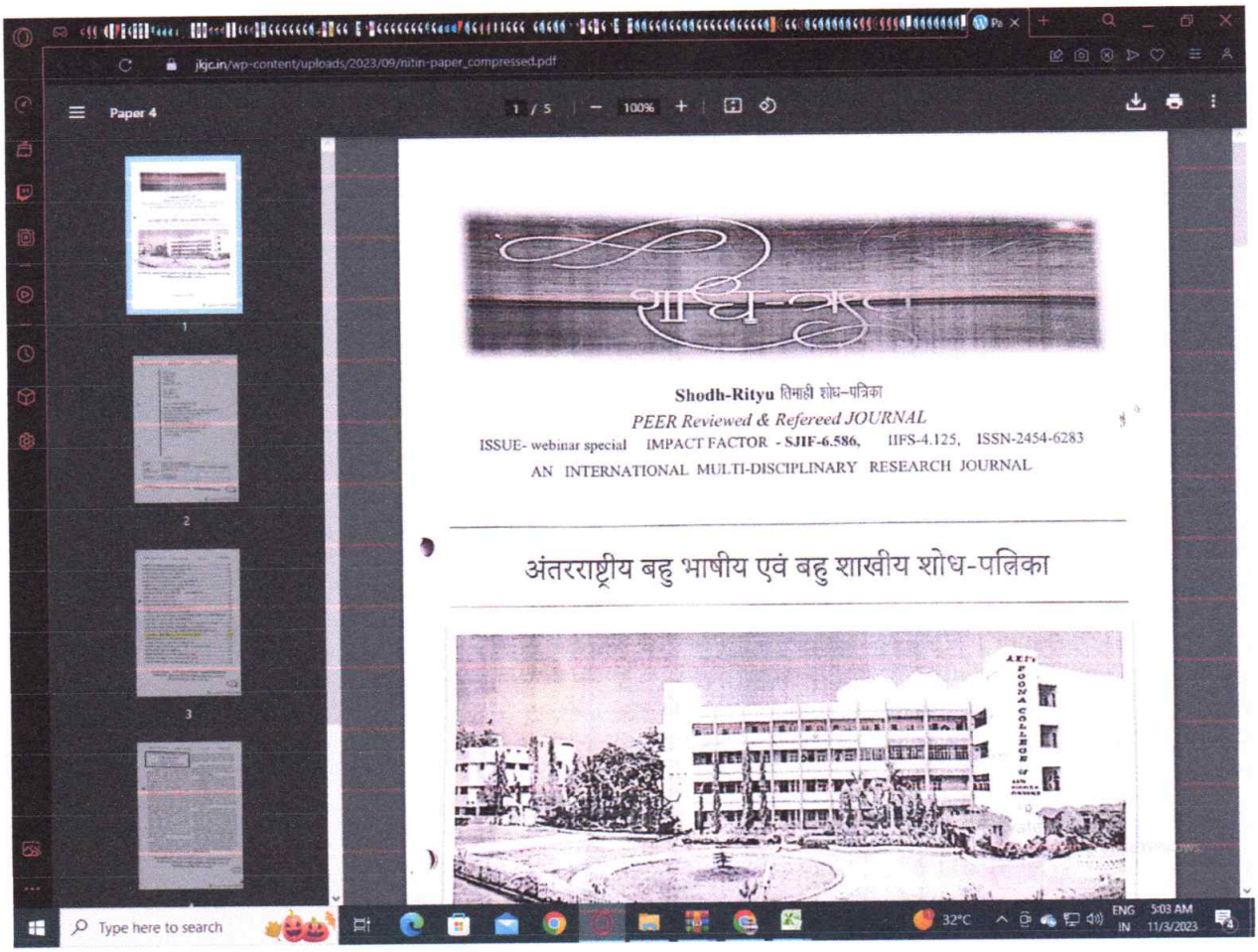

Name of Journal: ShodhSahitya

Name of Author : Dr. Gaikwad N. R. in year 2021

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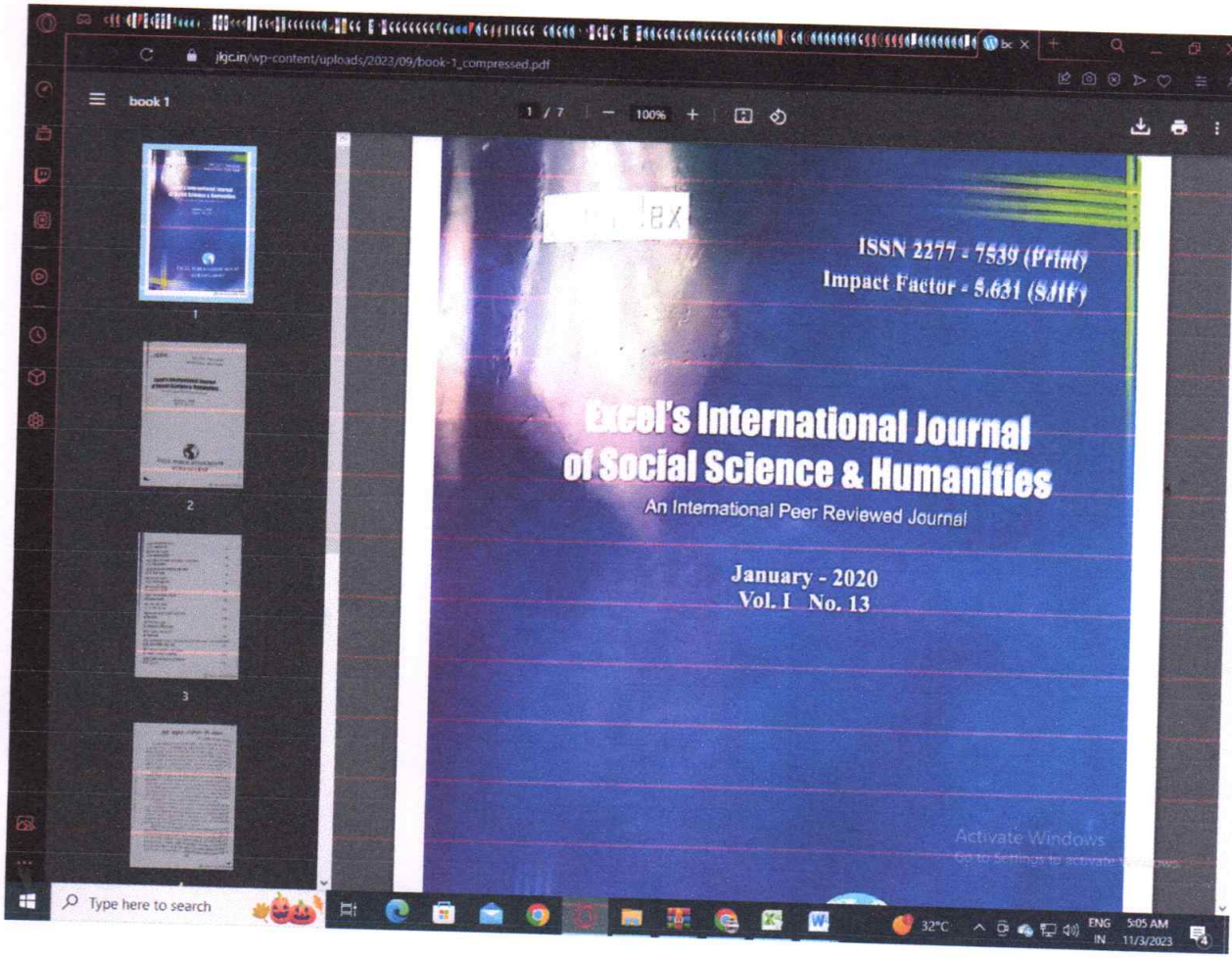

Name of Journal: Excel Publication House Aurangabad

Name of Author : Dr. Gaikwad N. R. in year 2020

Title of Paper : Hindi AnuadRashtriyatakiPahechan

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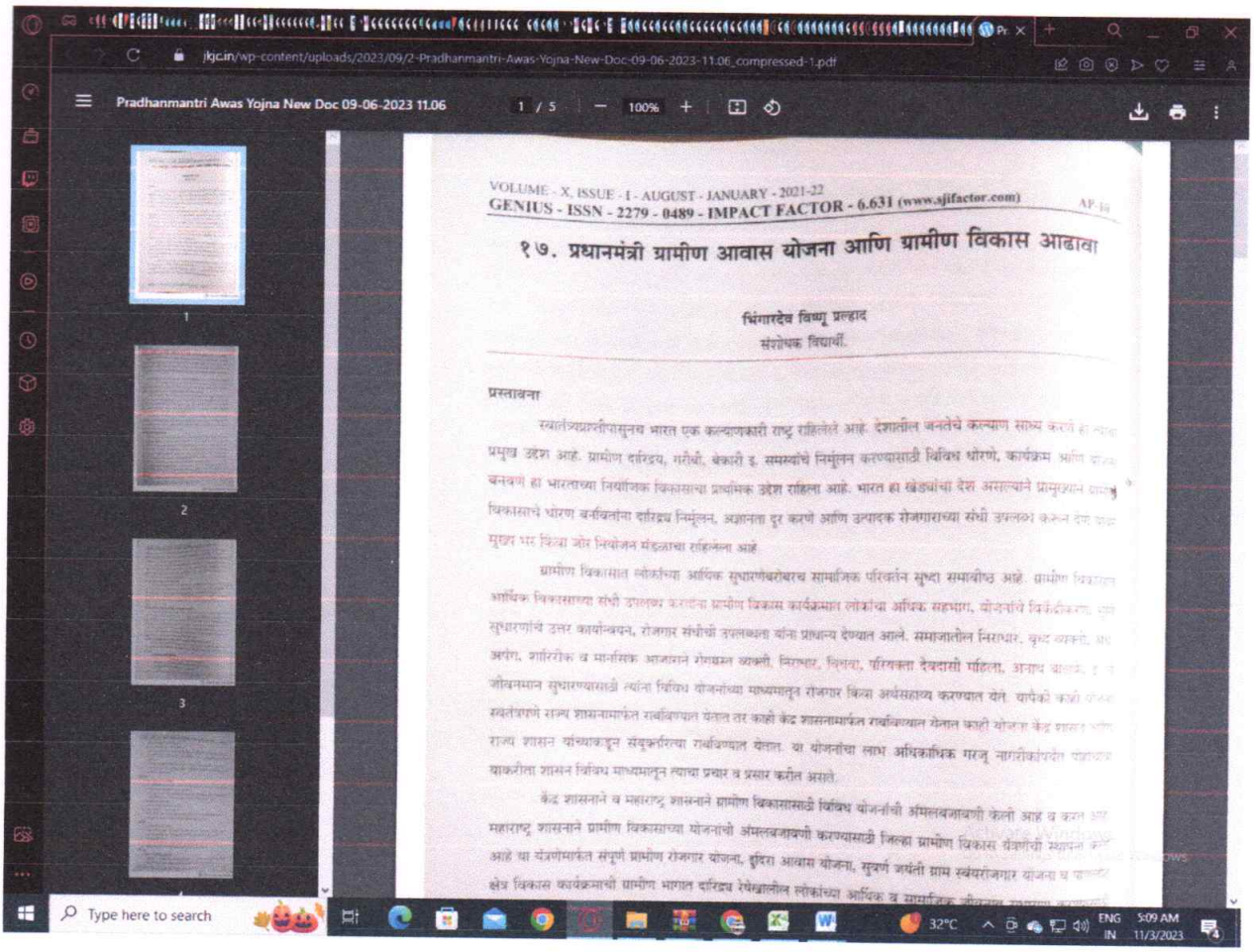

