ATUL VIDYA MANDIR WARDHA'S

RAJARSHEE SHAHU SCIENCE COLLEGE

Chandur Railway, Dist – Amravati, Maharashtra

Affiliated to

Sant Gadge Baba Amravati University, Amravati

2nd Cycle

Assessment & Accreditation by NAAC

CRITERIA III- Research, Innovation and Extension

3.3: Research Publication and Awards

Metric No. – 3.3.2.1

Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years.

Atul Vidya Mandir, Wardha's

Rajarshee Shahu Science College

Virul Road, Chandur Rly, Dist. Amravati PIN - 444 904

(College Code : 807)

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Date: 17.03.2023

Declaration

The information, reports, true copies of the documents, numerical data, etc furnished in this file is verified by IQAC and found correct.

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Research Publication of Faculty in National/International/Journal/Referred Journals (other than UGC Care Listed)

(Last five Years)

Sr.no	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN No
1	At constant concentration viscometric measurements of 1-phenyl-3-[4-(3-ethylimino-1,2,4-dithiazolo) aminophenyl] prop-2-ene-1-one in 70% ethanol-water mixture using various temperatures	**S.S. Padhen,** S.A. Waghmare	Chemistry	International Journal of Applied Science and Computations	Jan-19	ISSN NO: 1076-5131
2	Assessment of Thermodynamic Parameters of Substituted Thiocarbamidonaphthol	A.B. Wadekar, D.A. Pund, A.B. Naik and S.S.Padhen	Chemistry	'RESEARCH JOURNEY' *International E- Research Journal*	Feb-19	ISSN : 2348-7143
3	Ultrasonic Measurements of (2e)-1-(4-Thiocarbamidophenyl)-3-(3,4-Dimethoxyphenyl)Prop-2-En-1-one At 600c in 70% Dioxane-Water Mixtures.	D.T. Tayade, **S.S.Padhen** and S. A. Waghmare	Chemistry	'RESEARCH JOURNEY' *International E- Research Journa*	2019	ISSN : 2348-7143
4	Phytochemical Analysis of Azardirachta indica A.Juss.Leaves	Dr.S.P. Patharkar	Botany	International Multidisciplinary Research Journal (SJIF)	2019	2278-9308
5	Nutritional Changes in Oilseed Mustrard (Brassica campestris L.) Due to storage Condition	Dr.S.P. Patharkar	Botany	International Multidisciplinary Research Journal (SJIF)	2020	2278-9308
6	Impact of storage fungi on seed germination of mungbean (Vignaradiata L.)	Dr.S.P. Patharkar	Botany	International Multidisciplinary Research Journal (SJIF)	2020	2278-9308
7	The divergence of the Laser beam emitted by the segment would have less angle of divergence because the plasma has less thickness.	Dr. R.N. Bhagat	Physics	International Multidisciplinary Multilingual Peer Reviewed Research Journal	2020	2231-6302

8	"Synthesis, Specrtoscopic and Thermal Analysis of Co(II),Ni(II),Cu(II),Cr(III),Fe(III) and VO(IV) Transition Metal Complexex of Pyrazoline Schiff Base Ligand"	A.P. Thakare, P.R Mandlik	Chemisrty	Journal of Emerging Technologies and Innovative Research	2020	2349-5162
9	SYNTHESIS, STRUCTURAL DETERMINATION AND VISCOMETRIC STUDY OF ISOXAZOLINE DERIVATIVES	Yogita Thakare, Rushali Muratkar, Amol Thakare	Chemistry	Journal of Emerging Technologies and Innovative Research	2020	2349-5162
10	Synthesis, Characterization and biological evaluation of some isoxazole derivatives from various chalcones	N.R. Thakare, A.P. Thakare	Chemistry	Journal of Emerging Technologies and Innovative Research	2020	2349-5162
11	Efficient approach to viscometric measurements of Novel 1-phenyl-3- [4-(2-allylimino-4-allylimino-1,3,5-dithiazino) amino-phenyl] prop-2- ene-1-one in 60% ethanol-water mixture using various temperatures at constant concentration	**Padhen S S**, Waghmare SA, Isankar RD	Chemistry	*Int. J. of Life Sciences.*	2021	ISSN:2320-7817(p) 2320-964X(0)
12	Investigation of Physico-chemical parameters from ground water of some villages' Murtizapur tahesil region of Akola district, Maharashtra, India	Waghmare S A, Suradkar SW, Deshmukh SS & **Padhen SS**	Chemistry	*Int. J. of Life Sciences*	2021	ISSN:2320-7817(p) 2320-964X(0)
13	Jone's-Doles Equation And molecular Interaction Studies Of 1-Phenyl-3-[4-(2-Ethylimino-4-Phenylimino-1,3,5-Dithiazino)Amino Phenyl]Prop-2-Ene-1-One	**S.S. Padhen,** A.B. Wadekar, G.B. Andhale.	Chemistry	B. **Aadhar**' International Peer-Reviewed Indexed Research Journal	, 2021	ISSN: 2278-9308
14	Studies in Solute-Solute and Solute-Solvent Interaction of Some Substituted Ketimine Drugs in 75 % Dichloromethane Water Mixture under Different Temperature by Viscometric Technique (PP- 89-93)	Ganesh Andhale, Satyanarayan Arde, **Sanghapal Padhen** and Prabhakar Kute	Chemistry	International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)	2021	ISSN (Online) 2581-9429
15	Some Properties of Local Fractional Mellin-Fractional Double Laplace Transform	R.V. Kene	Mathematics	Aryabhata Journal of Mathematic and Informatics	2020-21	0975-7139

16	Inversion Formula for Local Fractional Mellin-Factional Double Laplace Transform	R.V. Kene	Mathematics	International Journal of Research and Analytical Reviews	2020-21	2348-1269
17	At Differential Equation Analysis of Pandemic Disease Spread	R.V. Kene	Mathematics	B. Adhar' International Peer-Reviewed Indexed Research Journal ISSUE No-287 (CCLXXXV)	2021	2278-9308
18	"Synthesis and thermal analysis study of Cr(III) & Fe(III) complexes derived from Chalcone ligand"	Amol P. Thakare, Ashish D. Bansod	Chemistry	B. Adhar' International Peer-Reviewed Indexed Research Journal ISSUE No-287 (CCLXXXV)	2021	2278-9308
19	Synthesis, Characterization and Catalytic Activity of Some Polychelates of Salen Type Schiff Base	A.D. Bansod, A.P. Thakare	Chemistry	B. Adhar' International Peer-Reviewed Indexed Research Journal ISSUE No-287 (CCLXXXV)	2021	2278-9308
20	Effect of combined oral steroids contraceptive pill(ethinylestradiol+norgestre) on the female wistar rats ovarian histological alteration	Dr. M.P.Chikhale	Botany	B. Adhar' International Peer-Reviewed Indexed Research Journal ISSUE No-287 (CCLXXXV)	2021	2278-9308
21	Some Traditional Plant adverse effect and its Modality as Resource	Dr. M. J. Keche, Dr.Y.U. Rajgure	Botany	International Journal of Science Technology and Management Volume No 12 Special Issues No.01 April 2021	2021	ISSN 2394-1537
22	Characterization and chemically Synthesized Cadmium Sulfied/Polyvinyl Alcohol Nanocomposites	Dr. R.N. Bhagat	Physics	B.Adhar' International Peer-Reviewed Indexed Research Journal ISSUE No-287 (CCLXXXV)	2021	ISSN 2278-9308
23	Capacitance Study of PVA Based Polymer Gel Electrolyte	Dr. R.N. Bhagat	Physics	B.Adhar' International Peer-Reviewed Indexed Research Journal ISSUE No-287 (CCLXXXV)	2021	ISSN 2278-9308

24	Assessment of important Bioactive constituent Anisomoles(Indica) Kuntze	Dr. P. R Sardar, Dr.SR Manik	Botany	B.Adhar' International Peer-Reviewed Indexed Research Journal ISSUE No-287 (CCLXXXV)	2021	ISSN 2278-9308
25	Music File Recovery	Dr. R.N. Bhagat	Physics	B.Adhar' International Peer-Reviewed Indexed Research Journal ISSUE No-287 (CCLXXXV)	2021	ISSN 2278-9308

3.3.2 Paper Publish in National/ International conference ,referred journal

Dr. S. S. Padhen (Chemistry) Link-
https://ijlsci.in/ls/index.php/home/article/view/396/257

International Journal of Life Sciences

Special Issue A16, March 2021
ISSN:2320-7817(p) 2320-964X(o)
Doi.

