Heterocyclic Letters
Vol. 14| No.4|718-729|Aug-Oct|2024
ISSN : (print) 2231–3087 / (online) 2230-9632
CODEN: HLEEAI
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Graphical Abstract

Paper-1	Heterocyclic Letters 14: iss.-4 (2024), 731-735

Microwave Enhanced Knoevenagel/Doebner Reactions: Greener Chemistry Approaches Employing TDA-1 as a Base

Ram Naresh Yadav[1], Subhendu N. Ganguli*[2], Arun Mandadi[2], and Bimal K Banik*2,3

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[2]Department of Chemistry, Chemical Biology, and Biomedical Engineering, Stevens Institute of Technology, Hoboken, New Jersey, 07030, USA
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Email: bimalbanik10@gmail.com; bbanik@pmu.edu.sa

Dedicated to: Dedicated in memory of Prof. Ajoy K Bose

This study demonstrates the efficient use of TDA-1 base under microwave irradiation, significantly enhancing Knoevenagel and Doebner reactions. The method achieves high yields of unsaturated acids with reduced reaction times, representing a greener, sustainable approach.

Paper-2	Heterocyclic Letters 14: iss.-4 (2024), 737-741

Synthesis of novel polycyclic schiff base and its microbial evalution

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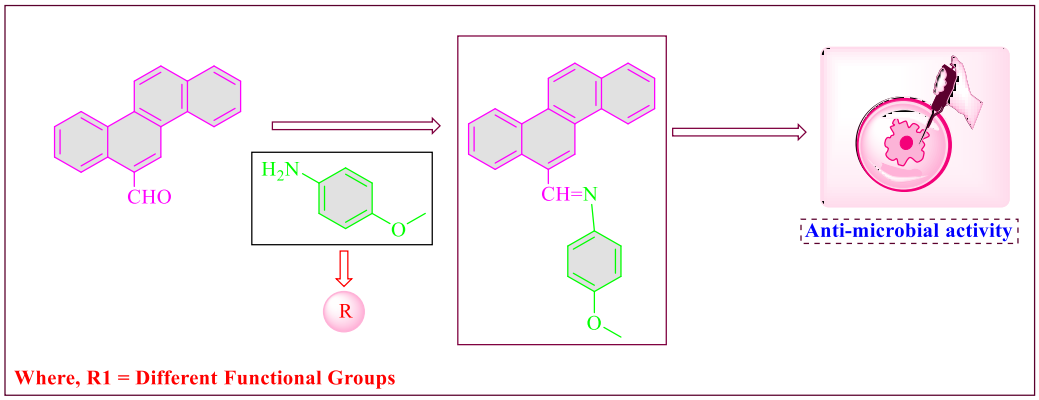
We are concerned in synthesis and developing the chemistry of novel Polycyclic Schiff base. For this 6-chrysenecarboxaldehyde was treated with the different aromatic aldehyde to yield the respective polycyclic schiffbase.The structures of the synthesized compounds were confirmed by physico-chemical test and spectral techniques, representative samples were screened for their antimicrobial activity against gram positive and gram negative bacteria.



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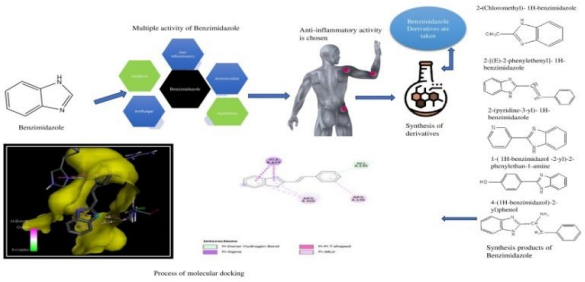
Paper-3	Heterocyclic Letters 14: iss.-4 (2024), 743-756

In Silico Docking, Synthesis of 1,2-Substitued Benzimidazoles for Anti-Inflammatory Activity.

Prasurjya Saikia [a], Durga Prasad Kemisetti [b*], Shahil Arman [a]

[a] Scholar, Faculty of Pharmaceutical Science, Assam down town University, Sankar Madhab Path, Gandhi Nagar, Panikhaiti, Guwahati Assam, India, Pin-781026.
[b*] Associate Professor, Faculty of Pharmaceutical Science, Assam down town University, Sankar Madhab Path, Gandhi Nagar, Panikhaiti, Guwahati Assam, India, Pin-781026.