Name of Journal: Ajanta Prakashan

Name of Author: Dr. V. P. Bhingardeo in year 2021

Title of Paper

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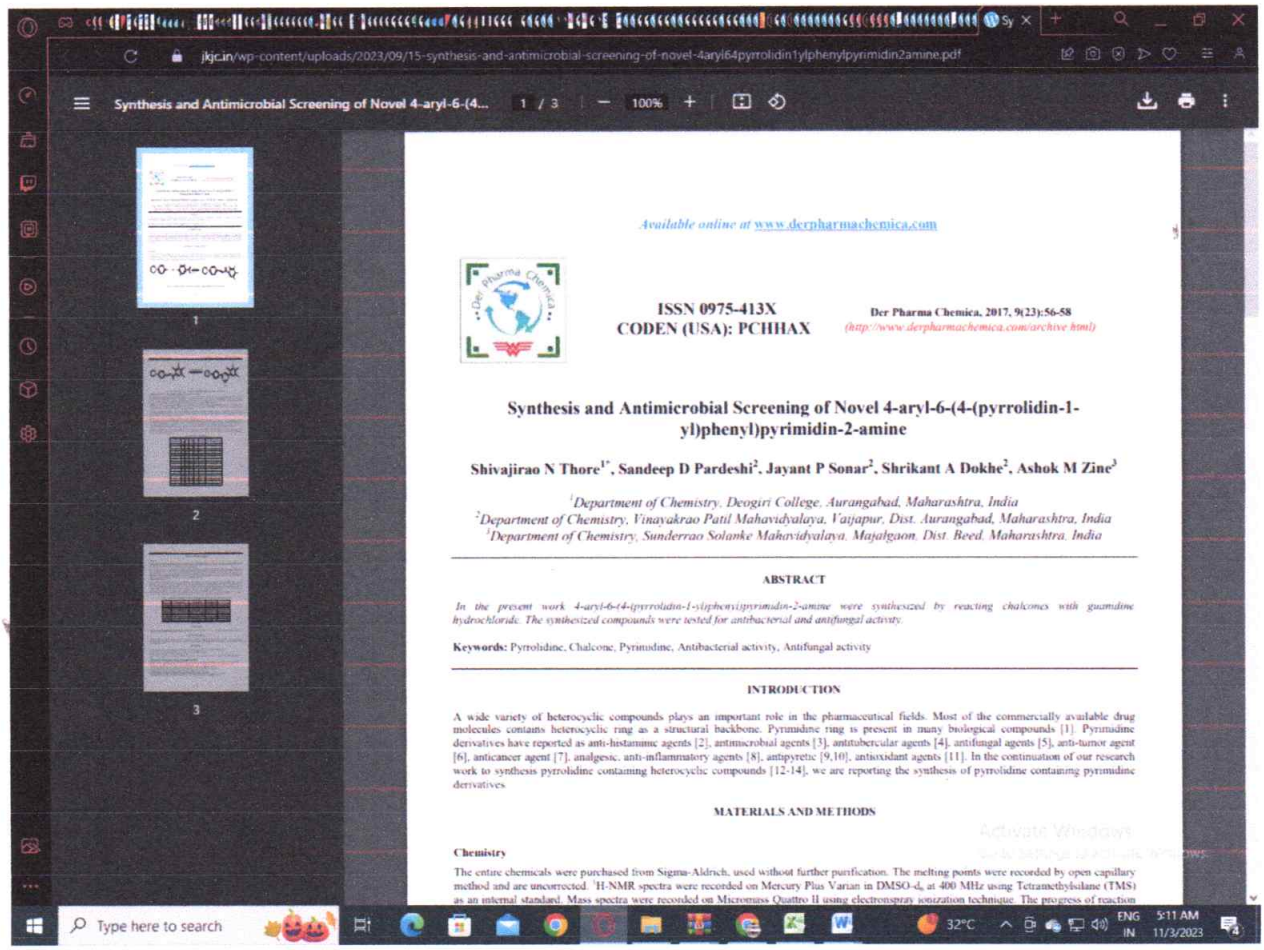

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Synthesis and Antimicrobial Screening of Novel 4-aryl-6-(4-(pyrrolidin-1-yl)phenyl)pyrimidin-2-amine

Shivajirao N Thore[1*], Sandeep D Pardeshi[2], Jayant P Sonar[2], Shrikant A Dokhe[2], Ashok M Zine[3]

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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-histamine 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 pyrrolidine containing heterocyclic compounds [12-14], we are reporting the synthesis of pyrrolidine containing pyrimidine derivatives.

MATERIALS AND METHODS

Chemistry

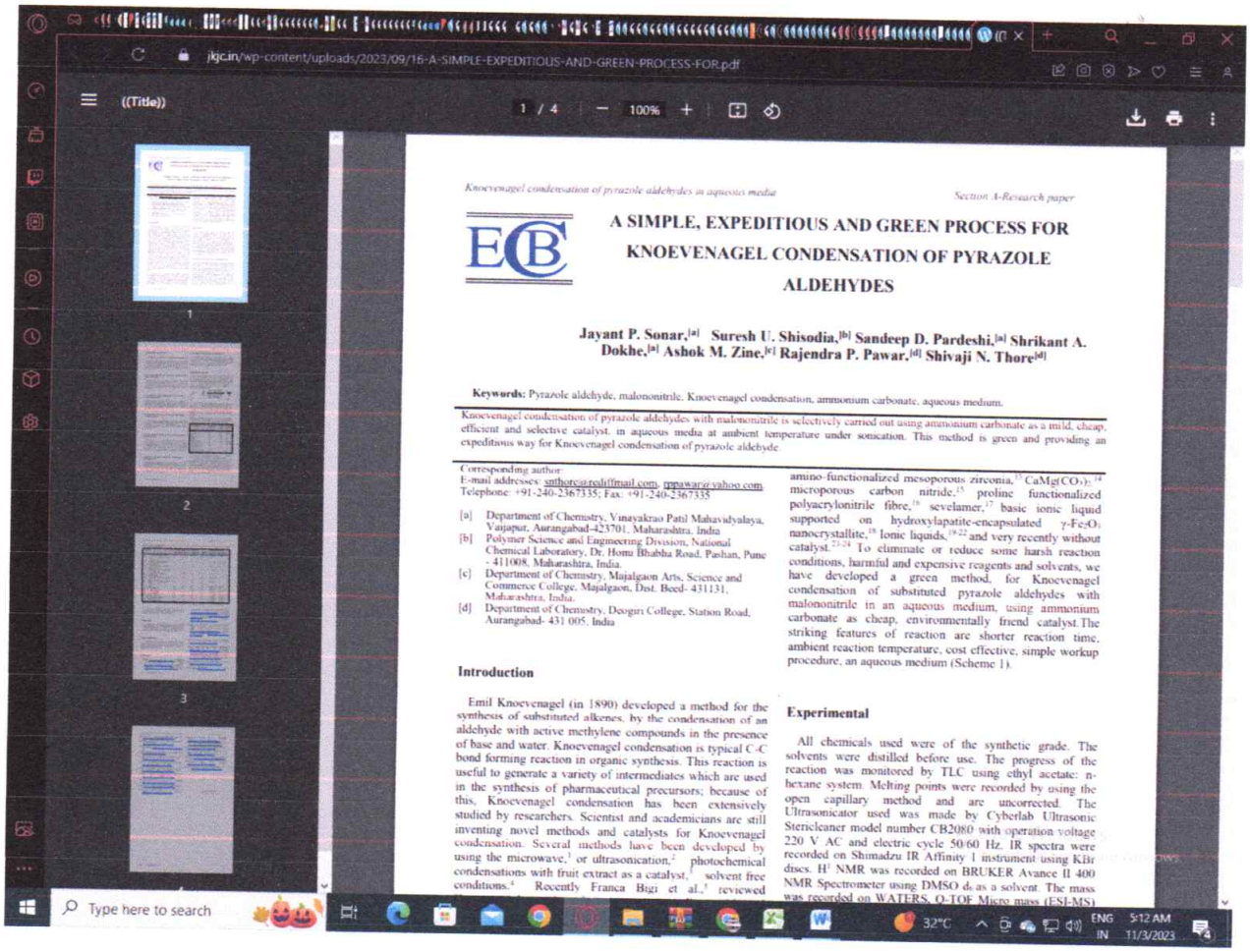
The entire chemicals were purchased from Sigma-Aldrich, used without further purification. The melting points were recorded by open capillary method and are uncorrected. ^{1}H-NMR spectra were recorded on Mercury Plus Varian in DMSO-d_6 at 400 MHz using Tetramethylsilane (TMS) as an internal standard. Mass spectra were recorded on Micromass Quattro II using electrospray ionization technique. The progress of reaction

Name of Journal: Der PharmaChemica

Name of Author: Dr. A. M. Zine in year 2017

Principal
J.K.Jadhav Arts, Comm.& Science
Mahavidyalaya, Vaijapur (Code 334

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



Knoevenagel condensation of pyrazole aldehydes in aqueous media — *Section A-Research paper*

ECB

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

Jayant P. Sonar,[a] Suresh U. Shisodia,[b] Sandeep D. Pardeshi,[a] Shrikant A. Dokhe,[a] Ashok M. Zine,[c] Rajendra P. Pawar,[d] Shivaji N. Thore[d]

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 amino-functionalized mesoporous zirconia,[6] $CaMg(CO_3)_2$,[7] microporous carbon nitride,[8] proline functionalized polyacrylonitrile fibre,[9] sevelamer,[10] basic ionic liquid supported on hydroxylapatite-encapsulated γ-Fe_2O_3 nanocrystallite,[11] Ionic liquids,[12-22] 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

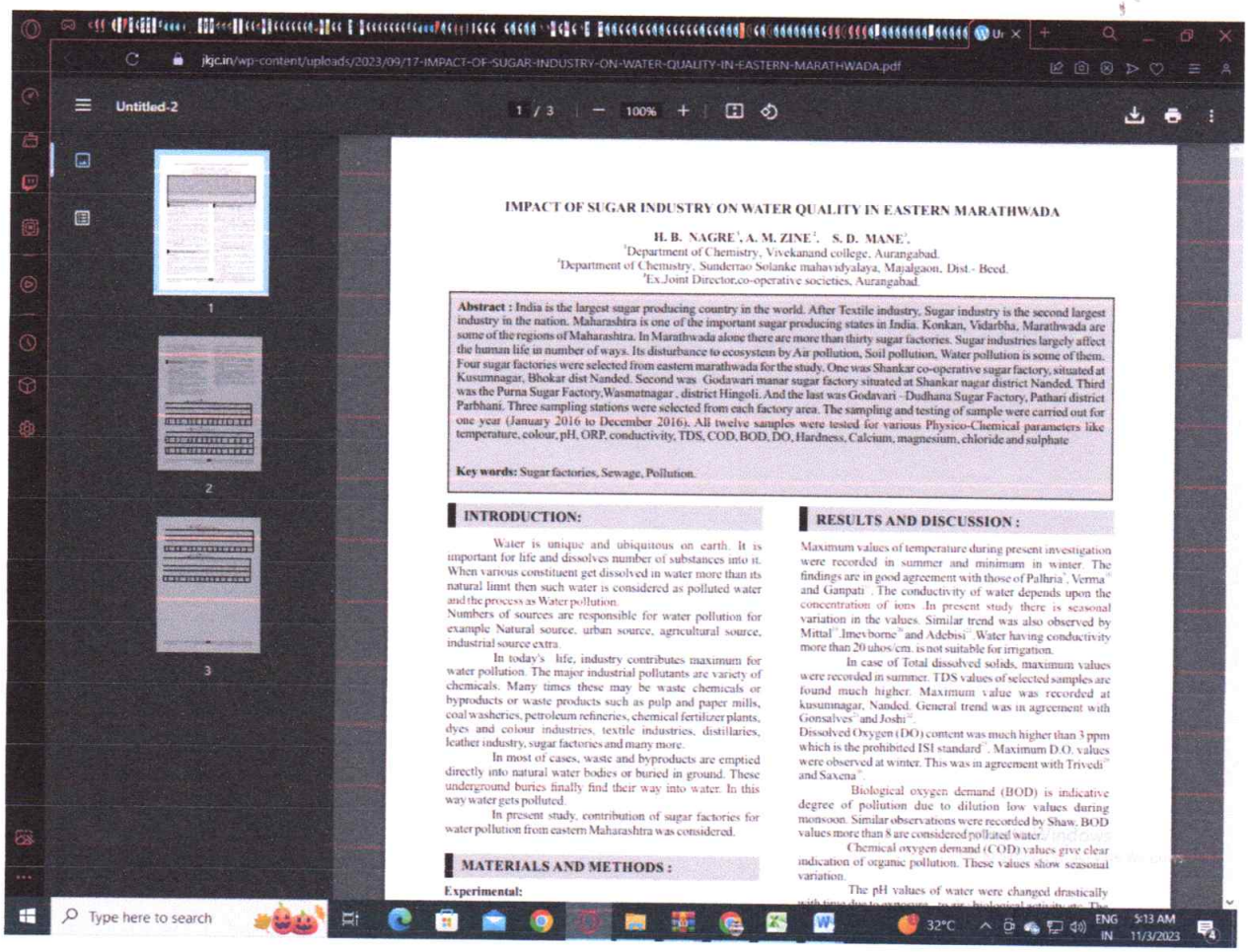
All chemicals used were of the synthetic grade. The solvents were distilled before use. The progress of the reaction was monitored by TLC using ethyl acetate: n-hexane system. Melting points were recorded by using the open capillary method and are uncorrected. The Ultrasonicator used was made by Cyberlab Ultrasonic Stericleaner 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. H^1 NMR was recorded on BRUKER Avance II 400 NMR Spectrometer using DMSO d_6 as a solvent. The mass was recorded on WATERS, Q-TOF Micro mass (ESI-MS)

Name of Journal: European Chemical Bulletin.