Original Article | Open Access

Efficient approach to viscometric measurements of Novel 1-phenyl-3-[4-(2-allylimino-4-allylimino-1,3,5-dithiazino) amino-phenyl] prop-2-ene-1-one in 60% ethanol-water mixture using various temperatures at constant concentration

Padhen SS[1]*, Waghmare SA[2], Isankar RD[3]

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Article published in Special Issue of National Conference on "Recent Trends in Science and Technology-2021 (RTST-2021)" organized by Department of Environmental Science, Shri. Shivajirao Maske Mahavidyalaya Science & Arts College, Dhargaon, Dist.Nagpur, and Department of Botany, Indira Gandhi Mahavidyalaya Science College Ballarpur, Dist. Chandrapur, Maharashtra, India Date, February 27, 2021.

ABSTRACT

Recently in laboratory viscometric measurements was carried out of 1-phenyl-3-[4-[2-allylimino-4-allylimino-1,3,5-dithiazino] aminophenyl] prop-2-ene-1-one at different temperatures by keeping the constant concentration. Also, to determine the effect of dilution of the solvent and the solute-solvent interaction of drug in current times in our laboratory.

Keywords: Ethanol-Water mixture, Viscometric measurements, 1,3,5-Dithiazino etc.

INTRODUCTION

The heterocyclic compounds are very widely distributed in nature and very essential to living organisms. In biochemical, agricultural, pharmaceutical, medicinal, and industrial and drug sciences [Solanki A. and Thakur, 2007; Saleem, 2008]. Viscosity measurements play a crucial role. Viscosity is one of the important physical properties of liquid. Due to the shearing effect in the liquid which is the movement of liquid layers over each other hence liquids are viscous in nature [Bhat, 2008]. Measurements of viscometric parameter providing important information regarding solute-solute and solute-solvent interaction in an aqueous and in nonaqueous solution. Drug behavior like absorption, transmission and its effect will directly relate to its viscosity measurements and solvent interactions in the human framework [Vibhute and Basser, 2008].

Literature review that chalcone derivatives exhibit diverse pharmacological and biochemical activities [Kalirajan, 2007; Bhat, 2008; Vibhute and Basser, 2008] such as antimicrobial and cytotoxic agents, antiviral, anti-inflammatory, anestatics, mydriatics.

3.3.2 Paper Publish in National/ International conference ,referred journal

Dr. S. S. Padhen (Chemistry)

International Journal of Life Sciences
International Peer Reviewed Open Access Journal

Special Issue A16, March 2021
ISSN:2320-7817(p) 2320-964X(0)

Original Article | Open Access

Investigation of Physico-chemical parameters from ground water of some villages' Murtizapur tahesil region of Akola district, Maharashtra, India

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Waghmare SA,Suradkar SW, Deshmukh SS, Padhen SS (2021) Investigation of Physico-chemical parameters from ground water of some villages' Murtizapur tahesil region of Akola district, Maharashtra, India, Int. J. of Life Sciences, Special Issue, A16: 99-103.

Article published in Special Issue of National Conference on "Recent Trends in Science and Technology-2021 (RTST-2021)" organized by Department of Environmental Science, Shri. Dnyaneshwar Maharaj Burungale Science & Arts College, Shegaon, Buldhana, and Department of Botany Indiraj Commerce and Science College Shillod, Dist. Aurangabad, Maharashtra, India date, February 22, 2021.

ABSTRACT

This investigation determines ground water quality in of some Murtizapur Tahesil region of Akola District in Maharashtra. Samples collected from various bore wells used as drinking water. Use of pesticides for forming in this region has resulted in the contamination of ground water. The physico-chemical parameters such as Electrical conductivity, pH, Total hardness, Mg hardness, Ca hardness, Mg++ ions, Ca++ ions and Chloride ion were investigated to determine the present condition of the groundwater quality during the periods of three months from December 2019to Jan 2021.

Keywords: Physico-chemical parameters, Ground water, water quality, Murtizapur, etc.

INTRODUCTION

Water is also called as life due to their percent abundance on Earth and almost all life processes on require water. 71% area of the Earth is occupied by water and 97% of water on Earth is present in the oceans. Water occur on the Earth in three states viz., solid (ice), liquid and gaseous (water vapors). The earth has an abundance of water, but unfortunately, only 0.3 percent percentage is even usable by humans (Nikoladze and Akastal, 1989, Altman et al, 1995). The other 99.7 percent is in the oceans, soils, icecaps, and floating in the atmosphere. The majority of fresh water is actually found underground as soil moisture and in aquifers (Lemo, 2002, Asano T, 2007). Ground water is also frequently using as the alternative source for agricultural and industrial sector. Various ways as ground water is contaminated such as use of fertilizer in farming, seepage from effluent bearing water body (Ramachandraiah, 2004, Altman and Parizek, 1995, Adekunle, 2009, Jinwal and Dixit, 2008).

3.3.2 Paper Publish in National/ International conference ,referred journal

Dr. S. S. Padhen (Chemistry)

B.Aadhar International Peer-Reviewed Indexed Research Journal
Impact Factor - (SJIF) –7.675, Issue NO. 287 (CCLXXXV)
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April, 2021

Jone's-Doles Equation Andmolecular Interaction Studies Of 1-Phenyl-3-[4-(2-Ethylimino-4-Phenylimino-1,3,5-Dithiazino)Amino Phenyl]Prop-2-Ene-1-One

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ABSTRACT

Viscometric measurement becomes significantly useful in understanding molecular interaction in solution. Presently this research scheme was designed intended for molecular interaction studies for 1-phenyl-3-[4-(2-ethylimino-4-phenylimino-1,3,5-dithiazino)amino phenyl]prop-2-ene-1-one at various concentrations by keeping constant temperature. In this work we also maintain the green approach by using green solvent such as 75% water-ethanol mixture throughout the study. Recently this work reveals the relative and specific viscosity decreases along with decreasing concentrations from 0.1 M to 0.012M. Resultant data helps to understand solute-solute and solute-solvent interaction in solution. This work helps to disclose information pharmacodynamics and pharmacokinetics of drugs.

KEYWORDS: Ethanol-Water mixture, Viscometric measurements, 1-phenyl-3-[4-(2-ethylimino-4-phenylimino-1,3,5-dithiazino)amino phenyl]prop-2-ene-1-one, Solute-solvent interaction etc.

INTRODUCTION

The chalcones derivative of heterocyclic compounds are very widely distributed in nature and very essential to living organisms. In biochemical, agricultural, pharmaceutical, medicinal, and industrial and drug sciences (Solanki A. and Thakur I, 2007) (Saleem F, 2008) viscosity measurements play a crucial role. Viscosity is one of the important physical properties of liquid. Due to the shearing effect in the liquid which is the movement of liquid layers over each otherhence liquids are viscous in nature (Bhat B.A.,, 2008). Viscometric measurements providing important information regarding solute-solute and solute-solvent interaction in an aqueous and in non-aqueous solution. Drug behavior like absorption, transmission and its effect will directly relate to its viscosity measurements and solvent interactions in the human framework (Vibhute Y.B. and Basser M.A., 2008)

Literature review that chalcone derivatives exhibit diverse pharmacological and biochemical activitiessuch as antimicrobial and cytotoxic agents, antiviral, anti-inflammatory, anesthetics and mydriatics. Heterocyclic molecule having 1,3,5-dithiazino nucleus is widely used in medicinal, biochemical, biotechnological and pharmaceutical sciences (Solanki A. and Thakur I, 2007) (Saleem F, 2008) (Bhat B.A., 2008). These compounds showed anti-helminthic, antifungal, antiviral, antibacterial and anti-tuberculostatic propertiesVibhute Y.B. and Basser M.A., 2008). Dithiazines are found to be effective on treatment of cancer (Wan Z.Y., 2005).All these factsconsiderationa topic of great interest to carry out the viscometric measurements of 1-phenyl-3-[4-(2-allylimino-4-allylimino-1,3,5-dithiazino)aminophenyl]pro p-2-ene-1-one by varying temperatures (Jakhar A. and Makrand J.K.,2010)Such kind of study

3.3.2 Paper Publish in National/ International conference ,referred journal

Dr. A.P. Thakare (Chemistry) Link-

International Journal of Advanced Research and Publications
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IJARP

Co(II), Ni(II), Cu(II) And Cr(III) Complexes Of Heterocyclic Schiff Base Ligand: Synthesis, Spectroscopic And Thermal Study

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Abstract: In the present study the Schiff base ligand was synthesized by condensing 1(3-chloro-6-hydroxy-2-methyl)ethanone with chlorobenzaldehyde. From this ligand new transition metal complexes of Co(II), Ni(II), Cu(II) and Cr(III) with a Schiff base ligand 3-(3-chloro-6-hydroxy-2-methylphenyl)-5-(4-chlorophenyl)-4,5-dihydro-1H-pyrazol-1-yl)(pyridin-4-yl)methanone were synthesized and characterized on the basis of elemental, ^{1}H NMR, IR, Mass, Electronic Spectra and molar conductance data. The thermal data has been investigated to observed degradation pattern and kinetic parameters Entropy Change (ΔS), Free Energy Change (ΔF) and Frequency Factor (Z) were calculated using Freemann-Carol and Sharp-Wentworth method.

