Heterocyclic Letters
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Graphical Abstract

Paper-1	Heterocyclic Letters 15: iss.-1 (2025), 15-33

Synthesis, DFT Analysis, Antimicrobial activity and Docking Interactions of some potential Pyrazole and 1,3,4-oxadiazoles motifs derived from 2-(4-(3-nitroimidazo[1,2-*b*]pyridazin-6-yl)piperazin-1-yl)acetohydrazide.

B. Subba Rao[1], P. Sanjeeva[1], S. Akkulanna[2] and P. Venkata Ramana[1*]

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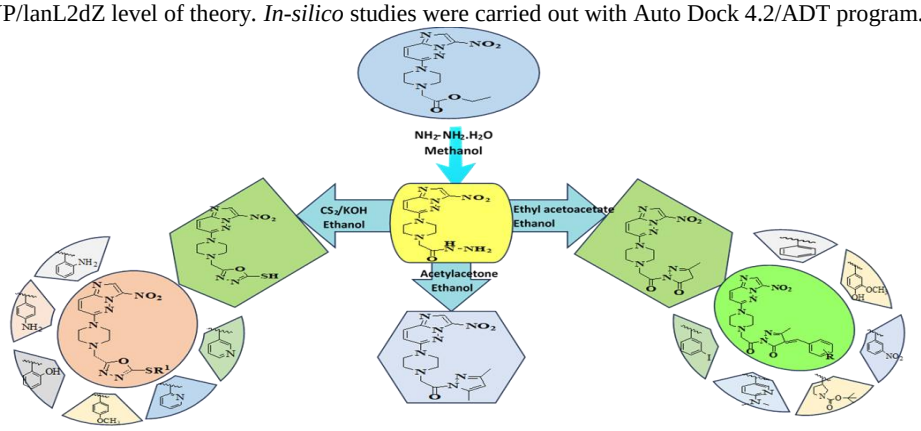
The development of new antimicrobial drugs is most needed due to rapid growth in global antimicrobial resistance. In this connection, a series of novel substituted pyrazoles & 1,3,4-oxadiazole derivatives (4a-f and 7a-f) were synthesized. Further DFT calculation was carried out at B3LYP/lanL2dZ level of theory. *In-silico* studies were carried out with Auto Dock 4.2/ADT program.

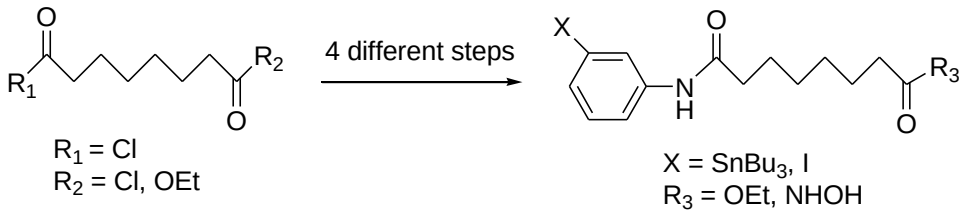


Paper-2	Heterocyclic Letters 15: iss.-1 (2025), 35-39

Synthesis of a Precursor of *m*-Iodo SAHA for Radio Imaging

Ashutosh Pal* and Bimal Krishna Banik*

[1]Raja Peary Mohan College, West Bengal, India; [2]Department of Mathematics and Natural Sciences, College of Sciences and Human Studies, Deanship of Research; Prince Mohammad Bin Fahd University, Al Khobar, Kingdom of Saudi Arabia; E-mail: ashupal33@gmail.com; bimalbanik10@gmail.com



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Paper-3	Heterocyclic Letters 15: iss.-1 (2025), 41-49

An efficient and recyclable ionic liquid mediated synthesis of 1-(3-methylbenzo[4,5]imidazo[2,1-b]thiazol-2-yl)ethan-1-one and its derivatives