Name of Author: Dr. A. M. Zine in year 2017

Principal
J.K.Jadhav Arts, Comm.& Science
Mahavidyalaya, Vaijapur (Code 334

Title of Paper :A Simple Expeditious and Green Process for Knoevenagel Condensation Pyrazole Aldehyde.



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IMPACT OF SUGAR INDUSTRY ON WATER QUALITY IN EASTERN MARATHWADA

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[1]Department of Chemistry, Vivekanand college, Aurangabad.
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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 Purna 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, distillaries, 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:

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 Palhria[3], Verma[4] and Ganpati[5]. 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 Mittal[6], Imes borne[7] and Adebisi[8]. Water having conductivity more than 20 uhos/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 Gonsalves[9] and Joshi[10].
Dissolved Oxygen (DO) content was much higher than 3 ppm which is the prohibited ISI standard[11]. Maximum D.O. values were observed at winter. This was in agreement with Trivedi[12] and Saxena[13].

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

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Name of Journal: BIONANO FRONTIER

Name of Author: Dr. A. M. Zine in year 2017

Principal
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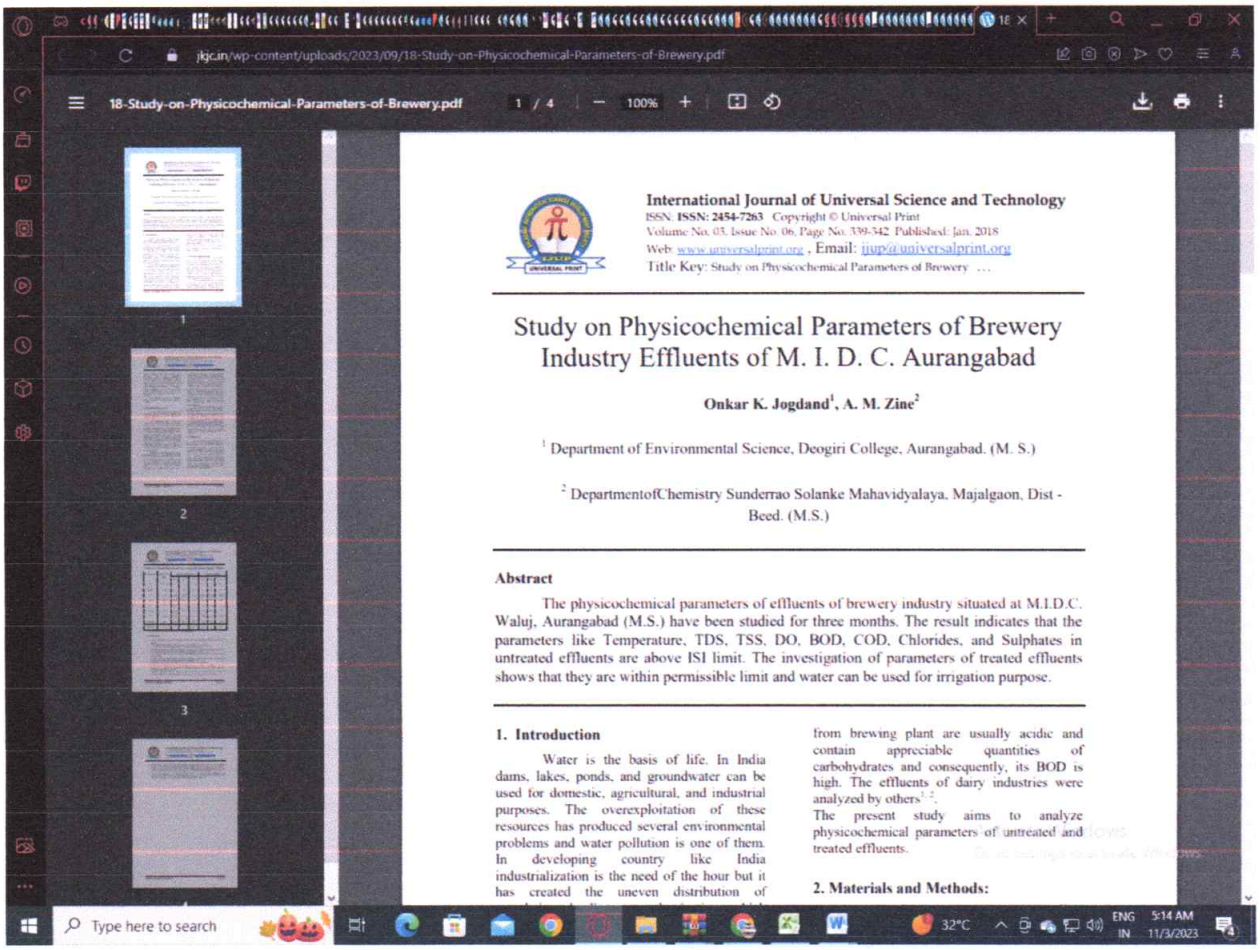
Title of Paper :Impact of Sugar Industry on Water Quality in Eastern Marathwada.



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

Onkar K. Jogdand[1], A. M. Zine[2]

[1] Department of Environmental Science, Deogiri College, Aurangabad. (M. S.)

[2] DepartmentofChemistry Sunderrao Solanke Mahavidyalaya, Majalgaon, Dist - Beed. (M.S.)

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

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:

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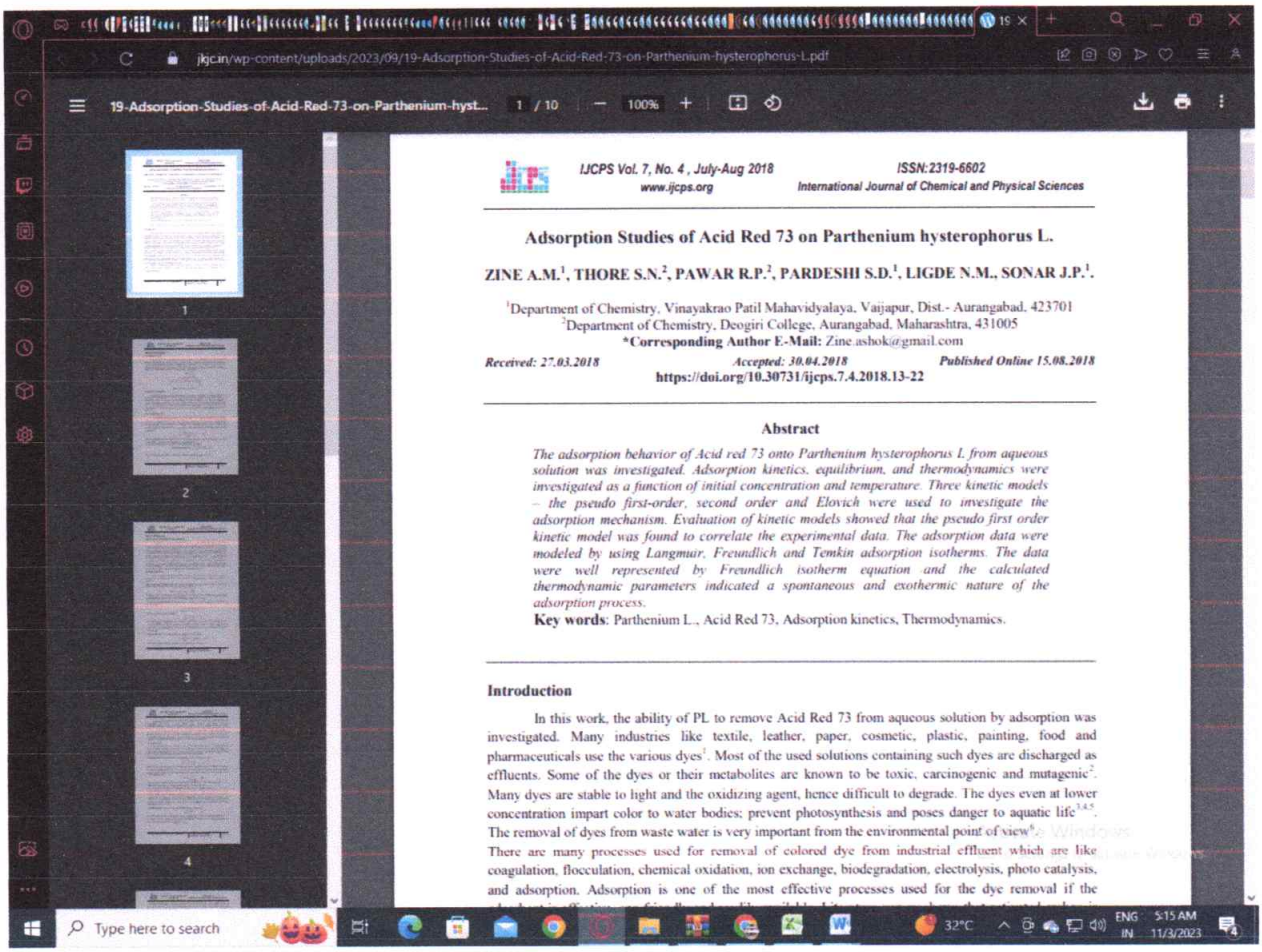
Mahavidyalaya, Vaijapur (Code 334

Name of Author: Dr. A. M. Zine in year 2017

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



IJCPS Vol. 7, No. 4 , July-Aug 2018 www.ijcps.org ISSN:2319-6602 International Journal of Chemical and Physical Sciences

Adsorption Studies of Acid Red 73 on Parthenium hysterophorus L.

ZINE A.M.[1], THORE S.N.[2], PAWAR R.P.[2], PARDESHI S.D.[1], LIGDE N.M., SONAR J.P.[1].