Keywords: Pyrazoline, Metal complexes, IR, Electronic Spectra, Freemann-Carroll.

1. Introduction

In the recent years there has been considerable interest in the chemistry of transition metal complexes of Schiff base because Metal complexes of Schiff base play an important role in the development of coordination chemistry.These schiff bases generally are a sulphur and nitrogen analogue of aldehyde and ketone having a good ability to form metal complexes. Many such Schiff bases ligands have been synthesize by condensing primary and secondary amines with carbonyl compound [1-4]. These compounds have wide application in food industry, dye industry, analytical chemistry, agrochemical, catalysis and biological activities [5-6]. A large number of reports are available on the chemistry and the biological activities of transition metal complexes containing O, N and O, S donour atom. From the survey of literature it appears that a heterocyclic Schiff base has been extensively used as a biological active complexating agent [7]. By considering the above fact in mind newly ligand by condensing chalcone with isoaniazide and its metal complexes Co(II), Ni(II), Cu(II) and Cr(III) has been synthesized and characterized by IR, ^{1}H NMR, Mass, molar conductance and thermal analysis.

2. Experimental:

2.1. Material Reagents and Method:

All chemicals and solvent used were of analytical grade and of the highest purity available. They include isoaniazide, p-chloro benzaldehyde, $Co(OAc)_2.4H_2O$, $Ni(OAc)_2.4H_2O$, $Cu(OAc)_2.H_2O$, $CrCl_3.6H_2O$, methanol, ethanol etc. IR spectra measurement was recorded using Perkin Elmer-Spectrum RX-IFTIR model in nujol in the region 4000–400 cm^{-1}. ^{1}H-NMR data of ligand was recorded by using Bruker FT NMR spectrometer (400 MHz) using DMSO-d6 as solvent and TMS as internal standard. The FAB-Mass spectra of ligand and complexes were recorded with Thermo Scientific TSQ 8000 Gas Chromatograph-Mass Spectrometer. The thermal analysis was performed with a Perkin Elmer (TGS-2 model) thermal analyzer at a heating rate of 10^{0}C min^{-1} in the temperature range 40-800^{0}C.

2.2. Synthesis of Organic Compounds:

2.2.1. Synthesis of chalcone-

A ketone 1-(3-chloro-6-hydroxy-2-methylphenyl)ethanone (0.01mol) and chlorobenzaldehyde (0.01 mol) was dissolved in a hot ethanol. To this add NaOH (40%) solution dropwise and stirred. The reaction mixture was heated for 5-10 min and by keeping overnight to this mixture adds dil. HCl, the residue obtained was filtered off and recrystalized [8].

2.2.2. Synthesis of Schiff base ligand-

The chalcone 1-(3-chloro-6-hydroxy-2-methylphenyl)-3-(4-chlorophenyl)prop-2-en-1-one (0.01 mol) and isoaniazide (0.01 mol) was dissolved in ethanolic solution. This mixture was refluxed for about 2 hours and the progress of reaction in determined by TLC in solvent medium 9:1 chloroform methanol system. The reaction mixture was added into the ice cold water and the residue obtained dried and further recrystallized by using diethyl ether [9-10].

Yield: 72 %; M.P. 169^{0}C; Colour: Brown.
Anal. Calc./**Obs** for $C_{22}H_{17}Cl_2N_3O_2$: C, 61.98/**61.90**; H, 4.02/**3.98**; N, 9.86/**9.87**; Cl, 16.63/**16.60** %.
IR (KBr, cm^{-1}): 3365, ν(OH); 1612, ν(C=N), 1640, ν(C=O), 1415, ν(C-O).
^{1}H-NMR (DMSO-d6, δ (ppm): 11.38 (s, 1H, OH); 7.49-8.00 (m, 10H, Ar-proton); 2.22 (s, 3H, CH_3); 3.91 (dd, 1H, pyrazoline proton); 4.19 (dd, 1H, pyrazoline proton); 4.61(dd, 1H, pyrazoline proton).

3.3.2 Paper Publish in National/ International conference ,referred journal

Dr. A.P. Thakare (Chemistry) Link- https://www.jetir.org/papers/JETIRDI06012.pdf

© 2020 JETIR February 2020 , Volume 7, Issue 2 www.jetir.org (ISSN-2349-5162)

SYNTHESIS, STRUCTURAL DETERMINATION AND VISCOMETRIC STUDY OF ISOXAZOLINE DERIVATIVES

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[1,2]Department of Chemistry, Shri Shivaji Science College, Amravati (M.S).
[3]Department of Chemistry, Rajarshee Shahu Science College, Chandur Rly (M.S).

Abstract: The Synthesis of isoxazoline derivatives are done by reacting with suitable chalcone and treated with hydroxylamine hydrochloride. The spectral determination was confirmed by using spectroscopic technique i.e. IR, NMR and Mass. Further study has been done by used photophysical property, viscometric measurement, and their thermodynamics parameters Entropy, Enthalpy and Gibbs free energy. The study shows positive value of ΔS, negative value of ΔG and positive value of ΔH which confirms that the reaction is endothermic and spontaneous. The maximum absorption of synthesized derivative 3-(4' methyl phenyl)-5-(furan) isoxazoline was found at 311 nm. The data obtained have been also observed that viscosity of solution increases with increase in the concentration of solution and positive value of B-coefficient may attribute to strong solute-solvent interaction. On the other hand value of A-coefficient is almost negative which indicates weak solute-solute interaction.

Index Terms- Photophysical, viscometric, thermodynamics, isoxazoline derivative.

I. INTRODUCTION

Most commonly known hetero atoms are nitrogen, oxygen and sulphur [1]. In the ring system a part from ring's carbon atoms at least one other atom is present, and then it's designated as a heterocyclic compound [2]. Compounds incorporating heterocyclic ring systems continue to attract considerable interest due to the wide range of biological activities they possess. Amongst them five member heterocyclic compounds occupy a unique place in the realm of natural and synthetic organic chemistry. In recent years, attention has increasingly been given to the synthesis of isoxazoline derivatives as a source of antibacterial agents. The synthesis of novel isoxazoline derivatives remain a main focus in medicinal research [3].

Isoxazoles have illustrious history; their chemistry is associated with Ludwig Claisen, who first recognized the cyclic structure of 3-methyl-5-phenylisoxazole in 1888 and was shown to possess typical properties of an aromatic compound. Dunstan and Dymond were the first to synthesize the isoxazole ring; they isolated a liquid base by heating nitro ethane with aqueous alkalies to obtain 3,4,5-trimethylisoxazole.

Isoxazole derivatives have been widely employed in the commercial world and several applications in the pharmaceutical and agricultural fields can be found [4]. The isoxazole is a five membered heterocyclic ring system containing both oxygen and nitrogen atoms at the adjacent positions (1,2-positions). They are isomers where in the hetero atom occupy (1,3 position). Isoxazole is a five membered heterocyclic compound containing oxygen and nitrogen atoms in the 1,2 positions, its partially saturated analogs are called isoxazolines and completely saturated analog is isoxazolidine [5].

Isoxazoline derivatives have been widely employed in the commercial world and several applications in the pharmaceutical and agricultural fields can be found. Furthermore, isoxazoline derivatives have important application in material science, such as fluorescence sensors, plastics and organ gels. There are modest numbers of reports presenting U-V visible spectral properties of isoxazoline derivatives [6]. In present study we are dealing with U-V visible spectral properties of synthesized isoxazoline derivatives in terms of their photophysical parameter. Isoxazole derivatives are used in the market as COX-2 inhibitor and anti-inflammatory drugs.