M. P. Palve[a], A. A. Yelwande[a], A. V. Sapkal[b], M. U. Chopade[c] and R. D. Ingle[d]*

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[c]*Department of Chemistry, Sant Dnyaneshwar Mahavidyalay Soygaon, Chh. Sambhajinagar (MH), 431112, India.*
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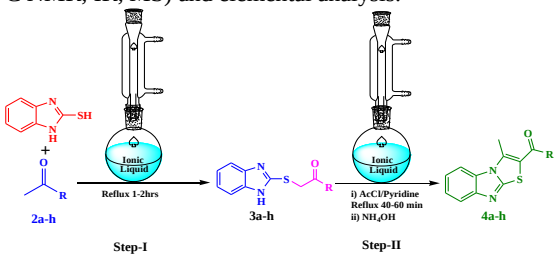
***Correspondence Author Email:** manojpalve999@gmail.com*

This approach uses a variety of aromatic and aliphatic aldehyde/ketone in the presence of recyclable ionic liquid to synthesize 1-(3-methylbenzo [4,5] imidazo [2,1-b] thiazol-2-yl) ethan-1-one and its derivatives (4a-h). The synthetic methodology makes use of inexpensive, safe, and non-toxic organic solvents as well as a straightforward process, mild reaction conditions, and high yields. The synthesized derivatives were obtained in 82-93% of yields. The synthesized compounds were confirmed by using spectroscopic data (^{1}H and ^{13}C NMR, IR, MS) and elemental analysis.

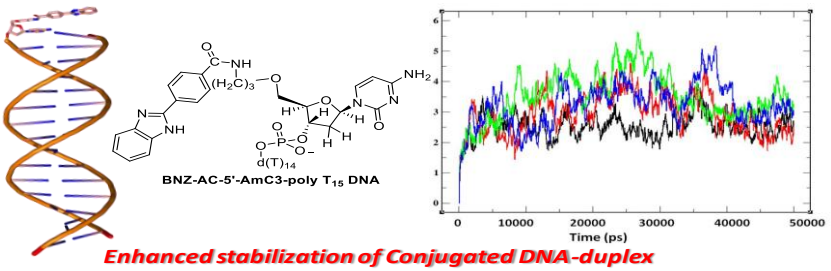


Paper-4	Heterocyclic Letters 15: iss.-1 (2025), 51-64

Benzimidazole leads the way: stronger DNA conjugation, potent cancer agent, a step ahead of benzothiazole

Uzma Khan[a], Souvik Sur[b*], Dinesh Singh[c], Aaqib Javaid[d], Kshatresh Dutta Dubey[c], Shyam Lal Mudavatdh[d, e]

[a]*Department of Chemistry, Faculty of Engineering, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh-244001, India*
[b]*Research and Development Center, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh-244001, India*
[c]*Department of Chemistry, Shiv Nadar University, Greater Noida, Uttar Pradesh-201314, India*
[d]*Institute of Nano Science and Technology, Knowledge City, Sector 81, Mohali, Punjab*
[e]*Department of Animal Sciences, University of Hyderabad, India*
**Corresponding author's E-mail: drsouvik.engineering@tmu.ac.in*



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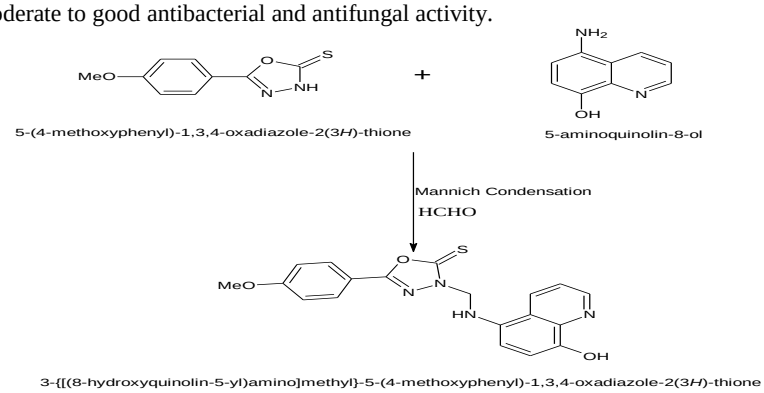
Paper-5 | Heterocyclic Letters 15: iss.-1 (2025), 65-73