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Received: 27.03.2018 *Accepted: 30.04.2018* *Published Online 15.08.2018*
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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 dyes[1]. 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 mutagenic[2]. 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 view[6]. 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

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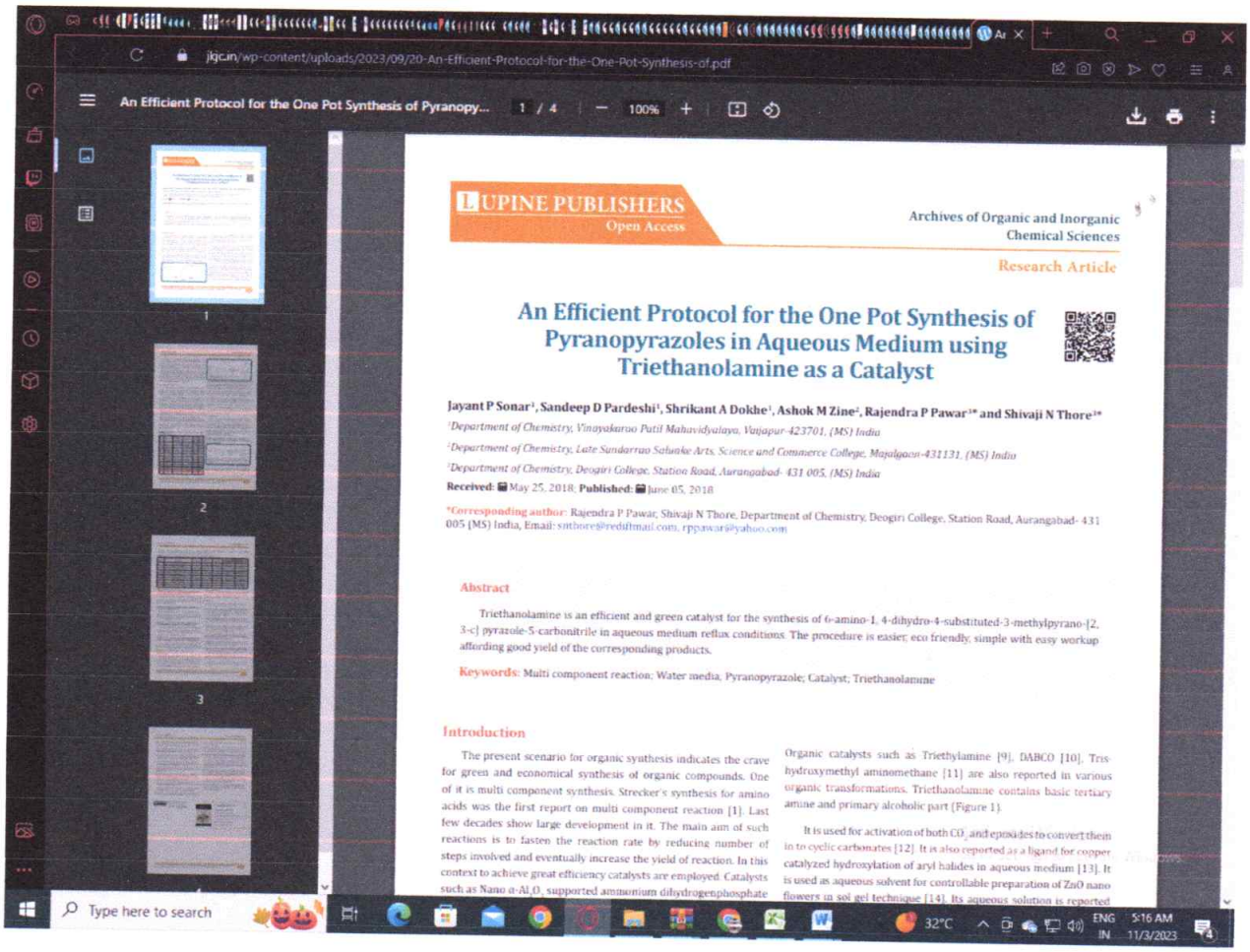
Name of Author: Dr. A. M. Zine in year 2018

Title of Paper :Adsorption Studies of Acid Red 73 on Partheniumhysterophorus L.



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Archives of Organic and Inorganic Chemical Sciences

Research Article

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

Jayant P Sonar[1], Sandeep D Pardeshi[1], Shrikant A Dokhe[1], Ashok M Zine[2], Rajendra P Pawar[3]* and Shivaji N Thore[3]*

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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 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

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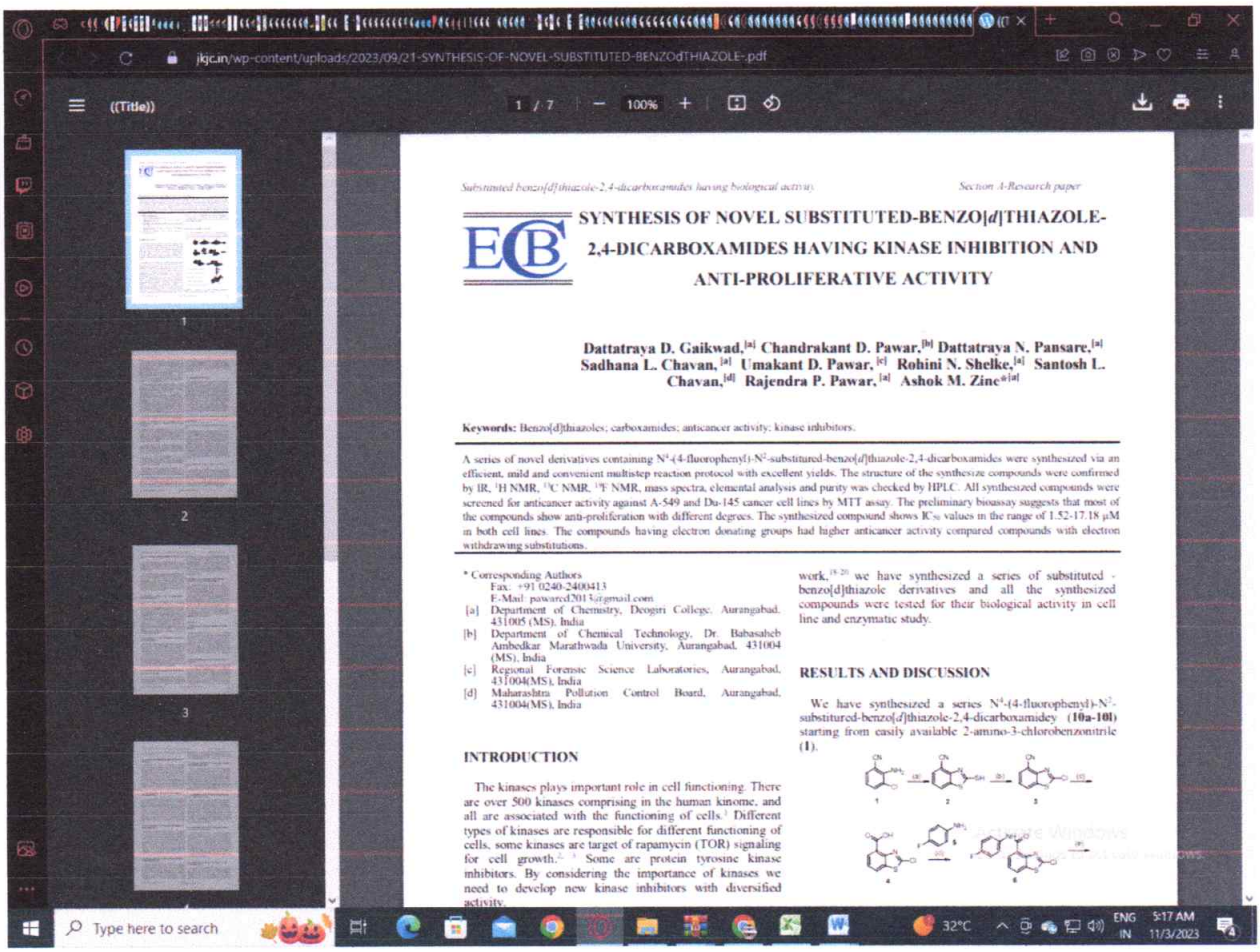
Title of Paper :An Efficient Protocol for the One Pot Synthesis of Pyranopyrazoles in Aqueous Medium using Triethanolamine as a Catalyst.



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Substituted benzo[d]thiazole-2,4-dicarboxamides having biological activity *Section A-Research paper*

ECB

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

Dattatraya D. Gaikwad,[a] Chandrakant D. Pawar,[b] Dattatraya N. Pansare,[a] Sadhana L. Chavan,[a] Umakant D. Pawar,[c] Rohini N. Shelke,[a] Santosh L. Chavan,[d] Rajendra P. Pawar,[a] Ashok M. Zine*[a]

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

A series of novel derivatives containing N^4-(4-fluorophenyl)-N^2-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 synthesize compounds were confirmed by IR, ^{1}H NMR, ^{13}C NMR, ^{19}F 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 IC_{50} 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.

work,[19-20] 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 N^4-(4-fluorophenyl)-N^2-substituted-benzo[*d*]thiazole-2,4-dicarboxamidey (**10a-10l**) starting from easily available 2-amino-3-chlorobenzonitrile (**1**).

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Name of Author: Dr. A. M. Zine in year 2019

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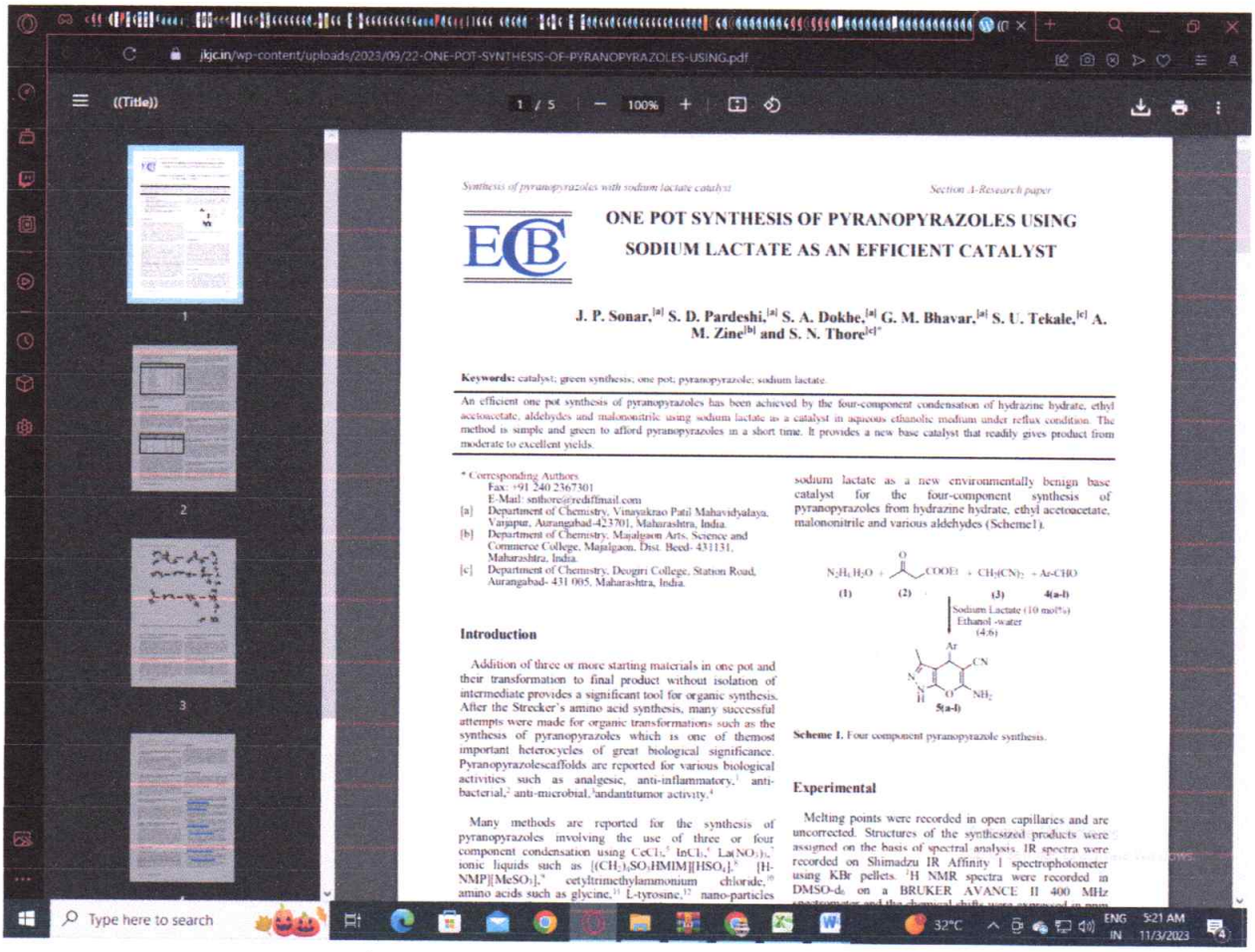
Title of Paper :Synthesis of Novel Substituted – Benzo Thiozole-2,4- Dicarboxamides having Kinase inhibition and Anti-proliferative Activity.