Chalcones represent an essential group of natural as well as synthetic products and some of them possess wide range of pharmacological activity such as antimicrobial, antitumor, anticancer, intertubercular, anti-inflammatory, antioxidant, antimalarial, ant leishmanial. The presence of reactive α, β- unsaturated keto group in chalcones is found to be responsible for their biological activity [7]. The viscosity and its derived parameters help study the structural change and intermolecular forces of the electrolyte solution at different

3.3.2 Paper Publish in National/ International conference ,referred journal

Dr. A.P. Thakare (Chemistry) Link-
https://www.jetir.org/papers/JETIR2009149.pdf

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Synthesis, characterization and biological evaluation of some isoxazole derivatives from various chalcones

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[2]Department of Chemistry, Rajarshee Shahu Science College, Chandur Rly.

Abstract : Synthesis and characterization of some isoxazol derivatives has been carried out from chalcone. Initially chalcone were prepared from aromatic aldehyde and ketone in basic medium which then condensed with hydroxylamine hydrochloride. Synthesized compounds were characterized by using NMR, IR and Mass spectroscopic techniques. Spectroscopic data matches with the structure of synthesized compounds. Biological activity of all the synthesized compounds was checked against gram positive and gram negative bacteria. It has been found that all compounds shows good antimicrobial activity. The paper consist of efficient and green method for the synthesis of isoxazole.

Index Terms **– Chalcone, Isoxazole, NMR, IR, Antimicrobial.**

I. INTRODUCTION

The need to reduce the amount of toxic waste and by products arising from chemical processes requires increasing emphasis on the use of less toxic and environmentally compatible materials in the design of new synthetic methods. One of the most promising approaches is the use of water as the reaction medium. Compared to organic solvents the aqueous medium is less expensive, less dangerous, and more environmentally friendly. In recent years, there has been increasing recognition that water is an attractive medium for many organic reactions. Heterocyclic compounds are very important compound in nature, and are essential to life in various ways. These compounds are important because of the their variety of physiological activities associated with this class of substances. Heterocyclic rings are present in several compounds, e. g, most of the members of vitamin B complex, antibiotics, chlorophyll, haemin, other plant pigments, amino acids and proteins, drugs, dye stuffs, enzymes, the genetic material DNA etc. The vast importance of heterocycles in nature product chemistry and pharmacology constantly drive the search for new methods for the construction of heterocyclic unit viz., isoxazoles and pyrazoles. These isoxazoles and pyrazoles were prepared from chalcones which are important intermediate products and they also possess biological and pharmacological activities. Isoxazoles is the five membered ring compound containing nitrogen and oxygen atom and possess interesting medicinal properties and have some industrial utility. Derivatives of Isoxazole have played a crucial role in the history of heterocyclic chemistry and been used extensively important pharmacophores and synthons in the field of organic chemistry. Many biologically active isoxazoles and reduced isoxazole derivatives have been reported. In this paper we have described the synthesis of some chalcone and isoxazole derivatives [1- 4]. Initially chalcones were prepared by condensing aromatic aldehyde and ketone. These chalcone then condensed with hydroxylamine to form isoxazole.

II. EXPERIMENTAL

All melting points were determined in open glass capillaries and are uncorrected. The IR spectra were recorded on KBr disc using Perkin Elmer-1800 intrachord. 1HNMR and ^{13}C NMR spectra were recorded in $CDCl_3$ on Brucker Avance 400MHz spectrophotometer with TMS as internal standard (chemical shifts are expressed in δ ppm). Themass spectra were recorded on a Joel SX-102 (EI/CI/FAB) mass spectrometer at 70 eV. The reactions were monitored by the TLC on silica gel G plates in the solvent system benzene–methanol mixture (9:1). All reagents were purchased from commercial suppliers and used without further purification. The compound includes 2-hydroxy-4-methylacetophenone, benzaldehyde, p-chloro benzaldehyde, anisaldehyde, 4-methyl benzaldehyde.

Synthesis of chalcone:
A mixture of 0.01 mol 2-hydroxy-4- methylacetophenone and 0.01 mol various aldehyde added into ethanol solvent. To this reaction mixture 20 % NaOH added and heated for several minutes' upto formation of solid residue. By keeping overnight residue neutralized by ice cold HCl solution, filtered and dried in oven [5-7].

Synthesis of isoxazole:
When an equivalent mixture of synthesized chalcone and hydroxylamine hydrochloride was stirred at 50° C in aqueous media, various isoxazole derivatives were obtained in good yields [8-10].

3.3.2 Paper Publish in National/ International conference ,referred journal

Dr. S.P. Patharkar (Botany) Link-

file:///C:/Users/Aspire/Downloads/Impactofstoragefungiontheseedgerminationofmungbean.pdf

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Impact of storage fungi on the seed germination of mungbean (*Vigna radiata* L.)

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Abstract

Fungi that grown on seeds during storage causes germination decrease, visible moldiness, discoloration, chemical and nutritional changes, reduction in processing quality and formation of mycotoxins. These deteriorative changes affect the grade and the price of seeds and contribute to customers dissatisfaction when the seeds are marketed. The studies were conducted to evaluate the seed quality change during storage. In the present study, seeds of mungbean were examined for the incidence of seed borne fungi and impact on seed germination during storage. Standard blotter paper and agar plate method was used to isolate seed borne fungi, whereas, seed germination was determined by rolled paper towel method. Total 15 fungi were isolated and identified from the seeds of mungbean. Incidence of fungi was found to be more on blotter paper method. Thus blotter paper method found to be better than agar plate method for the isolation of fungi. The freshly collected seed samples showed maximum germination ie.94.5%, but as the storage period increased there was decrease in germination % of seeds.

Keywords:Storage, seed-borne fungi, germination%, Mungbean

Introduction :

Seedhealth is the foundation of healthy plant, a necessary condition for good yield (Diaz *et.al*., 1998). Among various factors which affects the seed health the most important is the seed borne fungi, that causes reduction in seed germination and seed vigour. Seed borne diseases have been found to affect the growth and productivity of crop plants.

Mungbean (*Vigna radiata* L.) is one of the 13 food legumes grown in India, they are excellent source of easily edible protein. It contains 26% protein, 51% carbohydrates, 10% minerals and 3% vitamins (Khan, 1981). The climate and other agro-ecological conditions are highly favorable for plant disease caused by fungi, bacteria, viruses and nematodes for which pulses suffer from a number of diseases. As many as 17 and 16 diseases have been reported on mungbean. Many of these diseases have been reported as seed borne (Pakir, 1983). Fourteen seed-borne mycoflora were recorded in mungbean among them *Botryodiplodia palmarum, Cercospora kikuchii, Colletotrichum truncatum, Diaporthe phaseolorum* var. *sojae, Fusarium equiseti, Fusarium moniliforme, Macrophomina phaseolina* and *Myrothecium roridum;* which caused seed rot, leaf spots, seedling blight or collar rot in the artificial inoculation tests (Ramnath *et. al*., 1970). Besides those, the members of the genera *Aspergillus, Penicillium* and *Rhizopus* remain associated with

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Dr. M. J. Keche (Botany) Link-
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Some Traditional Plants adverse effect and its Modality as Resource

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Abstract

Since long time large proportion of the people both in rural and urban centers rely on traditional plants for their every day health needs. In developing countries it is common practice of using herbal medicines. Some herbal medicine can have dangerous side effects and can leads to major complications due to overdose taken. Plant parts of *Terminalia bellerica ,Mahia maderaspatana* , *Marsilea minuta* and many more can resulted in complications due to excess consumption. The effect of this is an inadequate knowledge of their mode of action, potential adverse reactions. Studies and awareness needed to avoid such complications.

Key words: Traditional plants, herbal medicine, adverse reaction, public health.