3-(((8-Hydroxyquinolin-5-yl)amino)methyl)-5-(4-methoxyphenyl)-1,3,4-oxadiazole-2(3H)-thione (HAMMOT) and its metal (II) complexes: Synthesis and antimicrobial study

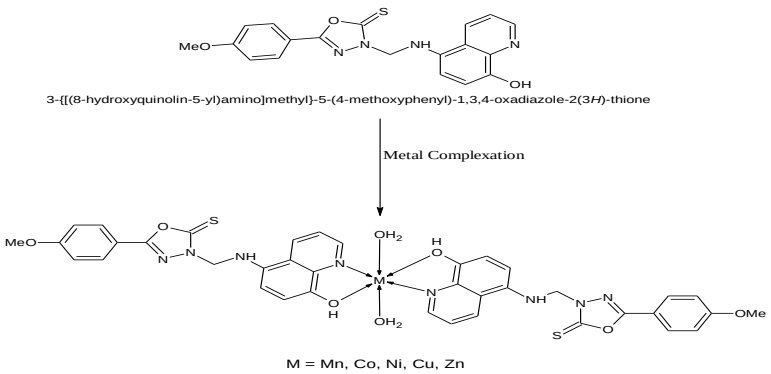
M F Tank[*1], G D Acharya[2]

[1]*Government Polytechnic, Palanpur-385001(Gujarat), India.*
[2]*Head, Dept. of Chemistry, R.R.Mehta College of Science & C.L.Parikh College of Commerce, Palanpur-385001(Gujarat), India.*
[*]*E-mail: maheshftank@gmail.com*

Synthesis and characterization of a novel clubbed molecule 3-(((8-hydroxyquinolin-5-yl)amino)methyl)-5-(4-methoxyphenyl)-1,3,4-oxadiazole-2(3H)-thione (HAMMOT) and its transition metal (II) complexes. Novel clubbed molecule and its metal (II) complexes displayed moderate to good antibacterial and antifungal activity.



Scheme 1



Scheme 2

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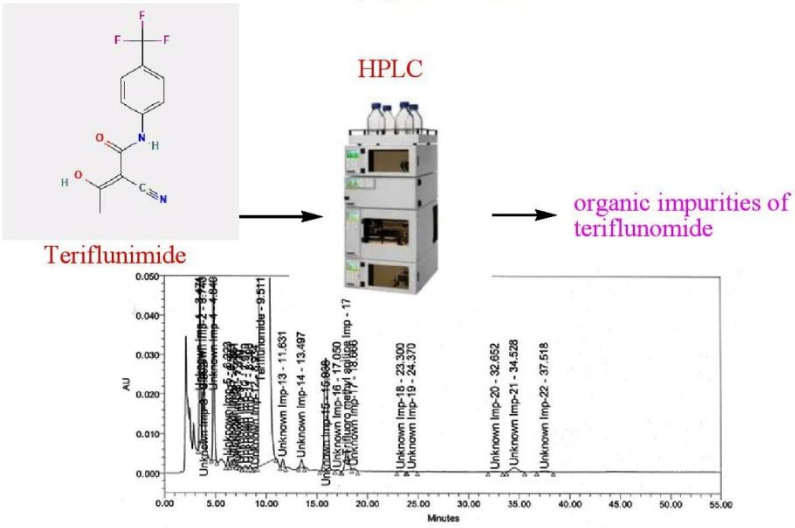
Paper-6	Heterocyclic Letters 15: iss.-1 (2025), 75-82

Rapid stability indicating hplc method for the estimation of organic impurities ofteriflunomide in pharmaceutical dosage forms of tablets and drug substances

D. ManjunathNaik[a], V. Krishna MurthiNaik[b] and K. SudhakarBabu[a*]

Department of Chemistry,
Sri Krishnadevaraya University, Anantapuramu, Andhra Pradesh, India-515003.
degavathmanjunath.111@gmail.com

