकारी इ. समस्यांचे निमूलन करण्यासाठी विविध धोरणे, कार्यक्रम आणि योजना बनवणे हा भारताच्या नियोजित विकासाचा प्राथमिक उद्देश राहिला आहे. भारत हा खऱ्यांचा देश असल्याने प्राथमिक ग्रामीण विकासाचे धोरण वनायतांना शरीरस्थ निमूलन, अज्ञानता दूर करणे आणि उत्पादक रोजगाराच्या संधी उपलब्ध करणे हेच मुख्य भर किंवा जोर नियोजन मंडळाचा राहिलेला आहे.

ग्रामीण विकासात लोकांचे अधिक सुधारणेसोबतच सामाजिक परिवर्तन सुद्धा समावीष्ट आहे. ग्रामीण विकास अधिक विकासाच्या संधी उपलब्ध करताना ग्रामीण विकास कार्यक्रमात लोकांचा अधिक सहभाग, योजनांचे विकेंद्रीकरण वृत्त गुणवत्तांचे उच्च कायान्दखन, रोजगार संधीची उपलब्धता यांना प्रधान्य देण्यात आले. समाजातील निराधार, कुटूंब व्यक्ती, अंध, अपंग, शारीरिक व मानसिक आजाराने रोगग्रस्त व्यक्ती, निराधार, विधवा, पारिवर्तक देवदारी महिला, अनाथ बालक, इ. जे जीवनमान सुधारण्यासाठी त्यांचा विविध योजनांच्या माध्यमातून रोजगार किंवा अर्थसहाय्य करण्यात येते. यापैकी काही प्रत्येक स्वतंत्रपणे राज्य शासनाने राबविण्यात येतात तर काही केंद्र शासनाने राबविण्यात येतात. काही योजना केंद्र शासन आणि राज्य शासन यांच्याकडून संयुक्तरीत्या राबविण्यात येतात. या योजनांचा लाभ आर्थिकदृष्टीत गरजू नागरिकांमध्ये प्रत्येक पातळीला शासन विविध माध्यमातून त्यांचा प्रचार व प्रसार करित असते.

केंद्र शासनाने व महाराष्ट्र शासनाने ग्रामीण विकासासाठी विविध योजनांची अंमलबजावणी केली आहे व केंद्र शासन महाराष्ट्र शासनाने ग्रामीण विकासाच्या योजनांची अंमलबजावणी करण्यासाठी जिल्हा ग्रामीण विकास यंत्रणेची स्थापना केली आहे या यंत्रणेमार्फत संपूर्ण ग्रामीण रोजगार योजना, हुंदरा आवास योजना, सुवर्ण जयंती ग्राम स्वयंसेवायुक्त संघटना व ग्रामीण क्षेत्र विकास कार्यक्रमाची ग्रामीण भागात दारिद्र्य रेखांतातील लोकांच्या आर्थिक व सामाजिक जीवनात सुधारणा करण्यासाठी राबविल्या जात आहेत.

भारतीय अर्थव्यवस्था ही मिश्र स्वरूपाची अर्थव्यवस्था आहे. जलद आर्थिक विकास व आर्थिक विकासासाठी समाज व सामाजिक न्याय हा नियोजनबद्ध आर्थिक विकासाच्या माध्यमातून गेल्या ६० ते ६५ वर्षांच्या कालावधीत आपले अर्थी पंचवार्षिक योजना पूर्ण केल्या आहेत. आर्थिक प्रगतीसोबतच सामाजिक न्याय, राहणीमानात वाढ, रोजगार संधीची उपलब्धता, उत्पन्न व सामाजिक संपत्तीतील विषमतेचे निमूलन ही पंचवार्षिक योजनांची प्रमुख उद्दिष्ट्ये राहिली आहेत.