I INTRODUCTION

Now a days with the pandemic going on with Covid-19 obviously public interest increases in natural therapies both in developing and developed countries. Herbal remedies being available in drug stores, local markets, in food stores and also in supermarkets. It is estimated that up to four billion people (representing 80% of the world's population) living in the developing world rely on herbal medicinal products as a primary source of healthcare and traditional medical practice which involves the use of herbs is viewed as an integral part of the culture in those communities (2).Medicinal plants are resources of new drugs. It is estimated there are more than 250, 000 flower plant species. Studying medicinal plants helps to understand plant toxicity and protect human and animals from natural poisons. Cultivation and preservation of medicinal plants protect biological diversity; pharmaceutical industry extracts the active ingredient to make plant-derived drugs. In routine life people are practicing for very few exotic plant crops, advocacy of wild plants can provide a solution for both nutrition and health benefits. Tribal groups and folk people all over the planet have their own knowledge, culture and life style. Traditional herbal treatment is preferred with the belief that it will promote healthier living. Herbal medicines are, therefore, often viewed as a balanced and moderate approach to healing individuals who use them as home remedies and over-the-counter drugs spend

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Dr. A. P. Pachkawade (Physics) Link- https://ijsrst.com/paper/9700.pdf

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The Divergence of the Laser Beam Emitted by this Segment Would Have Less Angle of Divergence Because the Plasma Has Less Thickness

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ABSTRACT
The angle of divergence of output beam are different for Copper Vapour Laser and pulsed laser. The angle of divergence determine the photon flux when the beam is focused using focusing optics. Further the output beam is focused the diverging beam converges and get focused at the same point. In the present work, the analytical expressions are obtained for the peak power output of the CVL without mirror, the intensity of the laser radiation across the laser beam and peak power angle of divergence along the diameter of the discharge tube. The angle of divergence is determined by the absorption coefficients, initial inversion density and the dimensions of the laser plasma column in a direction perpendicular to the direction of propagation of the beam. The angle of divergence also increase with the dimensions of the plasma column in a direction perpendicular to the direction of propagation of the beam. From the calculation of peak power across the laser beam desired angle of divergence may be obtained. The half peak power angle of divergence for initial inversion density 0.2 and 0.4 are 20mrad and 30mrad respectively in Copper Vapour Laser.

Keywords:- Copper Vapour Laser, laser radiation, inversion density, dimensions of the laser plasma.

I. INTRODUCTION

Especially in the copper vapour laser the vapours of the chemical elements are extensively used as the active medium [1]. In some designs the bids of copper metal are used as the source of copper. The laser beam is characterized by spectral band-width, the wavelength, output power, polarization and angle of divergence. The most important characteristics of any laser is the divergence of its output radiation which plays very important role in the determination of photon flux. The angles of divergence of output beams are different for CV lasers and pulsed lasers. In case of pulsed lasers the divergence may vary during the formation of the output pulse. The angle of divergence determines the photon flux when the beam is focused using focusing optics. Further when the output beam is focused the diverging beam converges and gets focused at some point. There are many methods for measuring the angle of divergence, such as the methods of sections, recording of the angular distribution and of intensity methods of focal spot [2]. A method for on line analysis by line scanning of a focal spot is suggested in work of A.P.Anerovov et al [3]. However, all these methods are not sufficient to give the idea about the evolution of the divergence during the formation of output pulse. O.

3.3.2 Paper Publish in National/ International conference ,referred journal

Dr. S. P. Patharkar (Botany) Link- PhytochemicalAnalysisofAzadirachtaindica.pdf

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Phytochemical Analysis of *Azadirechtaindica* A. Juss.leaves.

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Abstract *:Azadirechtaindica* is a member of family Meliaceae. Products made from neem leaves have been used in India for their medicinal properties. It contains pharmacologically bioactive compounds which are used for curing of various human diseases and also play an important role in healing. Neem products are believed by Ayurvedic practitioners to be anthelmintic, antifungal, antibacterial, antiviral, antidiabetic and anti-inflammatory activities. Primary phytochemical constituents include chlorophyll, proteins, sugar and amino acids. Secondary constituents contain terpenoids, saponins, flavonoids, steroids, glycosides, cardiac glycosides and alkaloids.
In the present study three different solvents were used *viz.* water, ethanol and methanol. Qualitative phytochemical investigations for leaves were carried out and results about occurrence are reported. During investigation, uniform presence of alkaloids was reported for all solvents. Glycosides, Tannins, Cardiac glycosides and Terpenoids were not evident in all the solvent systems. Selective presence of Saponins, Flavonoids and Steroids was noted. This combination of the phytochemicals creates possibility of justification of the claimed as well as prospective medicinal application.

Keywords -*Azadirechtaindica*, medicinal plants, phytochemical analysis.

I. INTRODUCTION

Phytochemicals, a term given to naturally occurring, non-nutritive biologically active chemical compounds of plant origin, have some protective and disease preventive properties. Some phytochemicals are injurious to fungi and could be used to protect animals, humans, crops, food and feeds against toxigenic fungi and mycotoxin (OMAF 2004). Phytochemicals vary in plants depending on their growing conditions, varietal differences, age at harvest, extraction methods, storage condition at age of sample also. In recent years, the need to develop fungal disease control measures using phytochemical as alternative to synthetic chemicals has become a priority of scientist worldwide (Reddy et al., 2007). Therefore, it is important to find a practical cost effective and non-toxic method to prevent fungal contamination and mycotoxins load in stored farm produced. Today there are strict regulations on pesticides use and there is political pressure to remove the most hazardous chemicals from the market. Hence, use of natural plant extracts and bio control agents provides an opportunity to avoid chemical preservatives (Pal and Gardener, 2006).
The selection of this plant was based on the observation that these are being used by local healers intensively for treatment of various ailments grown widely. The details of thisplant are as follows:
AzadirechtaindicaA. Juss.

It is commonly known as neem belongs to the family Meliaceae. It is native of India and widespread in the world. The chemical constituents contain many biologically active compounds that can be extracted from neem, including alkaloids, flavonoids, triterpenoids, phenolic compounds, carotenoids, steroids, ketones and azadirectin also. It contains antibacterial, antifungal activities against different pathogenic fungi. Neem leaf is effective in treating eczema, ringworm and acne. It has antihyperglycemic, anti-inflammatory properties.

II. MATERIALS AND METHODS

Collection of plant materials:

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Dr. S. P. Patharkar (Botany) Link-

NutritionalChangesinOilseedMustardBrassicacampestrisL.Dueto.pdf

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Nutritional Changes in Oilseed Mustard (Brassica campestris L.) Due to Storage Condition

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Abstract

Brassica compestris L. is an Indian mustard. It is becoming increasingly important crop due to their extensive cultivation in Amravati region. The major aspects in this areas are the role of fungi associated with oilseeds in storage in bringing about their deterioration Many fungal species has been detected in seed sample mustard oilseed. Due to its rich nutrient content, such as seeds, pods and seedlings are susceptible to fungal attack. The spreading of seed-borne diseases due to contamination of seeds are the primary sources. An isolation of fungal flora associated with seeds (externally and internally) was made at interval of monthly basis from seeds of mixed samples of *Brassica campestris* L. Due to storage period increasing, there was continuous decrease in the germination percentage.Considering this fact, experiments were undertaken to understand nutritional changes like change in nitrogen, change in crude protein content and change in oil content of oilseeds due to artificial infestation of storage fungi.

Key words: Mustard seed, seed-borne fungi, storage fungi, germination percentage.

Introduction:

In India, both in field and storage condition, several fungi have been reported from time to time to infect oilseeds crops. The problems formed by fungi are more acute in India, because of its tropical climate, which is warm and humid facilitates the fungal growth and invasion. Seed is the basic unit in crop production technology. It plays crucial role in the healthy crop productivity on the globe and is vulnerable to carry a heavy load of microorganisms which are capable of causing spread of diseases and considerable loss of the yield, in turn adversely affect the global agricultural economy (Bhajbhuje, 2014).

In agriculture, seeds of many crops are known to carry many pathogenic and non-pathogenic fungi which are commonly known as seed mycoflora or seed-borne fungi. Depending on the presence of fungi either on seed coat or in the seed it is further called as external seed-borne fungi and internal seed-borne fungi. The changes in chemical constituent in cell have been related to viability of seed. Because the fungi growing on stored seeds can reduce the germination rate along with loss in the quantum of protein, carbohydrate and total oil content, increase in moisture content, free fatty acid content enhancing other biochemical changes during storage period. The tropical climate with high temperature and high relative humidity along with unscientific storage condition adversely affect the preservation of cereal grains, oilseeds etc. which lead to the total loss of quality and quantity of seed production

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Dr. R. N. Bhagat (Physics)

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Capacitance Study Of Pva Based Polymer Gel Electrolyte

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Abstract:
An attiempt has been made to prepare polyvinyl alcohol (PVA) based gel electrolyte in ammonium thiocyanate(NH4SCN) solution and to characterized it by XRD and Capacitance study. The synthesized polymer gel electrolyte was characterized using X-ray powder diffraction (XRD) to study electrolyte's amorphousphase. In capacitance study for 0.5 gm, 1 gm and 1.5 gm PVA, capacitance increases linearly but in 2 gm and 2.5 gmPVA gelsamples, capacitance increases but not linear, however two peaks are observed.