Graphycal Abstract



Oxidative degradation chromatogram of Teriflunimide

Paper-7	Heterocyclic Letters 15: iss.-1 (2025), 83-88

Synthesis and Antibacterial Activity of [1,2,4] triazoloquinazolinone 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

We have developed a simple, eco-friendly friendly and efficient procedure for the synthesis of quinazolines via multi-component reaction of 3-amino, 1,2,4-triazole, dimedone and different aromatic aldehydes in the presence of Phthalimide-*N*-Sulfonic Acid as a catalyst through a one-pot reaction. The significant advantages of this protocol are mild reaction conditions, low toxicity compound, green approach, short reaction times, good yields, simple work-up.

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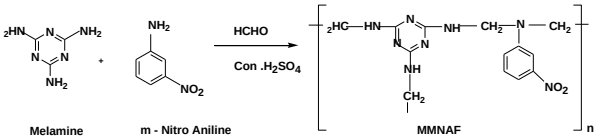
Paper-8	Heterocyclic Letters 15: iss.-1 (2025), 89-93

Studies On Preparation and Properties Of Melamine, M – Nitro Aniline And Formaldehyde (MMNAF) Anion Exchange Resin

Netal N Chudasama

Department of Chemistry, Gujarat University, M. G. Science Institute, Ahmedabad-38009, Gujarat, India
E-mail: pandenetal2016@gmail.com

The simple synthesis of Melamine, M – Nitro Aniline and Formaldehyde (MMNAF) Anion Exchange Resin by reacting m-nitroaniline with formaldehyde and melamine using hydrochloric acid as a catalyst. The reaction mixture was heated at 90 -95 ^{0}C for about 1.45 hr under continuous stirring. The obtained MMNAF was studied for physical parameters such as moisture contents, pH titration curve, porosity, exchange capacity and thermal stability.



Paper-9	Heterocyclic Letters 15: iss.-1 (2025), 95-101

Synthesis of Thiazolo [3, 2-a] benzimidazole derivatives using Microwave as Green Synthetic Technique and their Antimicrobial activities

G. Shingare[a*], D. Mundhe[a], A. Pathan[a], J. Chamargore[a], B. Madje[a]

[a] *Department of Chemistry, Vasantrao Naik Mahavidhalay, Sambhaji Nagar, Maharashtra-431 003, India.*
[b] *Department of Chemistry, Maulana Azad College, Sambhaji Nagar, Maharashtra -431003, India.*
**Corresponding Author E-mail ID: gpshingare86@gmail.com*

Microwaves assist green synthesis of Thiazolo [3, 2-a] benzimidazole derivatives at ambient conditions, with less reaction time, simple apparatus, and less solvent as compared to conventional ways where tedious reactors, complicated setups, higher temperatures, long maintaining times, unwanted impurities forcing extra purification impacting on cost, environment, health, safety.

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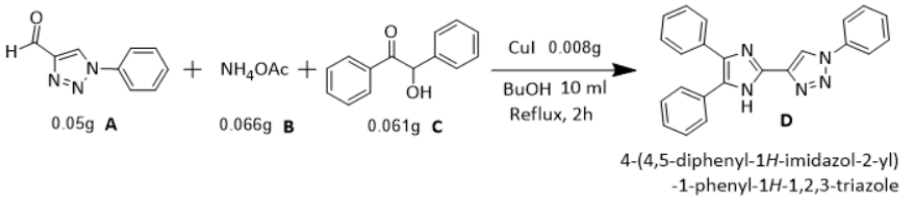
Paper-10	Heterocyclic Letters 15: iss.-1 (2025), 103-106

A novel procedure and a tenable mechanism for the synthesis of 4-(4,5-diphenyl-1H-imidazol-2-yl)-1-phenyl-1H-1,2,3-triazole

Akshi Goyal[1]* and Meena Bhandari[2]

[1]Department of chemistry, SBAS, K.R.Mangalam University, Sohna, Gurugram-122103,(Haryana) India
[2]Department of chemistry, SBAS, K.R.Mangalam University, Sohna, Gurugram-122103, (Haryana) India
**Corresponding author – akshigoya@gmail.com*

An avant-garde, worth-the money, smooth-hold procedure to synthesise a therapeutic hybrid-triazole.