Integration of In Silico Docking Techniques with the Synthesis of 1,2-Substituted Benzimidazoles: Exploring Novel Compounds for Anti-Inflammatory Efficacy and compound 4 was more effective than Standard Diclofenac



Paper-4	Heterocyclic Letters 14: iss.-4 (2024), 757-763

Synthesis and spectroscopic characterization of tridentate ligands and their antimicrobial biological studies

Ashish D. Bansod

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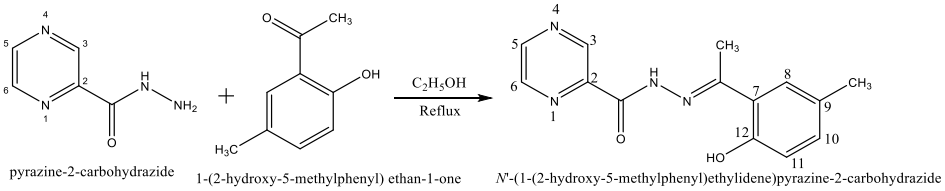
In the present study Schiff base ligands were synthesized and characterized by elemental analysis, melting point, ^{1}NMR, IR, UV-Vis-spectra. The insoluble of the ligands in the organic solvents. The antibacterial activity of all the compounds was tested against bacterial pathogens, *E. coli*, *S. aureus*, *P. aeruginosa and K pneumoniae*. It has been found that synthesized Schiff base show significant antimicrobial activity.



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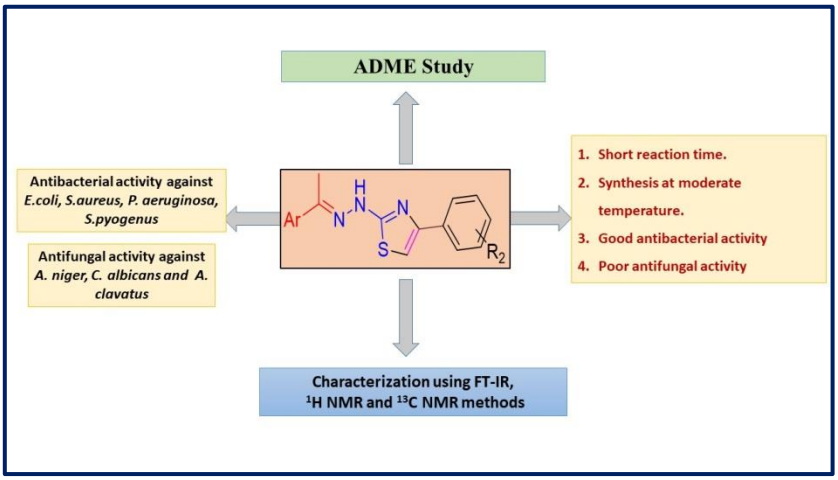
Paper-5	Heterocyclic Letters 14: iss.-4 (2024), 765-775

Exploring thiazole-derived heterocycles: assessing antibacterial, antifungal properties, and adme profiling

Nutan Sadgir [a*], Bapu Jagdale[a], Kanchan Vasal [a] Sunil Dhonnar [a]

[a] *Department of Chemistry, Mahatma Gandhi Vidya mandir' Loknete Vyankatrao Hiray Arts, Science, and Commerce College Panchavati, Nashik-422 003, India (Affiliated to Savitribai Phule Pune University, Pune)*
Corresponding author, Email address - nutansadgir@gmail.com



Paper-6	Heterocyclic Letters 14: iss.-4 (2024), 777-785

Cobalt (ii) nitrate hexahydrate as an efficient catalyst for the synthesis of β-amino ketones derivatives

Jitendra R. Deshmukh[a], Uddhav N. Chaudhar[b], Ajay M. Patil[c] and Shivanand G. Sonkamble[c]*

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[b]*Department of Chemistry, Kalikadevi Arts, Commerce and Science College, Shirur Kasar Dist-Beed [M.S.]-413249 India*
[c]*Department of Chemistry, Pratisthan Mahavidyalaya, Paithan Tal-Paithan Dist-Aurangabad [M.S.]-India*
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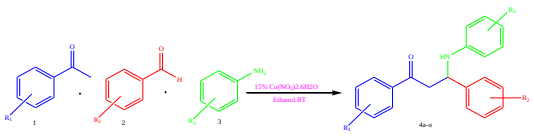
Mobile: 9850634673

Eco-friendly protocol was developed for the synthesis of β-amino ketones derivatives using the one pot multi-component reaction of aromatic aldehydes, ketones and aromatic amines in presence of cobalt (II) nitrate hexahydrate in ethanol at room temperature via mannich reaction. The advantages of this eco-friendly protocol are numerous, and include the use of an inexpensive catalyst, high to excellent yield, short reaction time and high catalytic activity that can make this method an interesting alternative to multi-step approaches.