Keywords: Polymer gel electrolyte, XRD, Capacitance.

Introduction:

The properties of gel polymer electrolyte (GPE) was found to mainly depend on the structure of the polymer matrix that makes up the gel in addition to the interaction of the network and the salt. The polymers are known to be dissolved in a large amount of the confined solvent, so GPEs commonly possess high mobility [1]. The ionic conductivity of GPE generally depends on the lattice energy of the salts and the dielectric constant of the host polymer [2]. The conducting salt in GPE usually offers free mobile ions that play a vital role in the conduction mechanism while the solvent supports in dissolving the salt and acts as a conducting medium where the polymer provides mechanical stability by increasing the viscosity of the electrolyte [3]. The apply conducting salt must possess a significant amount of ions (both anions and cations) and low dissociation energy so as to allow easy dissociations. Previous study reveals that electrical transport properties in GPE occur via an amorphous structure relatively than in the crystalline phase. Hence, it's better to choose a polymer host that is predominantly amorphous or semi-crystalline for example polyvinyl alcohol (PVA) having an amorphous content at room temperature [4]. Moreover, PVA is a flexible and translucent material with lesser reactivity to metal-based anode, thus providing the possibility for the enhancement of electrode/electrolyte interfacial strength. These merits provide considerable motivation to transform PVA that is mainly insulating into an ionically conducting system [5].

Now a day's a tremendous role play in technical applications of electrochemical energy storage devices therefore Most of the research is devoted to identify the materials which are suitable to computers, communication devices, industrial controls, electric vehicles, space chips etc [6]. Batteries are crucial components of such devices; they must meet certain standards of reliability, weight, size, shape. Gel polymer electrolyte material in electrochemical cell system has two different functions such as an electrolyte and as a separator between anode and cathode. Gel Polymer electrolytes exhibits better ionic

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Dr. A.D. Bansod (Chemistry)

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Synthesis, Characterization, and Catalytic Activity of Some Polychelates of Salen Type Schiff Base

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ABSTRACT

Coordination polymers of Mn(II), Fe(II), Co(II), Ni(II), Cu(II), Zn(II) and Cd(II) with the salen-type Schiff base 4,4'-bis-[(N-ethanesalicylaldehydediamine-5)azo]biphenyl methane and have been prepared and characterized by elemental analyses, IR and electronic spectra, magnetic susceptibility measurements and thermogravimetric analysis. Thermogravimetric analysis confirms the coordination of H_2O in complexes. ^1H NMR spectrum of ligand clearly indicates presence of OH and azomethine groups. The octahedral geometry have been suggested for Mn(II), Fe(II), Co(II) and Ni(II) complexes, square planar geometry to Cu((II) whereas tetrahedral for Zn(II) and Cd(II) polychelates .Thermal data have been analyzed for kinetic parameters by both Coat-Redfern and Broido methods. Oxidation of styrene with selected catalysts was tested using H_2O_2 as an oxidant.

Keywords: Schiff base, polychelates, Thermogravimetric and catalytic activity

Introduction

Schiff bases offer a versatile and flexible series of ligands capable to bind with various metal ions to give complexes with suitable properties for theoretical and practical applications. Polymeric coordinating reagents are a novel type of ligands giving complexes having a mixture of the physical properties of a polymer and the chemical properties of the ligand. Coordination polymers derived from polymeric schiff bases have been studied extensively, however little systematic work seems to have been done on the preparation of polychelates derived from the schiff base of bisalicylaldehyde. In such symmetric bis-bifunctioning terminally metallizable schiff bases the donor atoms on the rings are widely separated, so that the ligand can coordinate with two metal atoms from the both ends giving chelate polymers. Moreover polymeric metal complexes derived from simple or polymeric coordinating ligands are generally insoluble in common solvents, have several active sites available within the molecule and are thermally stable 1. Thus, these materials may also enjoy advantageous features of heterogeneous catalysts. Catalytic activities of such materials are documented in the literature [2,3]. The use of transition metal complexes as catalysts for epoxidation reactions has received increased attention during the last decades [4-6], particularly by the interest in understanding reactions of biological importance where the metal ion plays a central role. [7].

Considering the relevance and significance, here, we report the preparation and characterization of Mn(II), Fe(II), Co(II), Ni(II), Cu(II), Zn(II) and Cd(II) polychelates with the bis salen-type ligand derived from 4,4'bis-[(salicylaldehyde-5) azo]biphenyl methane and 1,2- diaminoethane.

3.3.2 Paper Publish in National/ International conference ,referred journal

Dr. M. P. Chikhale (Zoology)

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Effect of the combined oral steroidal contraceptives pill (ethinylestradiol + norgestre) on the female wistar rats ovarian histological alteration.

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Abstract

The effects of steroidal and non-steroidal contraceptive oral pill on ovarian histological alteration were studied in wistarfemale albino rats for 30 days. The steroidal combined oral contraceptive pill (norgestrel + ethinylestradiol) was diluted to 0.14mg/ ml (Low Dose) , 0.21 mg/ml (dose as per literature), and 0.43 mg/ ml (high dose). In present study consumption of steroidal pills has resulted into dose dependant increase in ovarian stroma resulting into compressed graafian follicle at a dose of 0.21 mg/ml/rat/ day. In addition to compressed graafian follicles, the ovarian stroma was found to be fibrosed at a dose of 0.43 mg/ml/rat/day.The altered secreations of the FSH, LH, progesterone and estrodiol in the present investigation also indicate some negative effect on the ovarian activities.More research is needed to calculate the perfect dose which will not lead to any adverse effect.

Keywords: Steroidal oral pill, ovarian histological alteration, female wistar albino.

Introduction:

The discovery of estrogen and progesterone and their potential contraceptive effects led to an enormous amount of research on fertility regulation in females. Oral contraceptive alloweffective and convenient family planning for women and couple worldwide and have revolutionized the reproductive lives of millions of females.The estrogen component of combined oral contraception is either ethinylestrodiol ormestranol and the progestagensused are cyproterone acetate, desogestralethynodioldiacetate, gestodene, levonorgestrel, lynoestrenol, megestrol, norethisterone, norethisterone acetate, norethynodrel, norgestimateand norgestrel.During this time, there have been numerous reports on various side effects, particularly thromboembolic phenomena, diabetic type changes, mental depression and breast changes. Histologic changes, especially those potentially associated with tumor formation, represent another area of concern, one with more obviously serious implications.Histologic changes in the ovaries following contraceptive administration include cortical fibrosis, follicle degeneration, decreased luteinization, cyst fbrmation and increased vascularity (Maqueo, M *et. al.*,1972) The Chemical contents in contraceptive oral pills are known to produce large number of histological alterations. Therefore, we designed this study to observe the effects of steroidal combined oral pill (ethinylestradiol + norgestrel) contraceptives on ovarian histological alteration in the female wistar rats.

Materials and Methods

Experimental Animal Models :-

The present study was carried out in wistar female albino rats weighing about 125g ± 2 g. The animals were procured from National Institute of Nutrition (NIN), Hyderabad. Animal experiments were conducted according to " INSA – Ethical guidelines for use of

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Dr. R. V. Kene (Mathematics)

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A Differential Equation Analysis of Pandemic Disease Spread

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Abstract:

Corona virus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus.The outbreak of Covid-19 disrupts the life of many people in the world. It is difficult to accurately predict the Covid-19 cases due to many human factors involved. Differential equations constitute one of the most powerful mathematical tools to understand and predict the behavior of dynamical systems in nature, engineering, and society. A dynamical system is some system with some state, usually expressed by a set of variables that evolves in time. For example, an oscillating pendulum, the spreading of a disease and the weather are examples of dynamical systems. This paper aims to provide the rate of infected people due to Covid-19 by using differential equation.