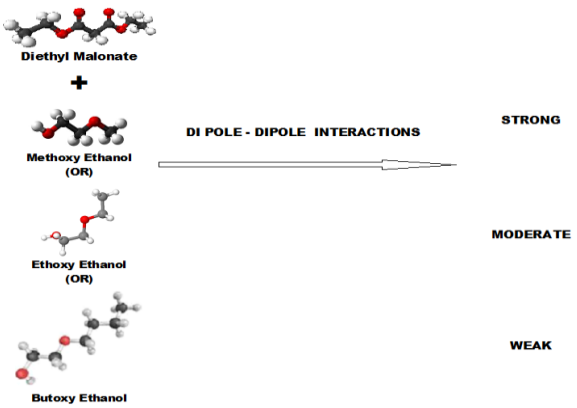
Paper-11	Heterocyclic Letters 15: iss.-1 (2025), 107-120

Thermodynamic Evaluation of Molecular interactions Of Binary Liquid Mixtures Of Diethyl Malonate With Alkoxyethanols

Ch.UdayaLakshmi*, V.N.S.R.Venkateswararao[1], K.Pavan Krishna[2], Dr.P.B.Sandhya Sri[3], Dr. N Prudhvi Raju[2]

**Department of Chemistry, Govt. Degree College, Ponduru, 532168, A.P., India.*
[1]Department of Chemistry, Institute of Aeronautical Engineering (IARE), Hyderabad, 500043, Telangana, India.
[2]Department of Chemistry, B.V.Raju College, Bhimavaram, 534202, A.P., India.
[3]Department of Chemistry, Govt. Degree College, Avanigadda, 521121, A.P.,India.
**CorrespondingAuthorE-mail: lakshmi.chtn@gmail.com*

The decreasing $\mathbf{V^E}$values in all studied mixtures suggest that with increase in carbon chain length of the 2-alkoxyethanol, the effect of formation of hydrogen bonding and dipole – dipole interactions decreases between unlike molecules.
The strength of interaction is in the order of **DEM + MOE > DEM + EOE > DEM + BOE**



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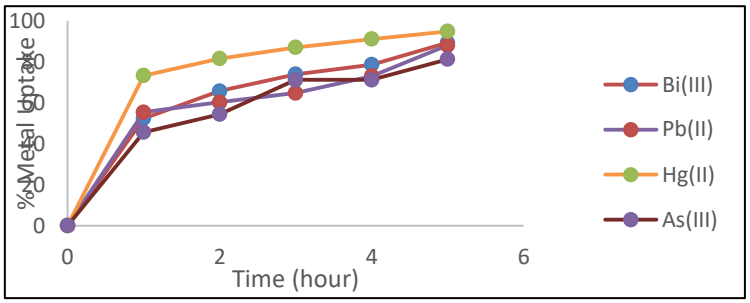
Paper-12 | Heterocyclic Letters 15: iss.-1 (2025), 121-131

Characterization and ion exchange properties of newly functionalized amberlite xad-2 resin by 5-sulfosalicylic acid

Pravin M Keche

Department of Chemistry, Adarsha Science, J.B. Arts & Birla Commerce College Dhamangaon Rly- 444709, (MS) India
Corresponding Author email: kechepravin4@gmail.com

The amount of metal ion uptake increases with increase in the contact time. Rates of metal ion uptake for Hg^{+2} was higher which was followed by Bi^{+3} and Pb^{+2}. Rates of metal ion uptake for As^{+3} was found to lower compared to all the metal under study. It can be observed that, the rate of metal ion uptake decreases in order
Hg^{+2}> Bi^{+3}> Pb^{+2}> As^{+3}.