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रोकडविरहीत अर्थव्यवस्था : एक अभ्यास

- प्रा.व्ही.पो.धिगारदेव

अर्थशास्त्र विभाग प्रमुख

जे.के.जाधव महाविद्यालय, वैजापूर

प्रस्तावना :

केंद्र शासनाने ८ नोव्हेंबर २०१६ रोजी ५०० आणि १००० रुपयाच्या नोटा कायदेशिररित्या वापरातून बाद केल्याचे जाहिर केले. या शतकातील सर्वात मोठा धाडसी, अतिशय नियोजनपूर्वक आणि राष्ट्र हितासाठी घेतलेला निर्णय आहे असे भारताचे माननीय पंतप्रधान नरेंद्र मोदी यांनी स्पष्ट केले. नोटबंदी करण्यासाठी बरीचशी काणवे होती याचा खुलासा ही या सरकारने स्पष्ट केला. भारतात बनावट चलनाच्या माध्यमातून पोफावलेला दहशतवाद, काळ्या पैशाला प्रतिरोध, बहिशोबी मालमत्ता, मोठ्या प्रमाणावरील भ्रष्टाचार यांना नियंत्रित करण्यासाठी व देशाची आर्थिक घडी बसविण्या करीता डिजिटल (रोकड विरहीत) अर्थव्यवस्था निर्माण करण्यासाठी शासनाने घेतलेला हा मोठा निर्णय आहे असे दिसून येते.

रोकडविरहीत अर्थव्यवस्था म्हणजे अशा अर्थव्यवस्था ज्या मध्ये रोख रकमेचा किंवा रोख रकमेचा व्यवहार अस्थित्वात नसतो. त्याच प्रमाणे सर्व व्यवहार हे इलेक्ट्रॉनिक डेबीट कार्ड, क्रेडीट कार्ड, इंटरनेट बँकींग, ऑनलाइन पेमेंट या माध्यमांच्या मार्फत होणारे व्यवहार अंतर्भूत असणारी अर्थव्यवस्था म्हणजे रोकडविरहित अर्थव्यवस्था होय. प्रस्तुत शोध निबंध दुय्यम स्रोतावर आधारलेला असून रोकड विरहित व्यवहाराची सद्यस्थिती, फायदे, तोटे व आव्हाने याचा मागोवा घेणे ही त्या मागील उद्दिष्टे आहेत.

आज भारत सरकार संपुर्ण देशाला डिजिटल आणि कॅशलेस (रोकड विरहीत) बनविण्याचे स्वप्न उराशी बाळगून आहे. त्या दृष्टिने काही महत्वाची निर्णायक पावलेही

उचलली जात आहेत. याचाच एक महत्वाचा निर्णय म्हणजे रिजर्व्ह बँक ऑफ इंडियाने इलेक्ट्रॉनिकस व्यवहारांना प्रोत्साहन देण्यासाठी आणि भारतात मध्यम आणि टिकितकालीन रोकड विरहीत समाज किंवा अर्थव्यवस्था मध्यम करणासाठी 'Indian payments and Settlement System : Vision 2018' या योजनेची घोषणा केली आहे. याच बरोबर RBI ने विविध मोबाईल वॅलेटस प्रसिध्द केले आहेत. या वॅलेटस मधून वापरकर्त्यांना विविध वॉले, रिनार्कस, टिकिटस, ई भेटवस्तु ऑनलाईन उपलब्ध होतं. याच बरोबर सरकारने विविध कार्डविरल अधिभार, सेवाराखक आणि डिजिटल देवके देखिल भागे घेतली आहेत.

विरल सर्व परिस्थिती जरी निर्माण केली जात असली तरी भारतात कॅशलेस अर्थव्यवस्था टिकणार नसल्याचे काही अर्थतज्ञ छातीटोकपणे सांगत आहे. कारण कॅशलेस इकोनॉमी ही जरी भारताला विकासाच्या दिशेने अग्रेसर करण्यात महत्वाची भूमिका बजावणारी असली तरी त्यासाठी सर्व प्रथम देशाच्या शेवटच्या घटक पर्यंत कॅशलेस इकोनॉमीचा प्रसार करणे गरजेचे आहे. आजही भारतातील ७६ टक्के लोकांना इंटरनेट बदल काहीच माहिती नसल्याचे एका सर्वेक्षणातून दिसून आले आहे. इतर देशांशी तुलना केली असता भारतातील लोक व्यवहारासाठी जास्त प्रमाणात रोख रक्कम वापरतांना दिसून येतात.