Introduction:

Coronavirus disease is likely to emerge as a watershed moment in the history of the planet. COVID-19, the abbreviation of Coronavirus disease (2019), is caused by a severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2) [1], which hit the globe with a bang. In December 2019, the first outbreak was noticed in Hubei province, Wuhan, China [2]. On 30 January, 2020, the World Health Organization (WHO) revealed the COVID-19 to be a public health emergency and identified it as a pandemic on 11 March, 2020. The symptoms of COVID-19 are not specific, and many cases showed that an infected person might be asymptomatic. The majority of the cases have two common symptoms which include dry cough (68%) and fever (88%). Some of the cases have symptoms that include fatigue, muscle and joint pain, respiratory sputum production (phlegm), sore throat, loss of the sense of smell, headache or chills, and the shortness of breath. Moreover, the growth of this infection can further proceed to acute respiratory distress syndrome, severe pneumonia, and death. The COVID-19 virus spreads to large extent between people in close contact with each other (within approximately 2 m). The common incubation period ranges from 1 to 14 days [3]. In the absence of a definitive treatment modality like a vaccine, physical distancing has been accepted globally as the most efficient strategy for reducing the severity of disease and gaining control over it [4]. The concealment of physical contact in working environments, schools and other open circles is the objective of such preventive measures. A differential equation is a mathematical equation for an unknown function of one or several variables that relates the values of the function itself and its derivatives of various orders. Differential equations play a prominent role in engineering, physics, economics and other disciplines. One thing that will never change is the fact that the world is constantly changing. Mathematically, rate of change are described by derivatives. If we try and use maths to describe the world around us like the growth of plant, the growth of population, the fluctuations of the stock market, the spread of diseases, or physical forces acting on an object. Most real life differential equation needs to be solved numerically and many methods have

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Dr. A. P. Pachkawade (Physics)

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Recent Depostion Techniques In Thin Films And Their Applications

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Abstract:

Thin films have a great importance in the modern technology. In the present today's world thin films are commonly thought of in connection with the various fields such as optical devices, solar cells, environmental applications, telecommunications devices, energy storage devices, and so on. The important factor for all applications of thin films depends on their structure and the stability. Thin film is a layer of material having small thickness which can produces by physical vapor deposition (PVD) and chemical vapor deposition (CVD) methods. In present work, we take some advance techniques and principles of thin film depositions.

Keywords: thin films, physical deposition, chemical deposition, thin films applications.

Introduction

Thin films is a collaborative research field involving such as materials science, surface science, and applied physics. [1]The main purpose of depositing thin film optical coatings on an optical surface is to modify the properties of the thin films in order to provide the environmental protection and to improve optical performance . Thin films properties depend on a number of interrelated parameters and also on the technique employed for their fabrication. It has great potential for scientific, industrial, consumer andmilitary applications. Efficient techniques have been developedby researchersfor extremely well controlled growth of thin films, and are currently active in computer modelling for predicting physical and chemical properties of new thin films materials.[2]

Most deposition techniques follow these three major sequences:

1. Synthesis of the deposition species,
2. Conveyance from source to substrate,
3. Deposition of the source on the substrate for thin film growth.

Deposition for forming layers below one micron. The prominent subsets of deposition techniques are physical vapor deposition (PVD) and chemical vapor deposition (CVD).Basically there are two ways to deposit the thin film.

1) Physical deposition techniques

i) Evaporation techniques

This technique is considered as the common deposition of materials in the form of thin layer films. The general mechanism of these methods is done by changing the phase of the material from solid to vapor and again converting solid phase on the specific substrate. This is done under controlled atmospheric condition or under vacuum conditions. In this a solid material is heated inside a high vacuum chamber, taking it to a temperature which

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Dr. M. P. Waghmare (Library)

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National Digital Library of India (NDLI)Services for the Nation: A Study

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Abstract

With the use of ICT tools the quality and quantity of contents available online arewidely developed. The NDLIprovides open access of digital content into one common online platform to the all-types users. This topic we are giving the information about National Digital Library of India and its technology enabled services to the nation.

Keywords:NDLI, ICT, E-resources, NDL India,Umang

Introduction:

Everyday new technological advances affect the way information is handled in libraries. The impacts of technologies are felt by libraries in every aspect. The academic library has been from its inception an integral part of institutions of higher learning, rather than an appendix or adjunct. Internet has radically transformed access to information. ICT has impacted on every sphere of academic library activity especially in the form of the library collection development strategies, library building and consortia. ICT presents an opportunity to provide value-added information services and access to a wide variety of digital information resources to their clients. Furthermore, academic libraries are also using modern ICTs to automate their core functions, implement efficient and effective library cooperation and resource sharing networks, implement management information systems, develop institutional repositories of digital local contents, and digital libraries: and initiate ICT based capacity building programmes for library users.

In India, National Digital Library is the one of that which causes grate impact on the e-resources. NDLI has been formed for free of cost services to all types of users such as students of all levels, teachers, professionals, researchers, public, differently abled people, all lifelong learners, librarians, library users. NDLI is an all-digital library that stack content (metadata) about various types of digital information such as books, journal article, audios, videos, thesis and presentation, simulation and other education information relevant for the users. NDLI access are available on all popular forms of access devices including mobile apps such as NDL India app, Umang apps on android and iOS platforms for users.

NDLIinitiated by the Ministry of Human Resource Development under National Mission on Education through Information and Communication Technology (NMEICT). NDLI starts as pilot project in April, 2015 with cost of Rs. 39.8 Corers. The Indian Institute of Technology, Kharagpur is the coordinator of this project.The NDL Portal has been made available at https://ndl.iitkgp.ac.in form February, 2016 with 24X7. NDLI was dedicated to the nation on dated 19th June 2018 by the hands of Union Human resource minister Prakash Javadekar.

NDLI provides the facilities of single window search and browse the e-resources for users. National Digital Library is accessible to all types of users such as students from KG to

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Assessment Of Important Bio-Active Constituents From Anisomeles Indica(Linn.)Kuntze.

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ABSTRACT

Anisomeles is an aromatic genus that belongs to the family Lamiaceae subfamily Lamioideae and is distributed in Asia, Australia,Philippines,and Malaysia. The genus was described by Robert Brown (1810).The members of this genus are characterized by the presence of glandular hairs on the floral parts. *Anisomeles indica*(Linn) Kuntze,(Indian Catmint)is locally known as *Kala bhangra* .It is a camphor-scented large perennial woody-shrubby plant which can reach up to 2 m tall, it grows in moist sandy loam, lateritic and granitic soil.The stems are quadrangularand leaves are (broad) ovate. Aqueous extracts are used in ethno-botany to treat disorders like inflammation, gastric dysfunction. The essential oil obtained from this plant is useful in urine infection, gastrointestinal disorders, and liver disease. It iswidely used in traditional systems of medicine from several decades in many countries. *Anisomelesindica* was assessed for its potential inhibitory activity against *Phalaris minor* and other weeds of the wheat crop. The in depth phytochemical examination revealed the presence of aromatic phytoconstituentsin leaves namely Tyramine,N-Butylpyrrole, Retinyl acetateand Pentyl anthranilate.

Key words: Lamiaceae, GC-MS analysis, aromatic compund *Anisomeles indica*.

Introduction.

The genus *Anisomeles*is one of the old world Asian-Australian genus widely distributed in countries like Sri Lanka, China,Indonesia, India, Japan, Philippines and in Australia.*Anisomeles indica* (L.) Kuntze,belongs to the family Lamiaceae (Labiatae), underorder Lamialesof the class Magnoliopsida (Arisawa*et al.*, 1985). These plants occupy various weedy habitats and can grow on both moist and arid soils.

Anisomeles indica (L.)Kuntze,grows in moist sandy loam, lateritic and granitic soils (Aluri 1992).The members of this genus are characterized by the presence of glandular hairs on the floral parts,itis a camphor-scented large perennial woody-shrubbyplant which can reach up to 2 m tall.The stems are quadrangularand leaves are (broad) ovate (Sivarajan &Manilal 1972).

Inflorescence comprises few to many verticils arranged in a spike-like structure at the end of each branch.The plant grows as a weed in wild. In India it is commonly called as *'Indian Car mint'* and*Kalabhangra*.The other vernacular names for the plant are, English-Malabar catmint; China-Pang feng cao; Malaysia-Pokok Atiati; Indonesia-Ramput Ati-ati (Bangra); Congo-Sauang-sauang (Mbo.); Philippines-Kabling lalake; Hindi-Kalabhangra, Gobara; Marathi-Gopali,(Dharmasir*et al.*, 2003).