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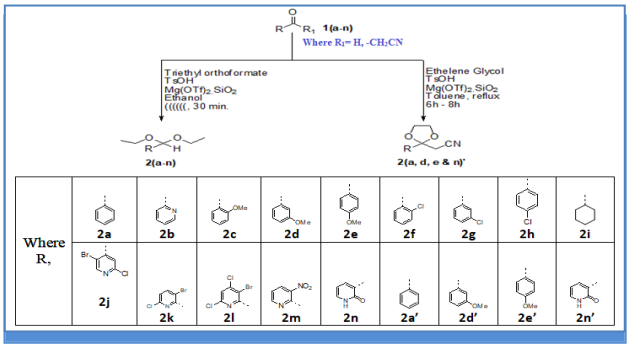
Paper-7	Heterocyclic Letters 14: iss.-4 (2024), 787-795

$Mg(OTf)_2.SiO_2$: A Heterogeneous, recyclable catalyst for the synthesis of Acetals from Aldehydes or Ketones

Mahesh P More[1*] and Tanuja V Kadre[1*].

[1]*Department of Chemistry, Dr. A. P. J. Abdul Kalam University, Indore, Madhya Pradesh, India-452016.*
**Correspondence Author Email: tanujavkadre@gmail.com*

Under mild circumstances, trialkyl orthoformate or ethylene glycol can be readily protects aldehydes and ketones, resulting in outstanding yields of the corresponding acetals in presence of a heterogeneous $Mg(OTf)_2.SiO_2$ catalyst. This approach works well with substrates that are sensitive to acid because of the mild reaction conditions. Catalytic amounts of $Mg(OTf)_2.SiO_2$ quantity required to convert aldehydes and ketones to acyclic or cyclic acetals at optimized reaction condition within short time. Utilized $Mg(OTf)_2.SiO_2$ as a heterogeneous catalyst is recyclable, thermally stable and can be reused multiple times without losing its activity.



Paper-8	Heterocyclic Letters 14: iss.-4 (2024), 797-811

Anti-alzheimer, anticancer and antimicrobial assessment of novel tridentate azo schiff base ligand and it's metal complexes

Kirti N Sarwade[a], Kuldeep B Sakhare[a], Mahadeo A Sakhare[a], Shailendrasingh V Thakur[b*]

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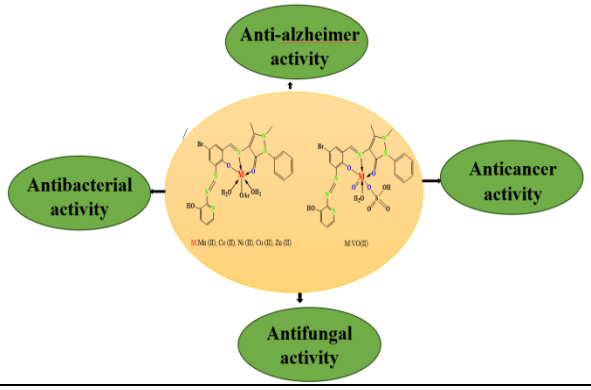
[b*]*Department of chemistry, Milliya Arts, science and Management Science college, Beed-431122, (MS) India*
E-mail : sarwadekirti@gmail.com



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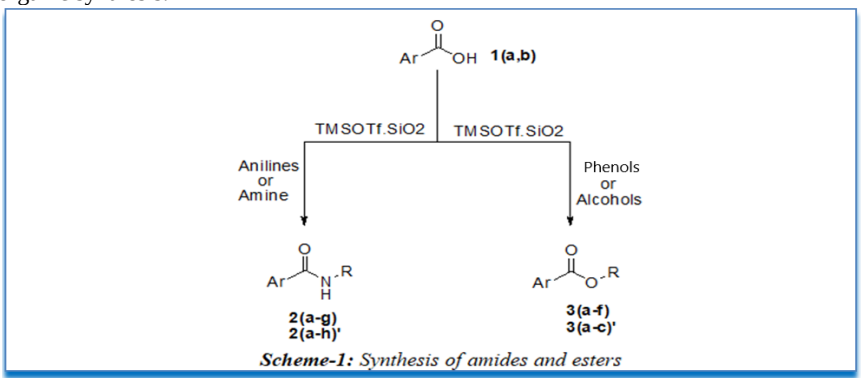
Paper-9 | Heterocyclic Letters 14: iss.-4 (2024), 813-822

Direct Amidation/ esterification of Carboxylic Acid Catalyzed by Trimethylsilyl Trifluoromethanesulfonate Supported on Silica Gel