२०१४ मध्ये भारतातील रोखतेचे प्रमाण २२.४२ टक्के तर चीन मध्ये हे प्रमाण ०९.०४ टक्के तर ब्राझील मध्ये केवळ ४ टक्के होते. भारतामध्ये एकूण देयकाचा विचार केला तर केवळ ५ टक्के देयके हे इलेक्ट्रॉनिक पध्दतीने अदा केले जातात. इतर अर्थव्यवस्थांच्या तुलनेत

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संत साहित्यः अधुनात्मन आयाम

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संपादक

सं. वि. ल. उ. व. टी. मालती

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संत कबीर के काव्य में व्यक्त गुरु महिमा

नितीन रंगनाथ गायकवाड़

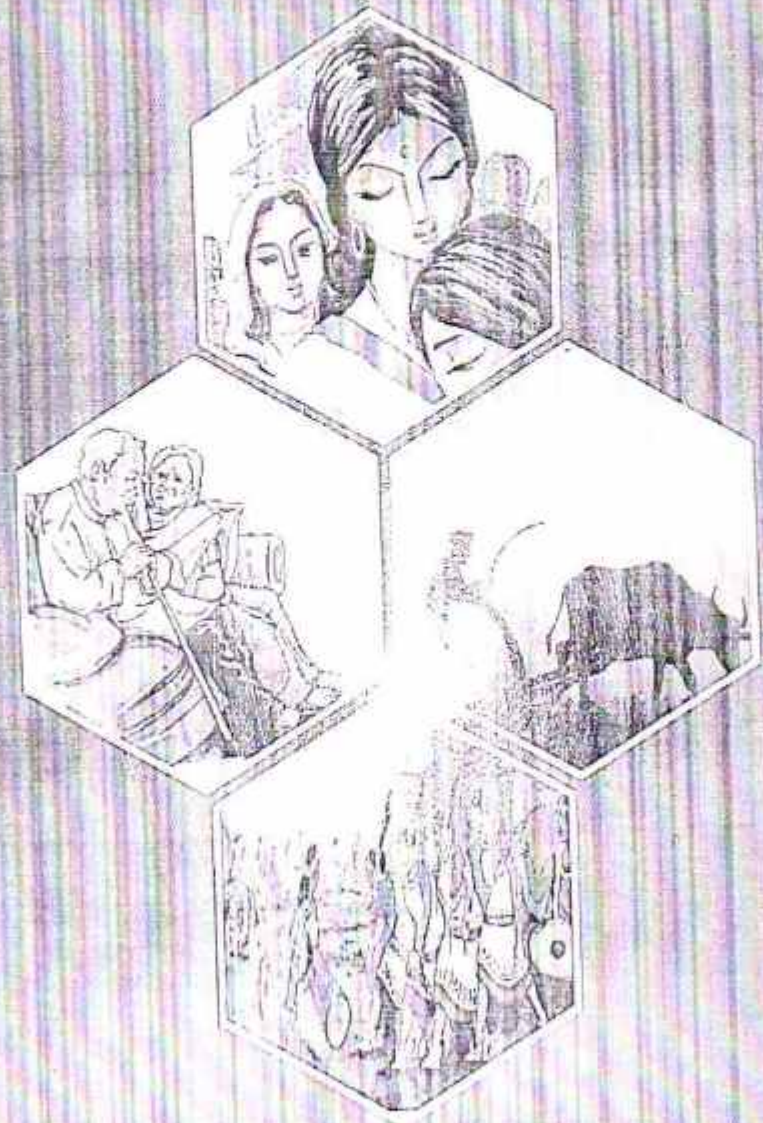
हिंदी साहित्य के भक्तिकाल में भक्ति की दो धाराएँ 'सगुण' और 'निर्गुण' प्रवाहित हुईं। सगुण धारा के अन्तर्गत राम-कृष्ण भक्ति की शाखाएँ आती हैं, निर्गुण के अन्तर्गत सन्त तथा सुफियों का काव्य आता है। 'आचार्य शुक्ल' ने नामदेव एवं कबीर द्वारा प्रवाहित भक्ति-धारा को 'निर्गुण भक्ति साहित्य' तथा 'डॉ. रामकुमार वर्मा' ने इसे सन्त-काव्य परंपरा का नाम दिया। ज्ञानाश्रयी शब्द से यह भ्रान्ती उत्पन्न होती है कि इस धारा के कवि ने ज्ञानतत्व को सर्वाधिक महत्व दिया होगा, जबकि वास्तव में इन्होंने प्रेम के समस्त समस्त ज्ञानराशि को तुच्छ माना है। भक्ति का आलम्बन सगुण आश्रय ही उपयुक्त है, अतः निर्गुण भक्ति साहित्य का नाम असमीचीन प्रतीत होता है। इस धारा के कवियों का विशेष दृष्टिकोण सन्त शब्द से भली-भाँति व्यक्त होता है, अतः इस धारा को सन्त काव्य के संज्ञा देना अपेक्षाकृत संगत प्रतीत होता है।