The leaves of this plant are used to cure diseases like inflammation and they have antiseptic and antibiotic properties (Sikarwar*et al.*, 1993).Theplants of *Anisomeles indica*

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Characterization and Chemically Synthesized Cadmium Sulfide/ Polyvinyl Alcohol Nanocomposites

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Abstract: The thickness of all thin film samples are measured by occulometer in conjunction with microscope. The thickness was found to be of the order =15.38 nm of all the samples and taken constant throughout the entire work. Composite thin films of CdS filled Polyvinyl Alcohol were prepared by solution evaporation technique with different weight percent. The complex formation in CdS/PVA composite system has confirmed from the XRD result, it shows that the intensity of the crystalline peak of the XRD pattern decreases and the area under the peak was broadening. From diffractograms it is observed that as percentage of CdS in PVA increases peak shifted towards the lower angle, along with increase in peak width whereas peak height decreases. This type of findings might be due to the small size of the crystal.

Keywords: Nanocomposite thin film, XRD, CdS.

1. Introduction

Thin films now occupy a prominent place in basic research and solid state technology. The use of thin film semi-conductors has attracted much interest in an expanding variety of application in various electronic and optoelectronic devices due to their low production costs. Cadmium sulfide (CdS) is one of the most prominent II-VI compound materials because of its wide range of application in various optoelectronic, [1, 2] piezo-electronic [3, 4] and semiconducting devices as its conductivity is high [5]. The CdS has intermediate energy band gap, reasonable conversion efficiency, stability and low cost [6]. The general principles in the construction of optical composites involves the intimate mixing of optically functional materials within a process able matrix where the small particles possess the desirable optical properties and the enclosing matrix imparts process ability in the film or fiber forms.
The use of thin film polycrystalline semiconductors has attracted much interest in an expanding variety of applications in various electronic and optoelectronic devices and this is because of its low production costs. Many properties of nanocrystalline materials are found to deviate from those of coarse grained polycrystalline materials with the same average chemical composition. These deviation result from dimensionality of nanometer sized grains and numerous interfaces between adjacent crystallites [4]. A major goal of research work is to study optical properties of Nano crystalline materials doped with polymer polyvinyl alcohol.

2. Experimental

2.1. Materials

The polymer PVA used in this work was kindly supplied by Sd-Fine Chem limited Mumbai with molecular weight of 14,000 with 100% purity. The viscosity of 4% aqueous solution of the polymer at 200 C range from 35-500Cs. The residual polyvinyl alcohol is 0 to 3% and maximum ash 1% degree of hydrolysis is 86-89%.

2.2 Synthesis of CdS/PVA thin films

The Solution evaporation method was used to obtain film samples [7, 8]. The unfilled Polyvinyl and Cadmium Sulfide filled Polyvinyl Alcohol thin films were prepared by dissolving PVA resin (MW 14,000) in a mixture of distilled water and

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Music File Recovery

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Abstract-

The Tune is generally recovered by arranger or subject request. The tune is possible, with current development, to recuperate tune from collected data dependent on two or three notes murmured. In Music document recovery the "question", single piece of melody murmured by the client, is utilized to coordinate a collected datatracks to discover the passage that is perfectly coordinated with collected data. Finally probably obtained result is taken. Music document recovery framework is intended to concentrate pitch form data from beginning line of tune. Concentrate tune from each tune and subsequently we will demonstrate the tone in our very own voice and match. We expel tune from this tune and a short time later recoup the contrasting tunes.

Keywords-Music, Pitch, Melody

1. INTRODUCTION

This paper presented recovery framework dependent on tune, of the music. While the Melody comprise of at least one melodic expression and are normally rehashed all through a tune or piece in different structures. Tunes may in like manner be delineated by their melodic development or the pitches or the breaks between pitches.

A tune Recovery system empower a client to murmur short piece of a tune and a short time later look and recoup the planned tune from the collected data made by client.

Question which is ordinarily several notes ('na' or 'ta') sung by the customer is set up to perceive its tune features. The collected data is organized with request. On the off chance that the database is coordinated with inquiry, at that point melody is recover. For music document recovery ten Hindi tunes is used as a collected data. In gathered information pitch shape is found for the short bit of the tune and a while later pitch structure is address using picture like "G","B","E" and "*".Where "G" address greater pitch structure, "B" address below pitch structure, "E" address equal or repeated pitch shape, '*'represent starting pitch shape.2. EXPERIMENTAL

2.1MELODY EXTRACTION

This paper presented recovery framework dependent on song, of the music. While the Melody comprise of at least one melodic expression and are generally rehashed all through a tune or piece in different structures. Tunes may moreover be portrayed by their tune development or the intervals between tune peaks.

Tune is a significant descriptor of music, so tune based looking (inquiry by tune) is an exceptionally regular method for connecting with music accumulations. Song can be characterized as a sound-related item that keeps up its personality under specific changes, in some cases with changes in mood; yet infrequently with changes in shape. Likewise with other intellectual percepts, it is hard to separate song from genuine sign.

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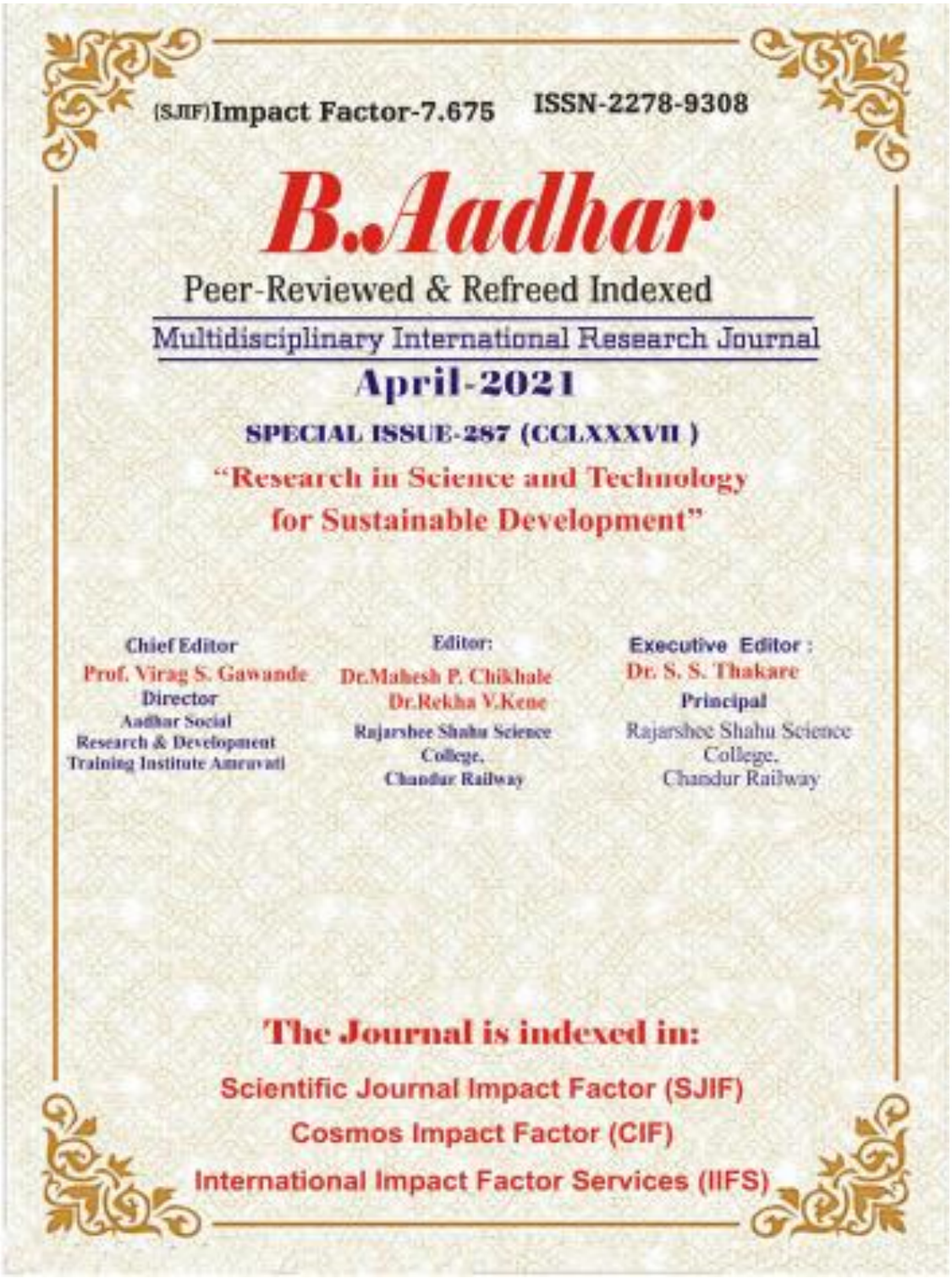

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