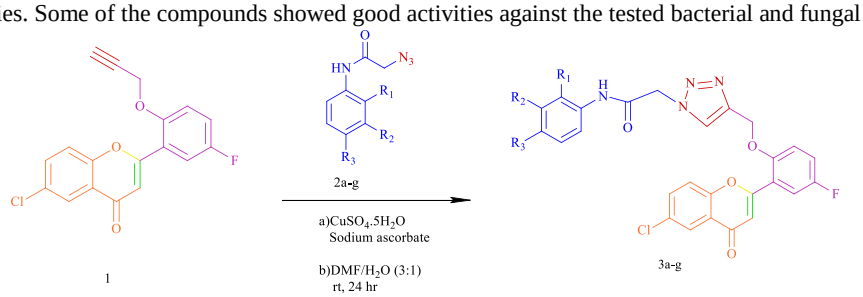
Paper-13 | Heterocyclic Letters 15: iss.-1 (2025), 133-139

Synthesis, Characterization And Antimicrobial Evaluation Of Chromone Anchored 1,2,3-Triazole Derivatives

Jaidip B. Wable[a,b], Cheryl T. Mascarenhas[a], Hemantkumar N. Akolkar[c], Nirmala R. Darekar[d], Pradnya J. Prabhu[a]*

[a]*Department of Chemistry, K. J. Somaiya College of Science and Commerce, Vidyavihar, Mumbai – 400 077, Maharashtra, India.*
[b]*Department of Chemistry, B. N. Bandodkar College of Science, Thane, 400 601, Maharashtra, India.*
[c]*Department of Chemistry, Abasaheb Marathe Arts and New Commerce, Science College, Rajapur, Dist- Ratnagiri, 416 702, Maharashtra, India*
[d]*Department of Chemistry, Radhabai Kale Mahila Mahavidyalaya, Ahmednagar, 414 001, Maharashtra, India.*
E-Mail: pjprabhu1008@gmail.com (Corresponding Author)

We have reported a series of novel (*E*)-1-(5-Chloro-2-hydroxyphenyl)-3-(5-fluoro-2-((1-(substitutedphenyl)-1*H*-1,2,3-triazol-4-yl)methoxy)phenyl)prop-2-en-1-ones (**3a-g**) by using Click chemistry. All the synthesized compounds were screened for their antimicrobial activities. Some of the compounds showed good activities against the tested bacterial and fungal strains.



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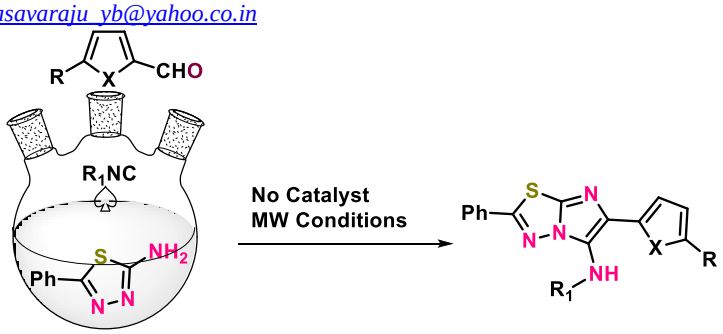
Paper-14	Heterocyclic Letters 15: iss.-1 (2025), 141-155

Catalyst free synthesis of *n*-(susbtituted-butyl)-6-(5-(4-substiuted-phenyl)furan/thiophene-2-yl)-2-phenylimidazo[2,1-*b*][1,3,4]thiadiazol-5-amine and their biological and docking studies

Ramasamudra Nagabhushana, Sathish Kumar[a], Ramesh S. Bhat[b], Yariyuru B. Basavaraju[a*]

[a]*Department of Chemistry, Manasagangotri, University of Mysore, Mysuru, Karnataka, India-570006.*
[b]*Department of Chemistry, NMAM Institute of Technology, NITTE (Deemed to be University), Nitte -574110, India*
**Corresponding author: basavaraju_yb@yahoo.co.in*