श्री. परशुराम चतुर्वेदी इस बारे में कहते हैं— "सन्त शब्द उस व्यक्ति की ओर संकेत करता है जिसने संत रूपी परम तत्व का अनुभव कर लिया हो और जो इस प्रकार उस व्यक्तित्व से उपर उठकर उसके साथ तद्रूप हो गया हो, जो सन्त स्वरूप नित्य तत्त्व तत्त्व वस्तु का साक्षात्कार कर चुका हो अथवा अपरोक्ष की उपलब्धी के फलस्वरूप अखण्ड रूप में प्रतिष्ठित हो गया हो वही सन्त है।" १

हिंदी के संत-कवियों की परंपरा 'कोमलकांत पदावली' के गायक 'गोतागोविंद' के अमर रचयिता सन्त 'जयदेव' से प्रारंभ होती है। जयदेव का समय सन् ११७९ माना जाता है। जयदेव के अनन्तर देश की हासमान परिस्थितियों के साथ समय-समय पर अनेक सन्तों का आविर्भाव हुआ। इन सन्तों ने अपने युग की विषमताओं को दूर करके एक स्वस्थ और कल्याणकारी समाज व्यवस्था का प्रयत्न किया। इन सन्तों में भाव-साम विचार और चिंतन ऐक्य उपलब्ध होता है, फिर भी उनमें मौलिकता सर्वत्र विद्यमान है। हिंदी के सन्तों की परम्पराएँ बड़ी महान, बड़ी उच्च और भव्य हैं। इनके साहित्य में लोक कल्याण की भावना सर्वत्र प्रमुख और सजिव है। समाज की सेवा इन्होंने निःस्वार्थ निःस्वार्थ भावना से की।

सन्तों के साहित्य और आविर्भाव काल को काल-क्रमानुसार तीन भागों में विभक्त किया जा सकता है, पूर्वकालीन सन्त, मध्यकालीन सन्त, अन्तर्कालीन सन्त।

समकालीन हिंदी साहित्य विविध विमर्श



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ओमप्रकाश वाल्मीकि के साहित्य में दलित चेतना

प्रा.डॉ.नितीन गायकवाड

स्ताविक

भारत में दलित चेतना के प्रचार – प्रसार में हिन्दी दलित साहित्यकारों सबसे अधिक योगदान देखने को मिलता है। हिन्दी साहित्य में दलित विमर्श प्रथमतः साठोत्तरी दशक के बाद देखने को मिलता है। पिछले तीस साल में इस साहित्य ने अपना अहम योगदान दिया है। साहित्य में विभिन्न तरह के विमर्श देखने को मिलते हैं। नारी विमर्श भी हिन्दी साहित्य में बहुत चर्चित विषय रहा है। लेकिन संत साहित्य के बाद केवल लेखक अंदोलन ऐसा है, जिसने साहित्य और विमर्श की जमीन को पुरी तरह दलित कर रख दिया। दलित साहित्य के ऐतिहासिक परिप्रेक्ष्य में बौद्ध साहित्य समग्र सम्यक क्रांति के दलित अंदोलन का प्रारंभिक स्वरूप स्पष्ट होता है।