Shrikrishna G More[1], Mahesh P More[2], Parimeeta Chanchani [3]*

[1,3*] *Department of chemistry, Mansarovar Global University, Sehore, (M.P.), India.*
[2] *Department of chemistry, Dr. A.P.J.Abdul Kalam University, Indore, (M.P.), India.*
**Corresponding author: E-mail: parimeetac@gmail.com*

The immense applications of Trimethylsilyl trifluoromethanesulfonate or (TMSOTf) or $(CH_3)_3SiO_3SCF_3$ in catalysis are not completely explored yet due to its corrosive and fuming properties. Immobilization of Trimethylsilyl trifluoromethanesulfonate supported on silica gel [TMSOTf.SiO_2 or $(CH_3)_3SiO_3SCF_3.SiO_2$] well solves these problems and affords efficient recovery and reusability with excellent yield, short reaction time, ease to handle and many more features for direct amidation/ esterification of carboxylic acids in organic synthesis.



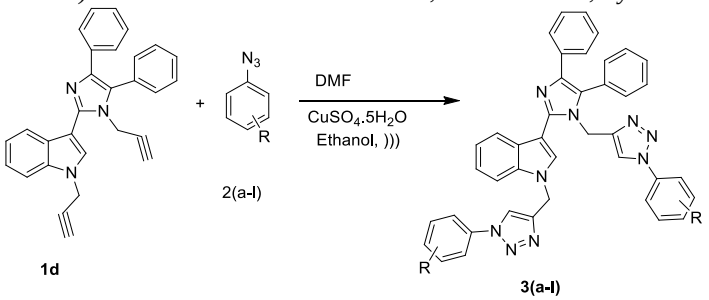
Scheme-1: *Synthesis of amides and esters*

Paper-10 | Heterocyclic Letters 14: iss.-4 (2024), 823-831

Ultrasound mediated synthesis, characterisation of 3-(4,5-diphenyl-1-((substituted 1-phenyl-1*h*-1,2,3-triazol-4-yl)methyl)-1*h*-imidazol-2-yl)-1-((substituted1-phenyl-1*h*-1,2,3-triazol-4-yl)methyl)-1*h*-indole and evaluation of their anti microbial activities.

K.Bhaskar[a], Srinivas Gali[a], K.Anjaneyulu[a], Guguloth Ravi[c] & G.V.R. Sai Madhukar[b]*

[a]*=Department of Chemistry, Government Degree College (Autonomous) Siddipet, Osmania University, Hyderabad, 502103, Telangana, India.*
[b]*= Department of Chemistry, S.K.N.R Government Arts & Science College, Jagtial, Satavahana University, Karimnagar, 505327, Telangana,India.*
[C]*= SRP(Synthetic Research Pharma) Laboratories Pvt. Ltd. Road No-18, IDA Nacharam, Hyderabad-500073, Telangana, India.*



3a=H, 3b=p-Br, 3c=o-Cl, 3d=p-Cl, 3e=p-OH, 3f=o-OMe, 3g=p-OMe, 3h=o-Me, 3i=p-Me, 3j=M-Acetyl, 3k=p-Acetyl, 3l=p-NO_2

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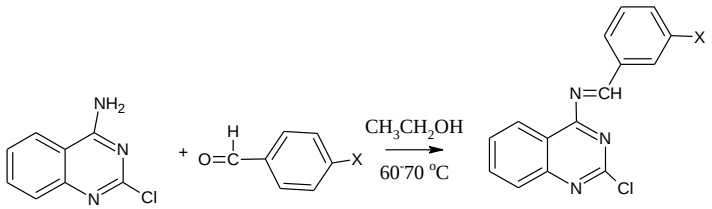
Paper-11	Heterocyclic Letters 14: iss.-4 (2024), 833-840

Synthesis, characterization and biological activity of schiff base cobalt metal complexes containnig quinazoline

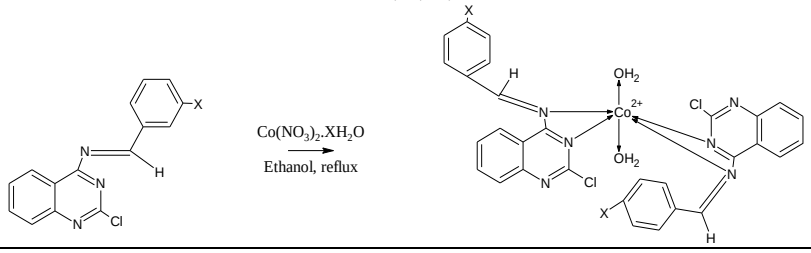
B. Ramu[a] , G. Viswanatha Reddy[b]