Paper-15	Heterocyclic Letters 15: iss.-1 (2025), 157-165

Visible Light Promoted Catalyst-Free Green Synthesis of 1,3,5-TriarylPyrazoles in Aqueous Medium

A. Siddiqui[a*], A. Sinha[b*], V. Tripathi[b*], A. Yadav[b*], G. Singh[b*],G.Kumar[b*] ,N. Fatima[b*] , Mohammad Saquib[c*], and V. Bhadauria[a]**

[a* b*]*Green Laboratory, Department of Chemistry, Ewing Christian College, (University of Allahabad) Prayagraj 211003 Utter Pradesh India.*
[c*]*Green Laboratory, Department of Chemistry, University of Allahabad Prayagraj 211002 Uttar Pradesh India*.
[a**]Email: bvivek17@gmail.com

The green catalyst free visible light mediated synthesis of 1,3,5-triaryl substituted pyrazoles in aqueous medium using Michael addition reaction is presented. Reactions are performed at room temperature for 5-6 hours.

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Paper-16 | Heterocyclic Letters 15: iss.-1 (2025), 167-182

Rapid Stability Indicating RP-HPLC Method for the Estimation of Organic Impurities for Aripiprazole in Aripiprazole Tablets and drug substances

U. Chandra Sekhar[a], T. Veera Reddy[b], and P. Sanjeeva[c]
[a]Department of chemistry, Vikrama simhapuri University, Nellore-524 320.
[b]Department of chemistry Sri Krishnadevaraya University, Anantapur-51 5003.
*[*]**E-mail:** chandhu.viveka@gmail.com*

A rapid, simple and validated reversed-phase high-performance liquid chromatographic method has been developed for analysis of aripiprazole in tablet dosage form. Aripiprazole was separated on an inertsil ODS analytical column with mobile phase-A in the composition of buffer pH 3.0 and mobile phase-B at a flow rate of 1.5 mL/min in gradient elution(MP-A: 0min, 85%;10min,70%; 15min, 65%; 18min, 65%; 24min, 50%; 34min, 40%, 35min, 85% & 45min, 85%). The effluent was monitored by UV detection at 252 nm. Calibration plots were linear in the range of LOQ to 125% and the LOD, LOQ were 0.03 and 0.15 µg mL-1, respectively. The high recovery and low relative standard deviation confirm the suitability of the method for routine quality control determination of aripiprazole in tablets.

Paper-17 | Heterocyclic Letters 15: iss.-1 (2025), 183-186

One pot synthesis of Dihydropyrimidones by using Nickel-Ferrite Nanocatalyst

Mustaqeem Mohammed Abbas*[1], Karthik Krishnan[†2]

[1]Department of Chemistry,
Royal College of Arts, Science and Commerce (Autonomous)-Mira Road, Maharashtra, India
E-mail:mustaqeem19@gmail.com
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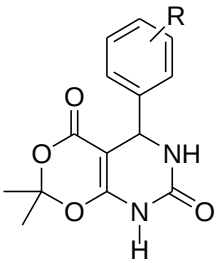
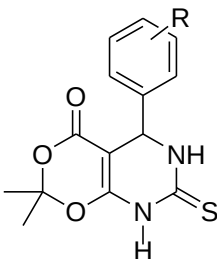
Guru Nanak College of Arts, Science and Commerce (Autonomous), G.T.B. Nagar, Mumbai
E-mail:mustaqeem19@gmail.com

Dihydropyrimidone derivatives have been synthesized by grinding Meldrum's acid, urea/thiourea with aryl aldehyde in the presence of Ni-ferrite nanocatalyst. The comparative studies were done with respect to the yield, reaction simplicity and work-up of the reaction. The structures of all the synthesized compounds were confirmed by chemical test along with TLC, physical parameters such as melting, boiling point and spectral technique such as IR, ^{1}H NMR and ^{13}C NMR.