जोतिबा फुले, शाहु महाराज, पेरियार, स्वामी रामानंद नायर आदि ने छठे वर्ग के समाज को सुधारणे का काम किया है। इन सारे समाजसुधारकों के कारण ही दिन दलित समाज में क्रांति का संचार हुआ। महाराष्ट्र में जोतिबा फुले के बाद महान दलित विन्तक डॉ.भीमराव अम्बेडकर का उदय ही पृष्ठभूमि की देन थी। अच्छी शिक्षा प्राप्ति के बाद डॉ.अम्बेडकर ने 'दलित विन्तक अंदोलन' चलाने का संकल्प लिया। हिन्दू धर्म की कमियों को खिलाने और संशोधन के संघर्ष करते रहे। डॉ.अम्बेडकरने हिन्दू धर्म की विभिन्न रूढ़ियों और ग्रन्थ परंपराओं को उखाड़ फेंकने के लिए अपनी कलम चलायी और भारत में ही नहीं पूर्ण विश्वभर में अपनी विद्वत्ता की पहचान करायी। समाज में जो नवोदय की शुरुआत थी उन परंपराओं को जड़ से गिराने का काम डॉ. भीमराव अम्बेडकर इन्होंने किया।

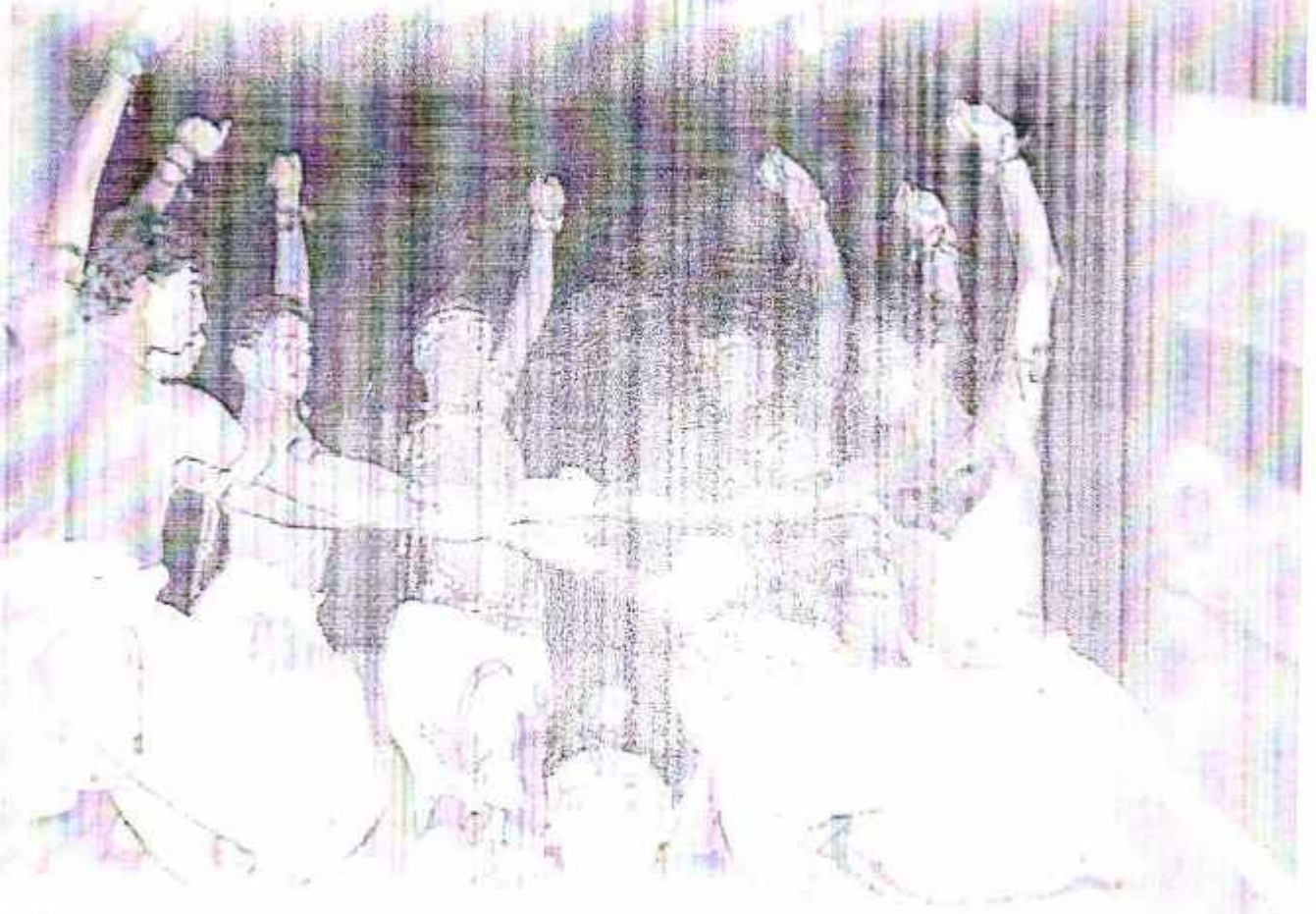

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घासीराम कोतवाल : नाटक एक मूल्यांकन