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Synthesis of pyranopyrazoles with sodium lactate catalyst *Section A-Research paper*

ECB

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

J. P. Sonar,[a] S. D. Pardeshi,[a] S. A. Dokhe,[a] G. M. Bhavar,[a] S. U. Tekale,[c] A. M. Zine[b] and S. N. Thore[c]*

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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[b] Department of Chemistry, Majalgaon Arts, Science and Commerce College, Majalgaon, Dist. Beed- 431131, Maharashtra, India.
[c] Department of Chemistry, Deogiri College, Station Road, Aurangabad- 431 005, Maharashtra, India.

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 themost important heterocycles of great biological significance. Pyranopyrazolescaffolds are reported for various biological activities such as analgesic, anti-inflammatory,[1] anti-bacterial,[2] anti-microbial,[3]andantitumor 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] $La(NO_3)_3$,[7] ionic liquids such as $[(CH_2)_3SO_3HMIM][HSO_4]$,[8] [H-NMP][$MeSO_3$],[9] cetyltrimethylammonium chloride,[10] amino acids such as glycine,[11] L-tyrosine,[12] nano-particles 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 (Scheme1).

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. ^{1}H NMR spectra were recorded in DMSO-d_6 on a BRUKER AVANCE II 400 MHz

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Name of Journal: European Chemical Bulletin.

Name of Author: Dr. A. M. Zine in year 2019

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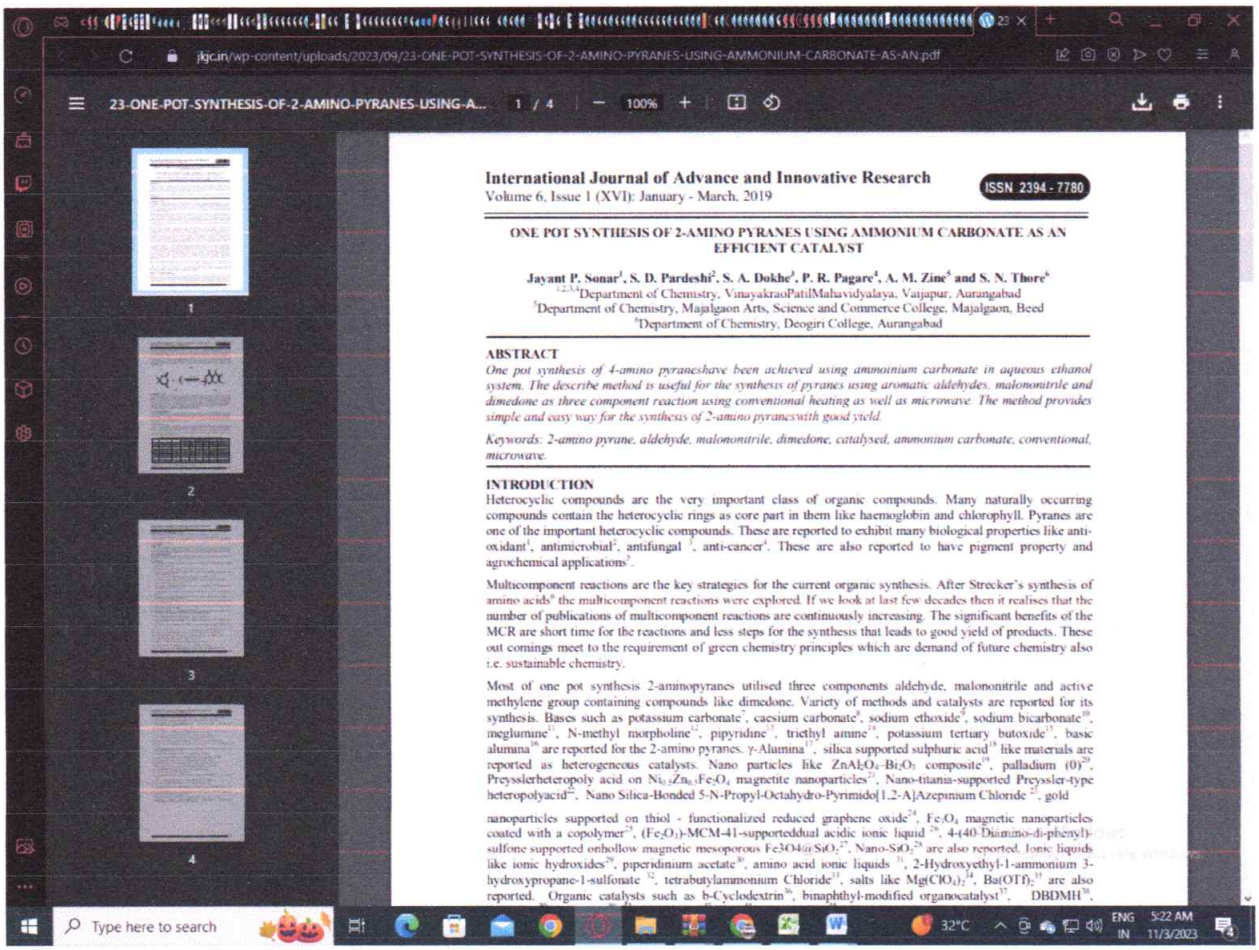
Title of Paper :One Pot Synthesis of Pyranopyrazoles using Sodium Lactate as an Efficient Catalyst.



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

Jayant P. Sonar[1], S. D. Pardeshi[2], S. A. Dokhe[3], P. R. Pagare[4], A. M. Zine[5] and S. N. Thore[6]
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ABSTRACT
One pot synthesis of 4-amino pyraneshave been achieved using ammoinium 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-oxidant[1], antimicrobial[2], antifungal [3], anti-cancer[4]. These are also reported to have pigment property and agrochemical applications[5].

Multicomponent reactions are the key strategies for the current organic synthesis. After Strecker's synthesis of amino acids[6] 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 carbonate[7], caesium carbonate[8], sodium ethoxide[9], sodium bicarbonate[10], meglumine[11], N-methyl morpholine[12], pipyridine[13], triethyl amine[14], potassium tertiary butoxide[15], basic alumina[16] are reported for the 2-amino pyranes. γ-Alumina[17], silica supported sulphuric acid[18] like materials are reported as heterogeneous catalysts. Nano particles like $ZnAl_2O_4$–Bi_2O_3 composite[19], palladium (0)[20], Preysslerheteropoly acid on $Ni_{0.5}Zn_{0.5}Fe_2O_4$ magnetite nanoparticles[21], Nano-titania-supported Preyssler-type heteropolyacid[22], Nano Silica-Bonded 5-N-Propyl-Octahydro-Pyrimido[1,2-A]Azepinium Chloride [23], gold

nanoparticles supported on thiol - functionalized reduced graphene oxide[24], Fe_3O_4 magnetic nanoparticles coated with a copolymer[25], (Fe_2O_3)-MCM-41-supporteddual acidic ionic liquid [26], 4-(4-0 Diamino-di-phenyl)-sulfone supported onhollow magnetic mesoporous $Fe3O4@SiO_2$[27], Nano-SiO_2[28] are also reported. Ionic liquids like ionic hydroxides[29], piperidinium acetate[30], amino acid ionic liquids [31], 2-Hydroxyethyl-1-ammonium 3-hydroxypropane-1-sulfonate [32], tetrabutylammonium Chloride[33], salts like $Mg(ClO_4)_2$[34], $Ba(OTf)_2$[35] are also reported. Organic catalysts such as b-Cyclodextrin[36], binaphthyl-modified organocatalyst[37], DBDMH[38],

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Name of Author: Dr. A. M. Zine in year 2019

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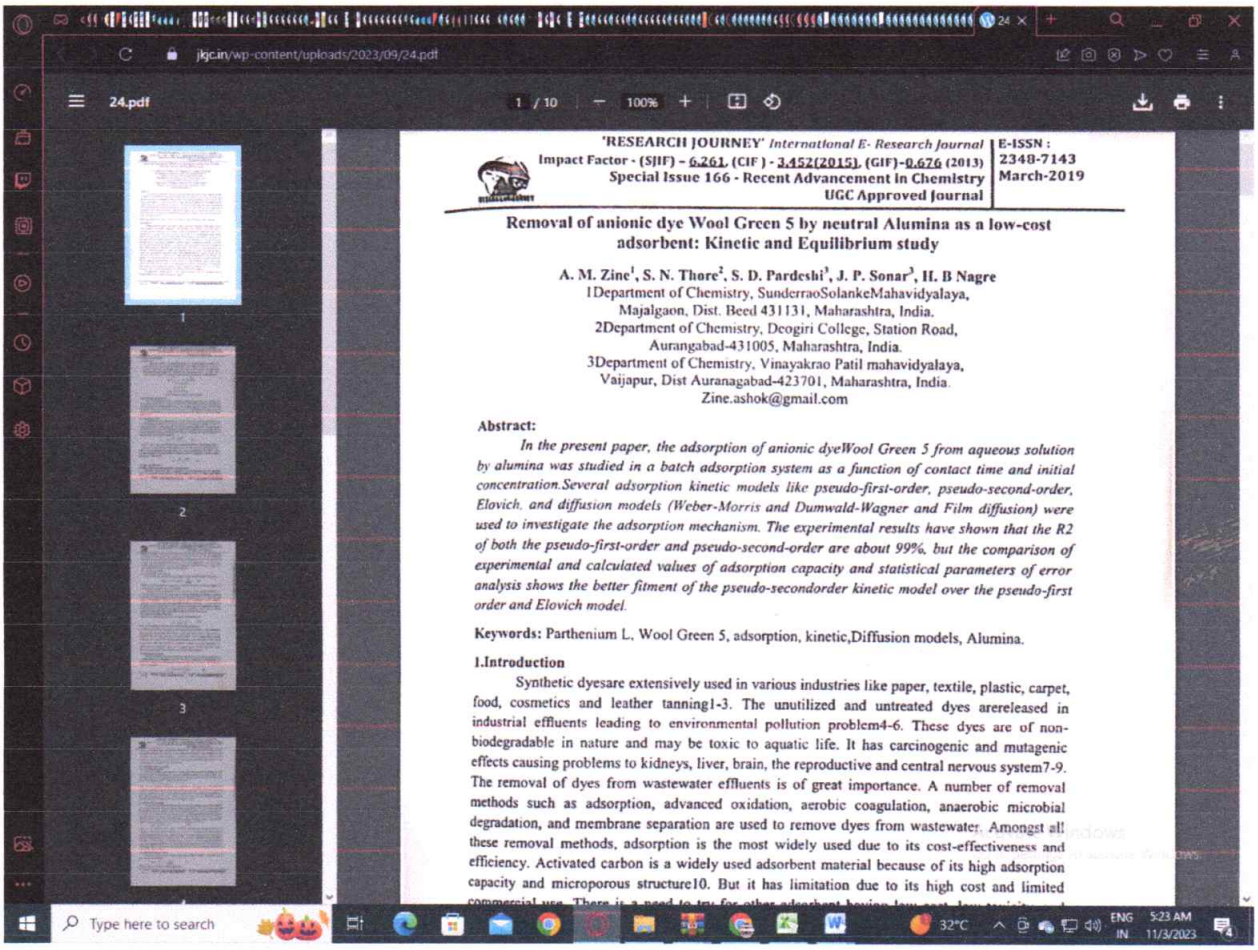
Title of Paper :One Pot Synthesis of 2-Amino Pyranes using Ammonium Carbonate as an Efficient Catalyst.