Department of Chemistry, RGUKT, RK valley, Idupulapaya, Vempalli, Kadapa-516329.
***Email**: bolisettyramu@gmail.com*

In the present research Schiff base and it's metal complexes are successfully synthesized The characterization of Schiff base and metal complexes by FT-IR, Electric spectra have suggested that metal complexes have octahedral geometry. The antibacterial activity found against gram negative E.Coli and gram positive Bacillus substilis



2-chloroquinazolin-4-amine Benzaldehyde derivative
X = H, F,Cl,Br



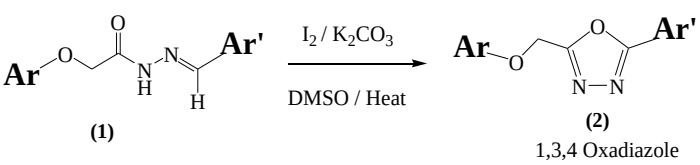
Paper-12	Heterocyclic Letters 14: iss.-4 (2024), 841-847

Synthesis, characterization and anti-mycobacterial activity of 2, 5 di-substituted 1, 3, 4 oxadiazoles

Vijay J. Desale*[a], Bapu R. Thorat[b], Ramesh S. Yamgar[c]

[a]*Department of Chemistry, HPT Arts and RYK Science College, Nashik*
[b]*Department of Chemistry Government College of Arts and Science, Chhatrapati Sambhajinagar*
[c]*Department of Chemistry, Patkar-Varde College of Arts, Science and Commerce, Goregaon, Mumbai*
**Corresponding author Email id: vjdesale82@gmail.com*

It is a simple and convenient oxidative C−O bond formation reaction using Iodine and K_2CO_3 to yields 1,3,4-oxadiazoles.



(1) **(2)**
1,3,4 Oxadiazole

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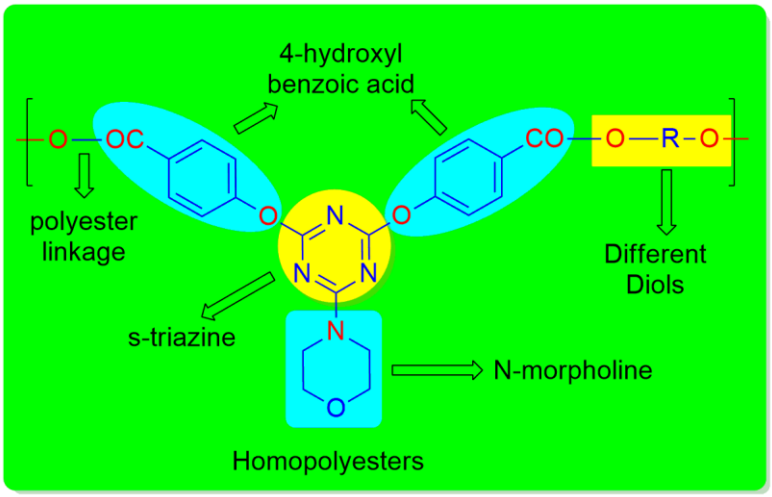
Paper-13	Heterocyclic Letters 14: iss.-4 (2024), 849-857

Synthesis, Characterization and study of kinetics of thermal degradation of novel homopolyesters based on s-triazine

Bharati Patel[a*] and Purvesh Shah[b]

[a*]*Shri Maneklal. M. Patel Institute of Sciences and research, KSV, Gandhinagar*
[b]*Department of Chemistry, K. K. Shah Jarodwala Maninagar Science College,Ahmedabad*
E-mail : purvesh234184@gmail.com

The novel polyesters were synthesised polycondensation reaction of 2-(N-morpholino)-4,6-bis(phenoxy-4'-carbonyl chloride)-s-triazine and various aromatic/aliphatic diols and characterized by various techniques.



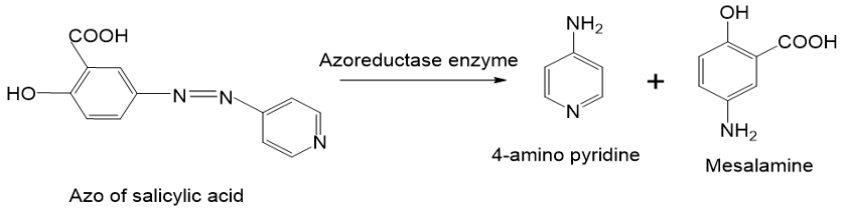
Paper-14	Heterocyclic Letters 14: iss.-4 (2024), 859-872

Design, synthesis and *in-vitro* degradation study of azo compounds as prodrugs of 4-amino pyridine

S. M. Koshti*, S. K. Girase, J. B. More

Department of Chemistry S. S. V. P.S's. L. K. Dr. P. R. Ghogrey Science College, Dhule (M. S.), India
**Corresponding author Email:smkoshti@rediffmail.com, smkoshti82@gmail.com*

By simple diazotization technique, preparation of prodrugs of 4-amino pyridine, which were degraded in presence of azoreductase enzyme, and confirmed by UV spectra and HPTLC by comparing with standard.