हिन्दी नाट्य रचना का आरंभ भारतेन्दु युग से माना जाता है। हिन्दी नाटक साहित्य रचना के माध्यम से कई नाटककारों ने रंगमंच के सहारे लोकप्रियता हासिल की है। जयशंकर प्रसाद ने आधुनिक हिन्दी नाट्य साहित्य से लोगों को प्रभावित किया। अनुवाद के माध्यम से रवींद्रनाथ ठाकुर ने नाटककारों को प्रभावित किया है।

हिन्दी नाटक साहित्य के साथ-साथ मराठी नाटकीयता एवं रंगमंच को भी भूला नहीं जा सकता। मराठी नाटकों के माध्यम से उस तत्कालीन परिस्थितियों का चित्रण किया गया। मराठी नाटक साहित्य जगत के प्रसिद्ध नाटककार 'विजय तेंडुलकर' के नाटकों के बारे में कहा जाए तो इनके सभी नाटक रंगमंच पर सफल साबित हुए हैं, 'श्रीमंत', 'कावळ्याची शाळा', 'शांतता कोर्ट चालू आहे', 'गिधाडे', 'सखाराम वाइंडर', 'घासीराम कोतवाल', 'वेवी', 'कमला', 'कन्यादान' आदि उनके प्रसिद्ध नाटक माने जाते हैं। इनमें से सबसे लोकप्रिय एवं चर्चित नाटक कहा जाए तो 'घासीराम कोतवाल' यह नाटक है। वैसे देखा जाए तो इनके सभी नाटक रंगमंच की दृष्टि से अत्यधिक महत्व रखते हैं। उनके लिखे कई नाटकों का अन्य भाषाओं में अनुवाद और मंचन हुआ है।