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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 dyeWool 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-secondorder kinetic model over the pseudo-first order and Elovich model.

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

1.Introduction

Synthetic dyesare extensively used in various industries like paper, textile, plastic, carpet, food, cosmetics and leather tanning1-3. The unutilized and untreated dyes arereleased 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

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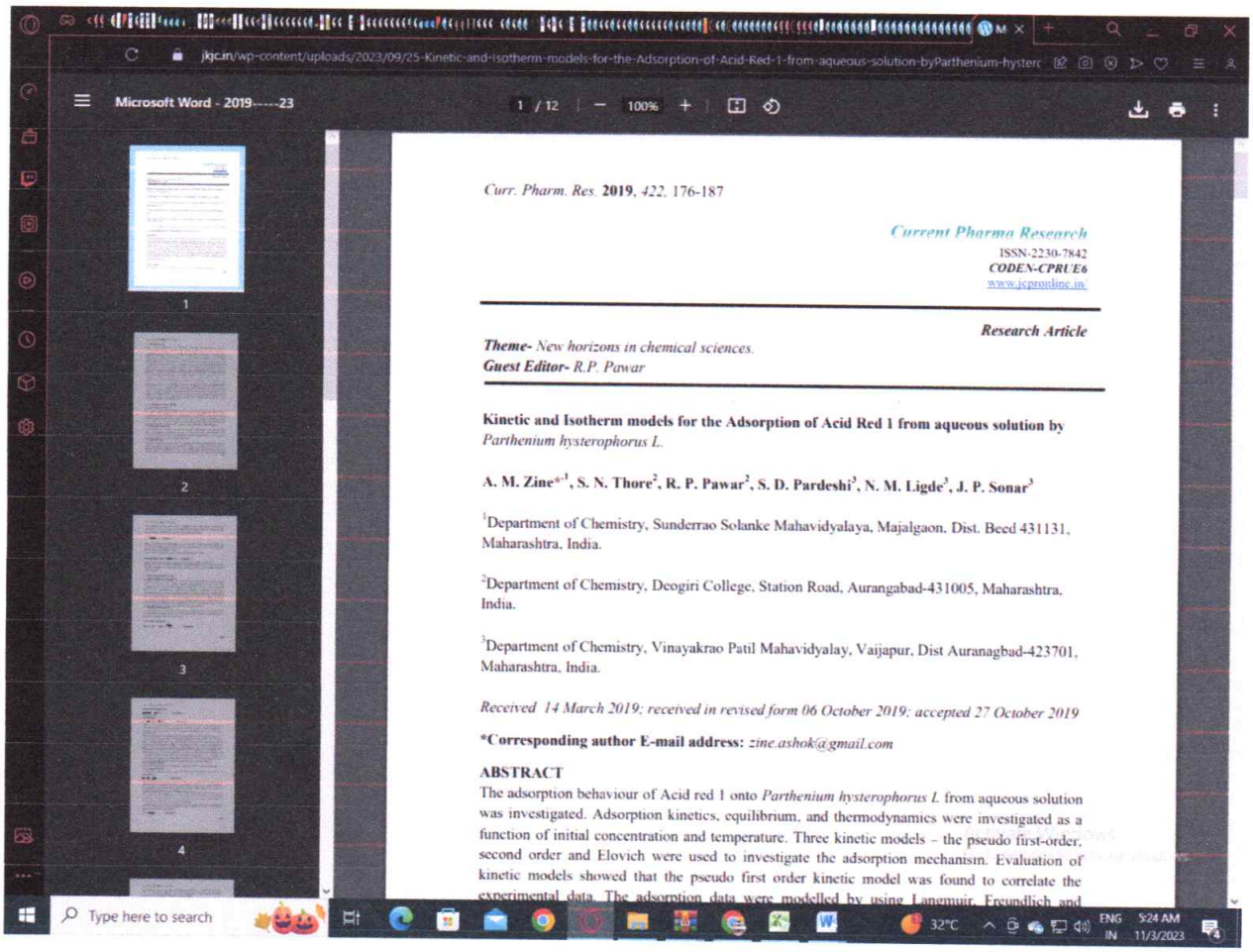
Name of Author: Dr. A. M. Zine in year 2019

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



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Research Article

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.*

A. M. Zine*[1], S. N. Thore[2], R. P. Pawar[2], S. D. Pardeshi[3], N. M. Ligde[3], J. P. Sonar[3]

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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

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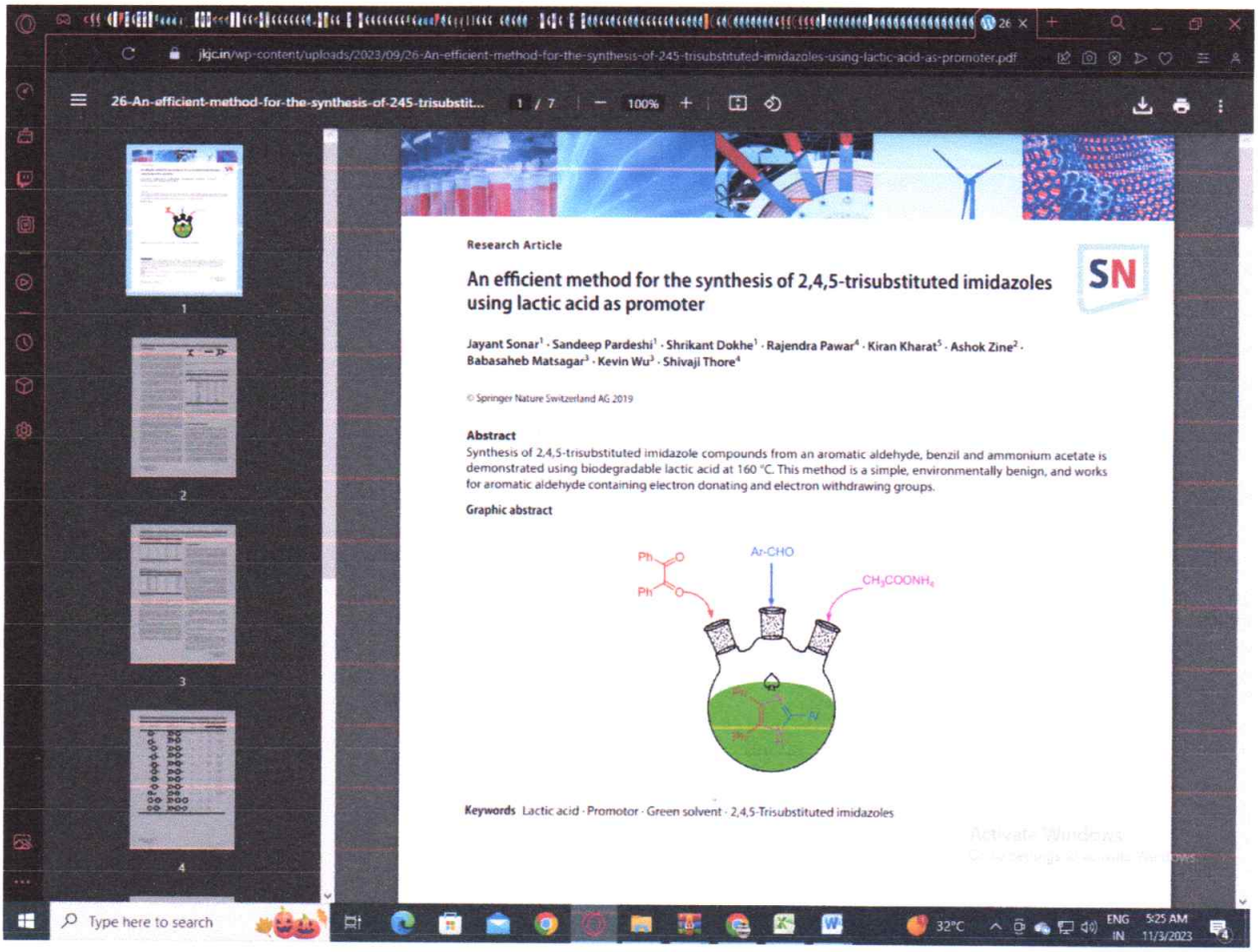
Name of Author: Dr. A. M. Zine in year 2019

Title of Paper: Kinetic and Isotherm models for the Adsorption of Acid Red 1 from aqueous solution by Partheniumhysterophorus L.



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Research Article

SN

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

Jayant Sonar[1] · Sandeep Pardeshi[1] · Shrikant Dokhe[1] · Rajendra Pawar[4] · Kiran Kharat[5] · Ashok Zine[2] · Babasaheb Matsagar[3] · Kevin Wu[3] · Shivaji Thore[4]

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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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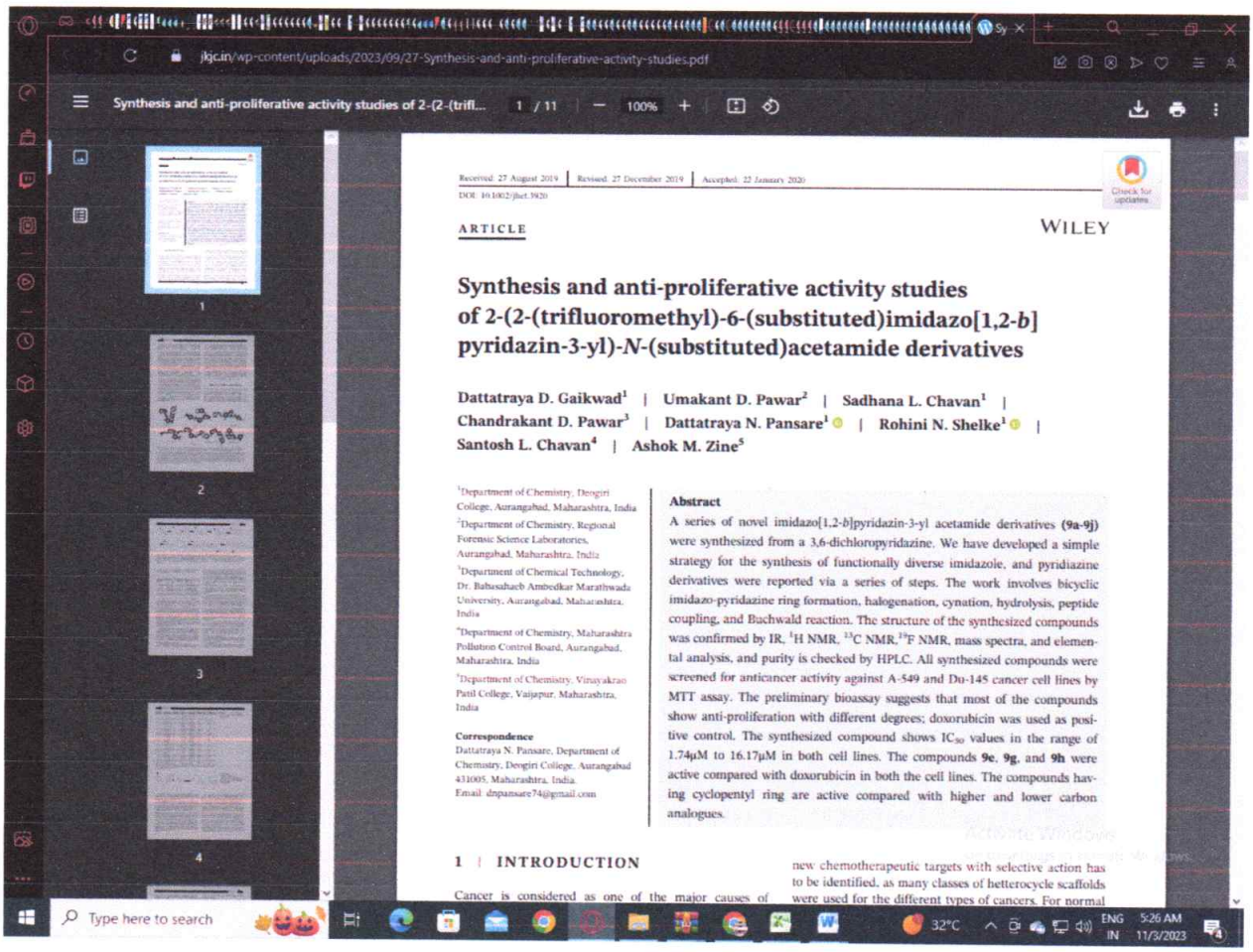
Name of Journal: SN Applied Sciences