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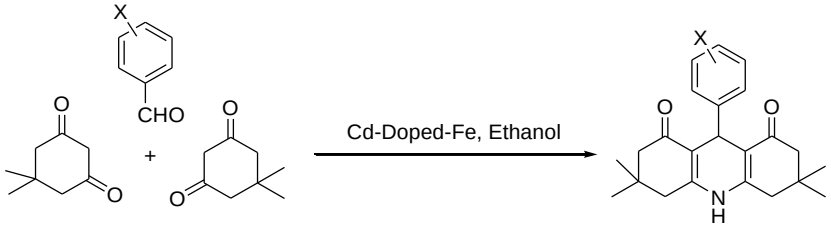
Paper-15 | Heterocyclic Letters 14: iss.-4 (2024), 873-883

An Ecofriendly Green One Pot Synthesis Of Acridine Derivative Using Magnetically Separable Cd Doped Fe Nano Catalyst

V. D. Gharat[a]* and V. D. Patil[b]

[a,b,] Department Of Chemistry, C.K. Thakur College, Affiliated To University Of Mumbai, (Autonomous), New Panvel, 410206, Plot No 1, Sector 11, Maharashtra, India.
*E-mail: vaishnavgharat@gmail.com

A cadmium-doped-iron magnetically separable nanocatalyst accelerated the four-component synthesis of Acridine derivatives. This catalyst was successfully used for sterically hindered substrate in the Hantzsch reaction with excellent yields of Acridine derivatives. A fascinating feature of this method is the affordable catalyst that is commercially available and has exceptional selectivity with neutral reaction conditions.



Where X = H, electron donating or electron withdrawing group

Paper-16 | Heterocyclic Letters 14: iss.-4 (2024), 885-890

Synthesis and Characterization of Phenyl hydrazine and Isatin-Based Schiff Base Metal Complexes with Iron, Cobalt and Chromium: A Comparative Study

Rishikesh Surve[1]*, Sagar Sankpal[2]*, Mileend Sangare[1], Jagannath Kadam[3]

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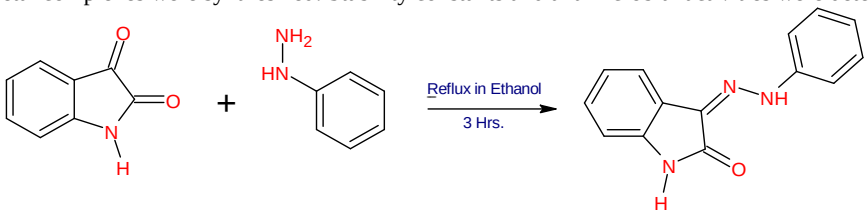
[1]Arts, Commerce and Science College, Lanja (Maharashtra), India.
[2]Athalye Sapre Pitre College, Devrukh (Maharashtra), India.
[3]Bharati Vidyapeeth college of Engineering Navi Mumbai, Mumbai (Maharashtra), India
*E-mail: surverishikesh1@gmail.com

In this research paper, Schiff base from Isatin and Phenyl Hydrazine was synthesized. Further, Iron, Cobalt and Chromium based metal complexes were synthesized. Stability constants and antimicrobial activities were determined.



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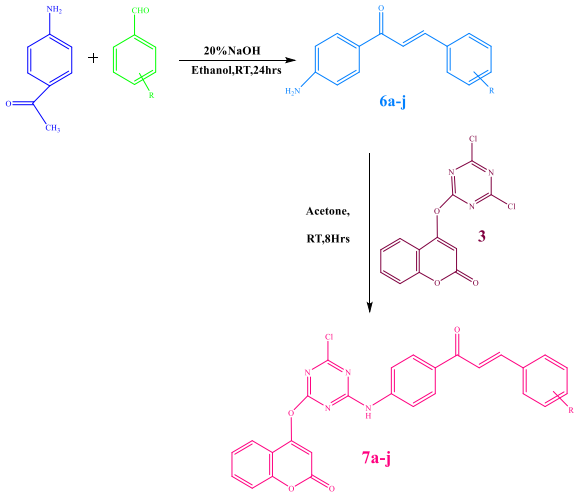
Paper-17	Heterocyclic Letters 14: iss.-4 (2024), 891-898

Synthesis and Anti-Microbial Activities of Some New s-Triazine Containing Chalcones.