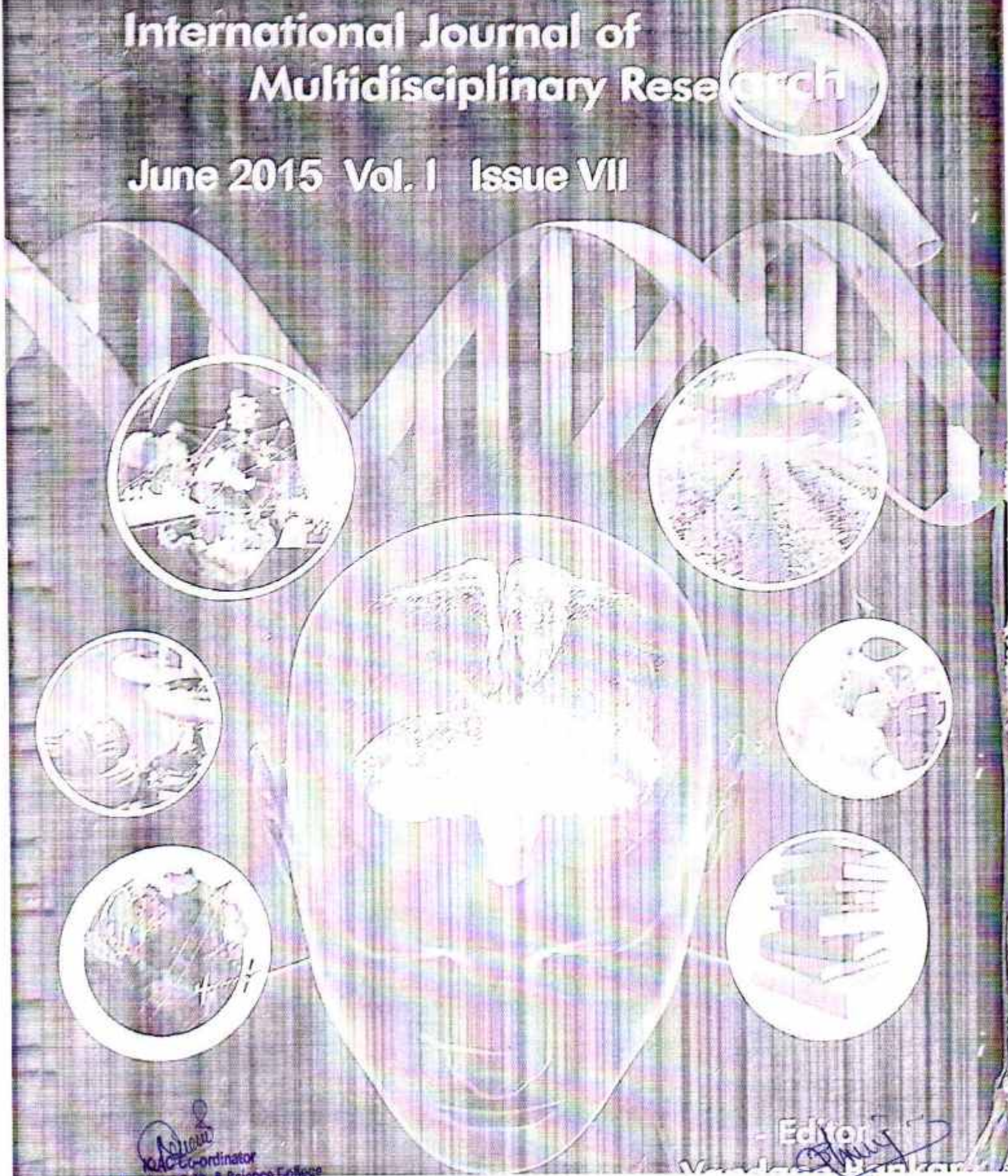
मराठी नाटककार विजय तेंडुलकर का जन्म 6 जनवरी 1928 में महाराष्ट्र के कोल्हापुर जिले में ब्राम्हण परिवार में हुआ। उन्होंने केवल छह साल की उम्र में अपनी पहली कहानी लिखी थी। उनके पिता नौकरी के साथ ही प्रकाशन का भी व्यवसाय करते थे। इसलिए पढ़ने लिखने का माहौल उन्हें अपने घर में ही मिल गया। नाटकों को देखते हुए बड़े हुए विजय तेंडुलकर ने ग्यारह साल की उम्र में पहला नाटक लिखा और उसमें काम भी किया था। प्रसिद्ध नाटककार विजय तेंडुलकरजी की मृत्यु 19 मई 2008 में हुई। उन्हें 1971 में संगीत नाटक अकादमी का पुरस्कार मिला इसीके साथ-साथ उन्हें भारत सरकार द्वारा 'पद्मभूषण' से सम्मानित किया गया, कालिदास पुरस्कार ऐसे कई पुरस्कार उन्हें मिले हैं।