Name of Author: Dr. A. M. Zine in year 2019

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



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DOI: 10.1002/jhet.3920

ARTICLE

WILEY

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

Dattatraya D. Gaikwad[1] | Umakant D. Pawar[2] | Sadhana L. Chavan[1] | Chandrakant D. Pawar[3] | Dattatraya N. Pansare[1] | Rohini N. Shelke[1] | Santosh L. Chavan[4] | Ashok M. Zine[5]

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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, cynation, hydrolysis, peptide coupling, and Buchwald reaction. The structure of the synthesized compounds was confirmed by IR, ^{1}H NMR, ^{13}C NMR,^{19}F 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 IC_{50} values in the range of 1.74μM to 16.17μM 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

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

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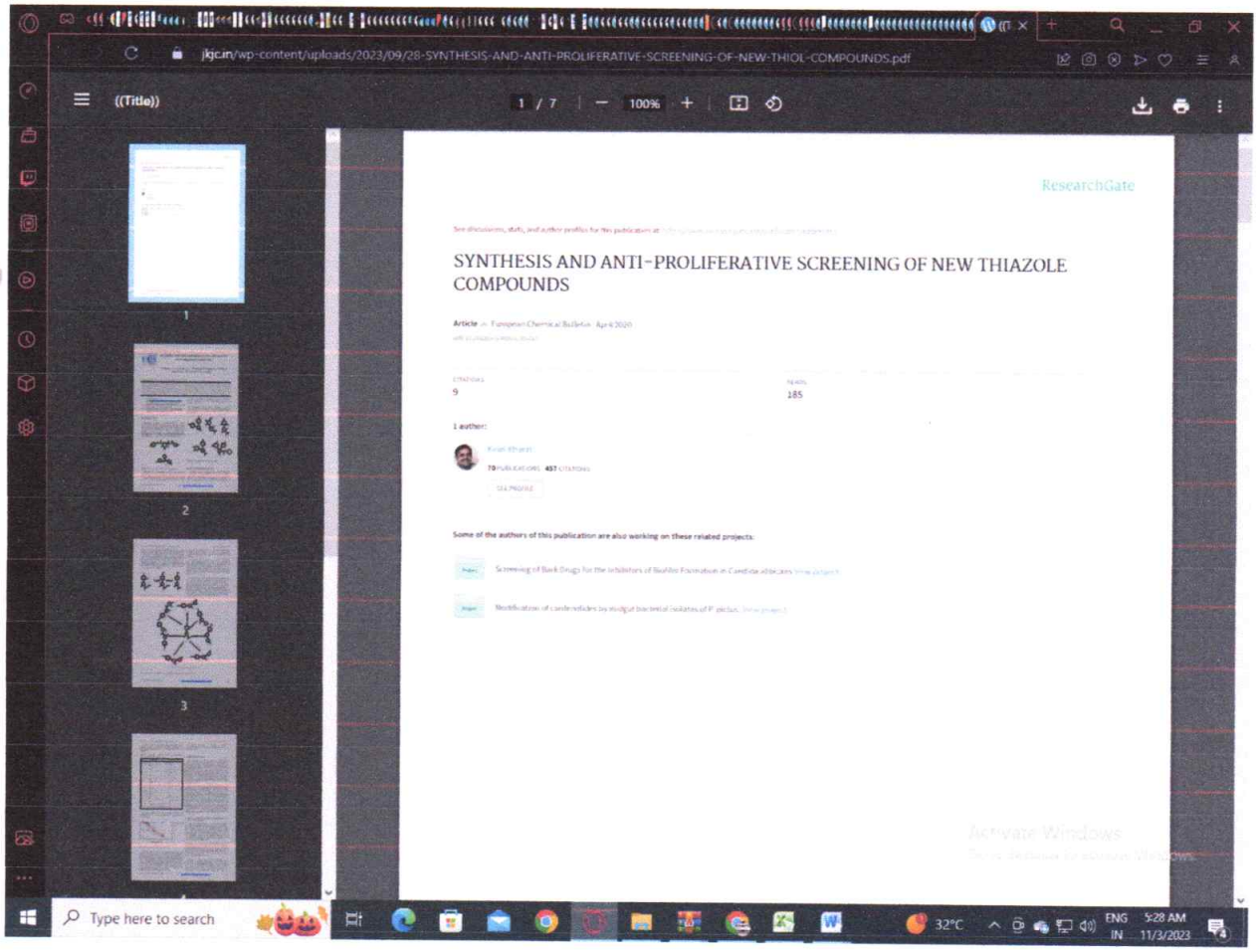
Name of Author: Dr. A. M. Zine in year 2019

Title of Paper: 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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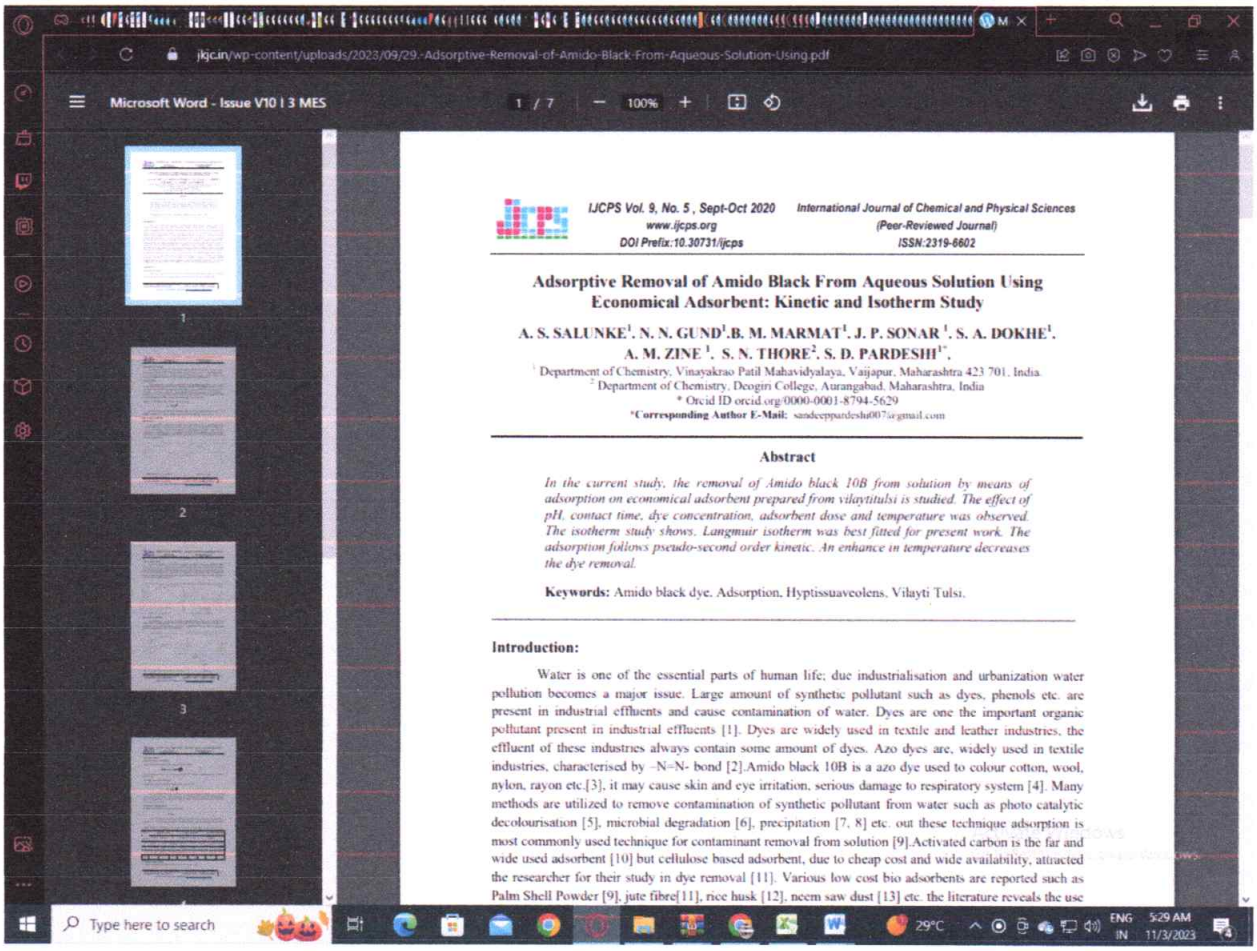
Name of Journal: European Chemical Bulletin 9(5):132-137

Name of Author: Dr. A. M. Zine in year 2019

Title of Paper: Synthesis and antiproliferative screening of new thiazole compounds.



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Adsorptive Removal of Amido Black From Aqueous Solution Using Economical Adsorbent: Kinetic and Isotherm Study

A. S. SALUNKE[1], N. N. GUND[1],B. M. MARMAT[1], J. P. SONAR [1], S. A. DOKHE[1], A. M. ZINE [1], S. N. THORE[2], S. D. PARDESHI[1*],
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Abstract

In the current study, the removal of Amido black 10B from solution by means of adsorption on economical adsorbent prepared from vilaytitulsi is studied. The effect of pH, contact time, dye concentration, adsorbent dose and temperature was observed. The isotherm study shows, Langmuir isotherm was best fitted for present work. The adsorption follows pseudo-second order kinetic. An enhance in temperature decreases the dye removal.

Keywords: Amido black dye, Adsorption, Hyptissuaveolens, Vilayti Tulsi.

Introduction:

Water is one of the essential parts of human life; due industrialisation and urbanization water pollution becomes a major issue. Large amount of synthetic pollutant such as dyes, phenols etc. are present in industrial effluents and cause contamination of water. Dyes are one the important organic pollutant present in industrial effluents [1]. Dyes are widely used in textile and leather industries, the effluent of these industries always contain some amount of dyes. Azo dyes are, widely used in textile industries, characterised by –N=N- bond [2].Amido black 10B is a azo dye used to colour cotton, wool, nylon, rayon etc.[3], it may cause skin and eye irritation, serious damage to respiratory system [4]. Many methods are utilized to remove contamination of synthetic pollutant from water such as photo catalytic decolourisation [5], microbial degradation [6], precipitation [7, 8] etc. out these technique adsorption is most commonly used technique for contaminant removal from solution [9].Activated carbon is the far and wide used adsorbent [10] but cellulose based adsorbent, due to cheap cost and wide availability, attracted the researcher for their study in dye removal [11]. Various low cost bio adsorbents are reported such as Palm Shell Powder [9], jute fibre[11], rice husk [12], neem saw dust [13] etc. the literature reveals the use

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Name of Author:Dr. A. M. Zine in year 2020