Rahul.R. Dhavse[a], Santosh. R. Kshirsagar[b], Rahul. A.Waghmare[a], Achut. S.Munde[a*]

[a]*Department of Chemistry, Milind College of Science, Nagsenvana Aurangabad-431001, Maharashtra, India.*
[b]*Department of Chemistry, Dada Patil Mahavidyalaya, Karjat, Dist. Ahmednagar -414402, Maharashtra, India*
Email.dhavser@gmail.com.

In the present study, we have reported the synthesis of new series of 4-((4-chloro-6-((4- cinnamoylphenyl) amino)-1,3,5-triazin-2-yl)oxy)-2H-chromen-2-one derivatives. 4-Amino acetophenone is reacted with the substituted aryl aldehydes in the presence of NaOH followed by a condensation reaction to yield 1-(4-aminophenyl)-3-phenylprop-2-en-1-one compound **(6a-6j)**. In further synthesis, Compounds **(6a-6j)** reacted with the compound **(3)** in the presence of aq. $NaHCO_3$ and acetone as solvent to Yield **(7a-7j).**



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REVIEWS

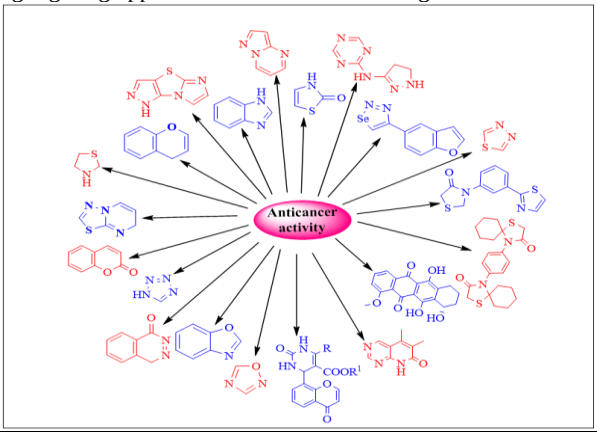
Review No.1	Heterocyclic Letters 14: iss.-4 (2024),899-920

Unlocking anticancer potentials: recent advances in evaluation of chemical compounds via *in vitro* and *in silico* studies

Prachi Patel[a], Hasit Vaghani[a*], Hit Kardani[a], Jasmin Kumbhani[b], Sarika Patel[a], Shweta Patel[c]

[a]Faculty of Science, Mehsana Urban Institute of Sciences, Ganpat University, Kherva, Mehsana-384012, Gujarat, India
[b]M.B.Patel science College, Anand SP university, VallabhVidhyanagar-388001, Gujarat ,India
[c]R.R.Mehta college of science and C.L.Parikh commerce college, Palanpur-385001, Gujarat, India
*[a]*Correspondence: hvv01@ganpatuniversity.ac.in*

Through combining results from the computational and experimental domains, it emphasizes how important multidisciplinary cooperation is to accelerating the discovery of effective anticancer drugs. For researchers, this schematic the act of provides direction and light, highlighting opportunities for further investigation and creativity in the battle against cancer.



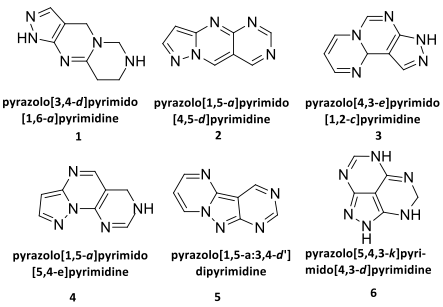
Review No.2	Heterocyclic Letters 14: iss.-4 (2024),921-933

Review on synthesis and applications of pyrazolopyrimidopyrimidine scaffold

Rina V. Shah[a]*, Nirmal M. Shah, [a] and Vivek C. Ramani[a]

a. Department of Chemistry, M. G. Science Institute (Autonomus), affiliated to Gujarat University, Ahmedabad 380 009, Gujarat, India. Email: drrdmgscience@gmail.com

Synthesis of variety of six typed linear and angular pyrazolopyrimidopyrimidines have been reviewed since 1956 in order to discuss their structural pathways with their synthetic and biological importance.