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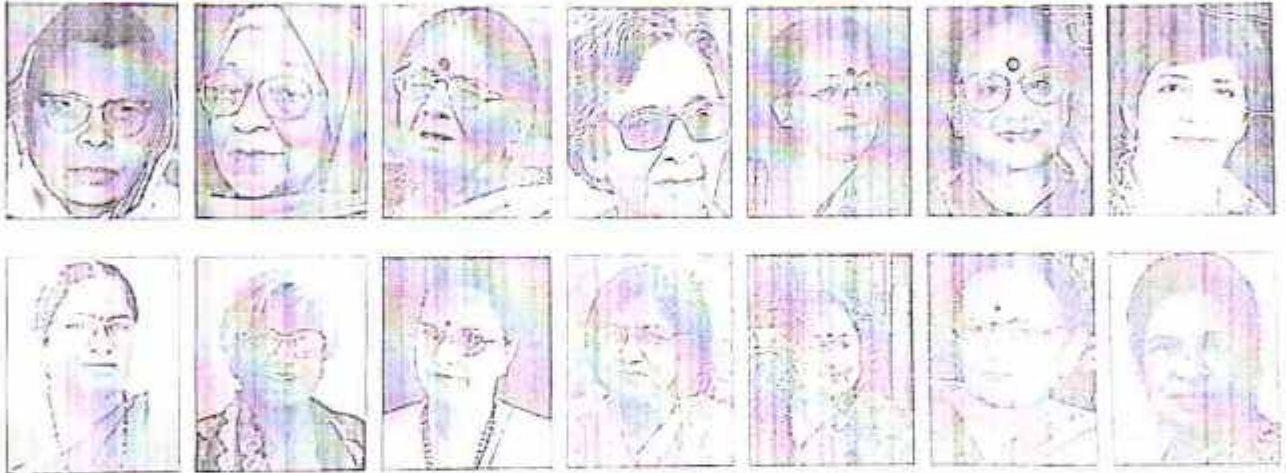
विश्वविद्यालय अनुदान आयोग, नई दिल्ली एवं
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के संयुक्त तत्वावधान में आयोजित

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“स्त्री-लेखन : सृजन के विविध आयाम”

तिथि ३० सितम्बर तथा ०१ अक्टूबर २०१३



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संयोजक

दिल्ली विभाग

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(कला, विज्ञान व वाणिज्य)

ता. माजलगांव जि. बीड ४३१ १३१

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हिंदी साहित्य में दलित चेतना

- संपादक -

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26 Causes of Farmers Suicides in Maharashtra

Pathare Kishor Sheku

Research Student

Introduction

India is agrarian country, nearly 60% people depended on agriculture. From last two decade, condition of farmer is, really down present world is technological world, cause of globalization world is coming near, so that one cannot avoid this in every field.

There are lot - up change happened in agrarian field, New technology comes, new information comes cause of machines every work of farmers become easy, but day by day condition of farmers not looks too good.

We are social being and we need to do study, what is cause of this condition of farmers. There are plenty of reason behind of farmers suicide. I have studied simple reason and suggested solution, according to my knowledge. (Research paper concentrated on only Maharashtra's farmers condition)

Aim and objective of present paper.

- To look condition of farmers.
- To stop politics on agree culture and farmer.
- To look profect and loss of farmer.
- To look ground level condition of farmer.
- To focused on other business position and farming.
- (Remind this study is not complete solution but we can understand real condition of farmer)

1) Unsatisfied rainy season -

In Maharashtra maximum rain falls in July. There are only four month of rainy season, February goes dry, and plenty of difference between area and area. Pachhim ghat area 6000cm Rain falls, Ratnagiri area 2000cm, Maharashtra Pathar area 800cm and west Gadchiroli 1500 to 2000cm rain falls in Maharashtra we can see same situation in India and there are not equality of rain falls that's why not maximum availability of rain falls in Maharashtra, we can see same situation in India and there are not equality of rain falls that's why not maximum availability of rain to form and not any land of water harvesting, so that lots up water goes wastages, this is natural we cannot control on it, only we can aware to people and government should make big plan for ever solution.

2) Economical illiteracy

There are plenty of rich people in India, cause they have knowledge of business and economy, when xyz person want to do xyz business, He should be knowledge of that business, I don't want to say farmer has