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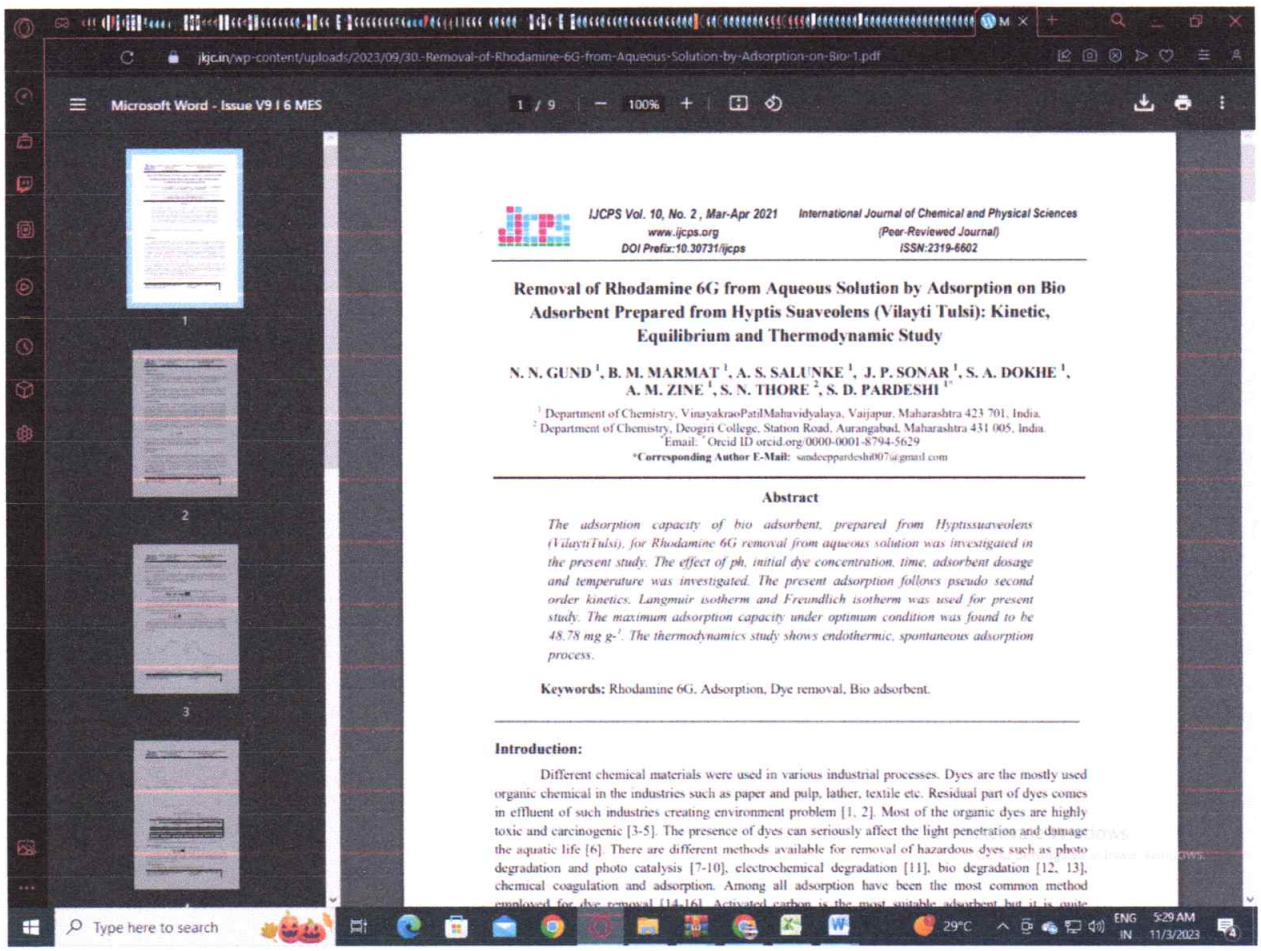
Title of Paper: Adsorptive Removal of Amido Black From Aqueous Solution Using Economical Adsorbent: Kinetic and Isotherm Study.



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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

N. N. GUND [1], B. M. MARMAT [1], A. S. SALUNKE [1], J. P. SONAR [1], S. A. DOKHE [1], A. M. ZINE [1], S. N. THORE [2], S. D. PARDESHI [1*]

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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

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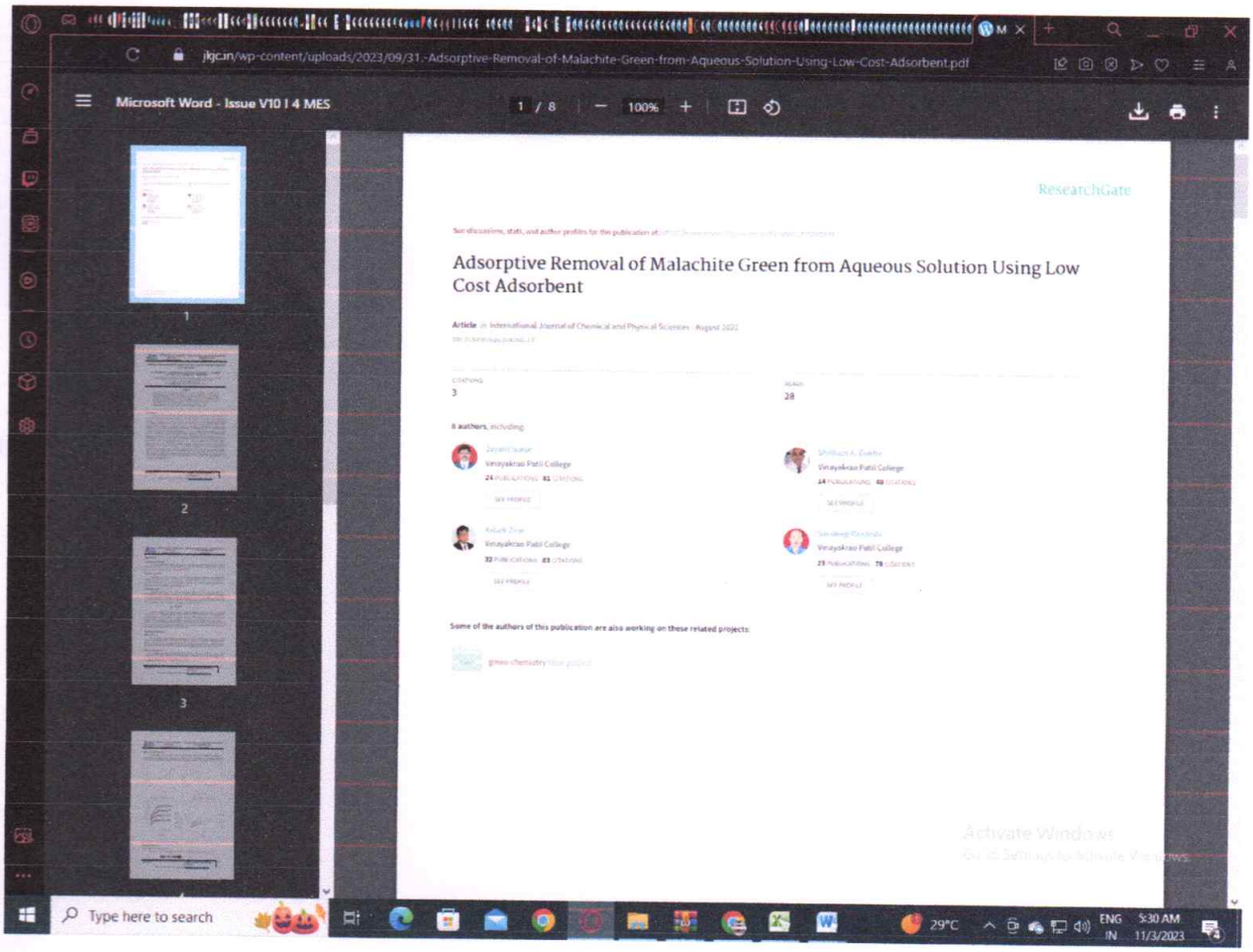
Name of Author: Dr. A. M. Zine in year 2021

Title of Paper: Removal of Rhodamine 6G from Aqueous Solution by Adsorption on Bio Adsorbent Prepared from HyptisSuaveolens (VilaytiTulsi): Kinetic, Equilibrium and Thermodynamic Study.



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Name of Author: Dr. A. M. Zine in year 2021

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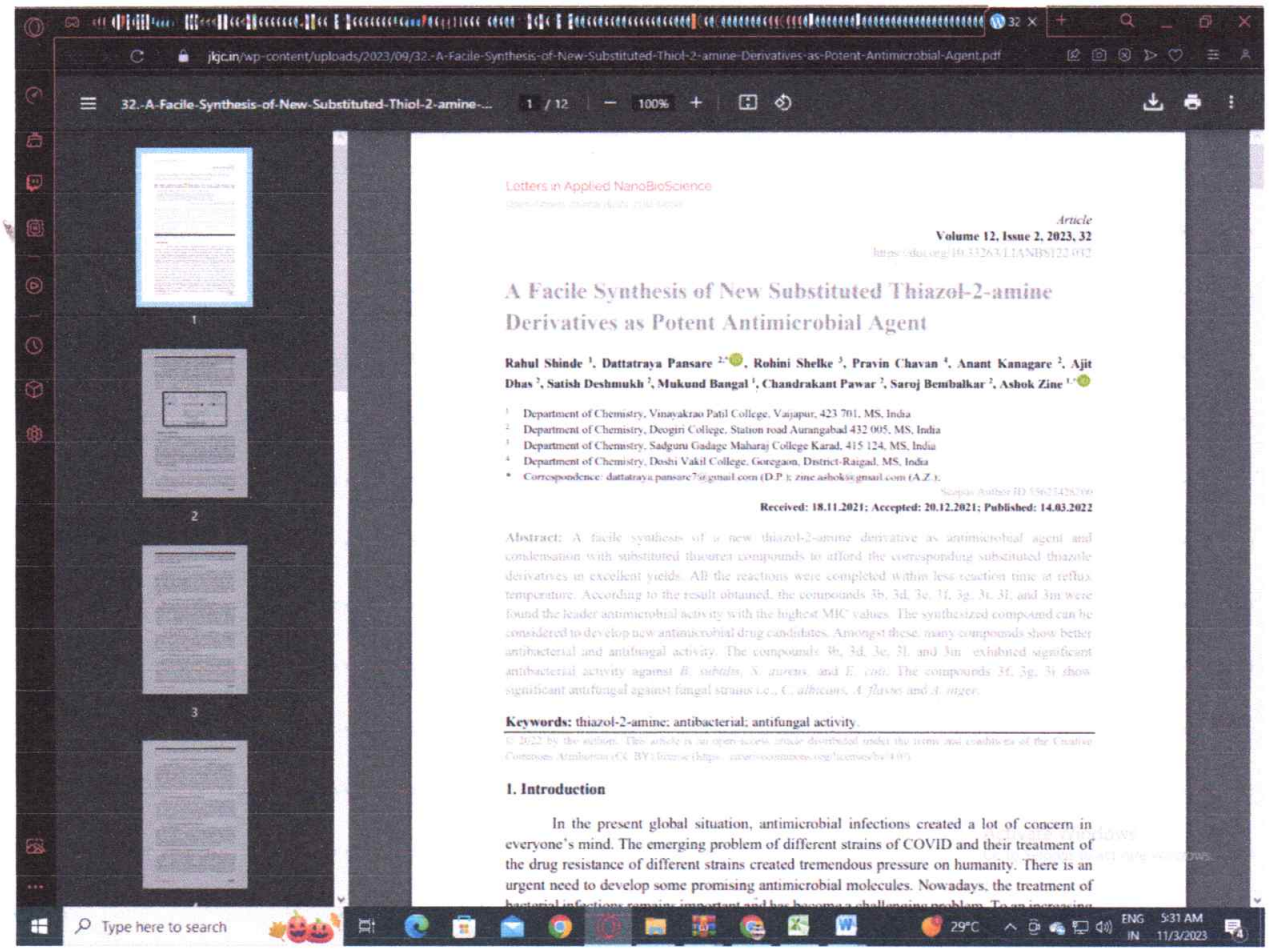

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Name of Journal: Letters in Applied Nano Bio Science
ISSN: 2284-6808

Name of Author:Dr. A. M. Zine in year 2023

Title of Paper: A Facile Synthesis of New Substituted Thiazol-2-amino Derivatives as Potent Antimicrobial Agent.

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