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CODEN: HLEEAI
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Review No.3	Heterocyclic Letters 14: iss.-4 (2024),935-949

Developments in the Applications of 1, 3, 4-Oxadiazole Derivatives and Synthetic Methods for 1, 3, 4-Oxadiazole 2-Amine Derivatives: A Brief Review

Jadhav R.L., [1] *Ubale S.B.[2]

[1] *Department of Chemistry, Swa. Sawarkar Mahavidaylaya, Beed, Pin-431122, Mahrashtra, India*
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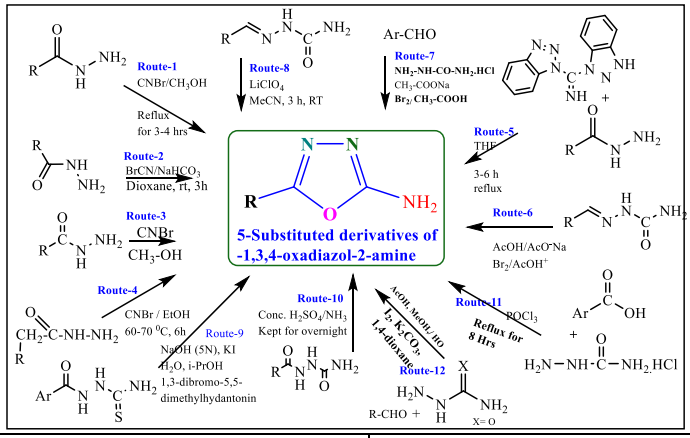
Recent advancements in the applications of 1,3,4-oxadiazole derivatives: Prominent examples of compounds with the 1,3,4-oxadiazole structure include the antiretroviral drug Isentress, AZD3988 identified as DGAT-1 inhibitors for obesity and diabetes treatment, the antihypertensive nesapidil, and the antibiotic furamizole. Synthetic strategies employed for the preparation of 1, 3, 4-oxadiazole 2-amine derivatives are summarized below:



Paper-4	Heterocyclic Letters 14: iss.-4 (2024),951-958

Rice husk as Review No.1 **an efficient agricultural waste adsorbent for the removal of dyes from water bodies: a review**

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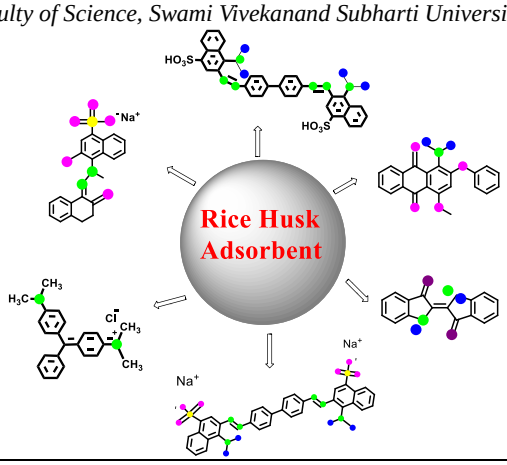

Heterocyclic Letters
Vol. 14| No.4|718-729|Aug-Oct|2024
ISSN : (print) 2231–3087 / (online) 2230-9632
CODEN: HLEEAI
http://heteroletters.org

Review No.5	Heterocyclic Letters 14: iss.-4 (2024),959-969

Nitrogen containing Benzoxazine based Heterocyclic compounds: A key to Modern Drug Design

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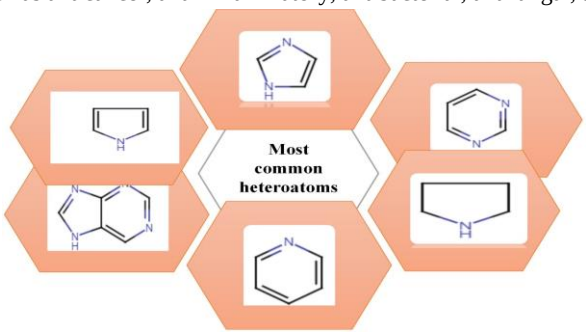
Nitrogen containing heterocycles are of great importance to investigate for applications in drug design. They play an important role in biological investigation such as anticancer, anti inflammatory, antibacterial, antifungal, anti-malarial activity



Review No.6	Heterocyclic Letters 14: iss.-4 (2024), 971-980

Synthesis of Bioactive Imidazoles: A Comprehensive Review

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Imidazole, a five-membered heterocyclic ring containing two nitrogen atoms, has been a cornerstone in medicinal chemistry due to its broad spectrum of biological activities. This review highlights the current developments in the synthesis, biological applications, and therapeutic potentials of imidazole-based compounds. Advances in synthetic methodologies and the design of novel imidazole derivatives have led to significant progress in various therapeutic areas, including antimicrobial, anticancer, anti-inflammatory, antiviral, and cardiovascular diseases. This comprehensive review aims to provide an updated overview of the structural diversity, synthetic strategies, and pharmacological activities of imidazole derivatives, shedding light on future research directions and potential clinical applications.