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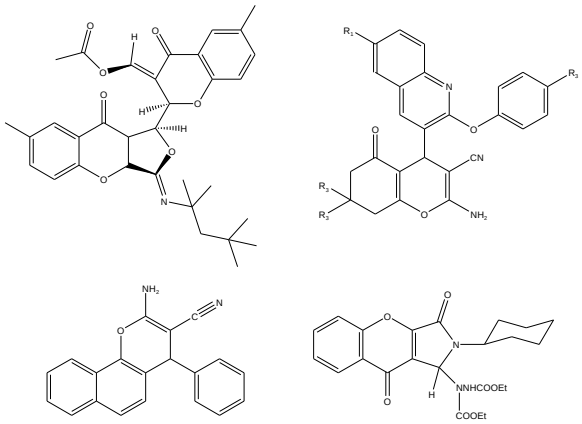
REVTEWS

Review No.1	Heterocyclic Letters 15: iss.-1 (2025), 187-203

A review on synthesis and reactions of chromone and chromene derivatives using the multicomponent reaction system

Figueroa-Valverde Lauro, Rosas-Nexticapa Marcela, Alvarez-Ramirez Magdalena, Lopez-Ramos Maria.

Laboratory of Pharmaco-Chemistry, Faculty of Chemical Biological Sciences, University Autonomous of Campeche, Av. Agustín Melgar s/n, Col Buenavista C.P. 24039 Campeche, Camp., México.



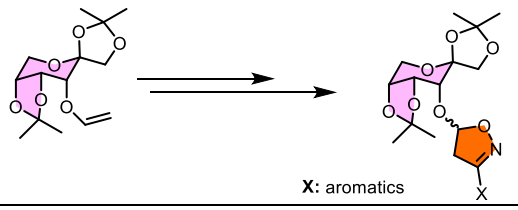
Review No.2	Heterocyclic Letters 15: iss.-1 (2025), 205-216

Sweet Science: Unveiling Biologically Active Sugar-Based Chiral Isoxazoles

Amrendra Kumar Singh[a]*

Department of Chemistry, Faculty of Engineering & Technology, Veer Bahadur Singh, Purvanchal University, Jaunpur-222003 (U.P) India
Email: aks.vbspu@gmail.com

This review article, *"Sweet Science: Unveiling Biologically Active Sugar-Based Chiral Isoxazoles,"* should feature a sugar molecule transitioning into a chiral isoxazole via a schematic synthesis pathway. Surround this with icons illustrating their biological activities, such as antibacterial, antiviral, and anticancer effects, along with a symbol representing pharmaceutical relevance. A pastel color palette, clear annotations, and a well-organized layout will highlight the synthesis, structure, and applications of these biologically active compounds, providing a visually engaging and informative summary.



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Review No.3	Heterocyclic Letters 15: iss.-1 (2025), 217-225

A review on furan: detection and analysis methods

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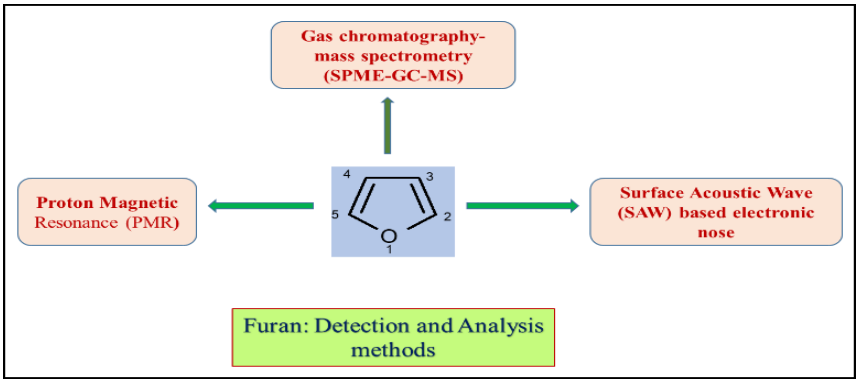

Review No.4	Heterocyclic Letters 15: iss.-1 (2025), 227-245

Advances in green catalysis based on metal oxides for the synthesis of N-heterocycles

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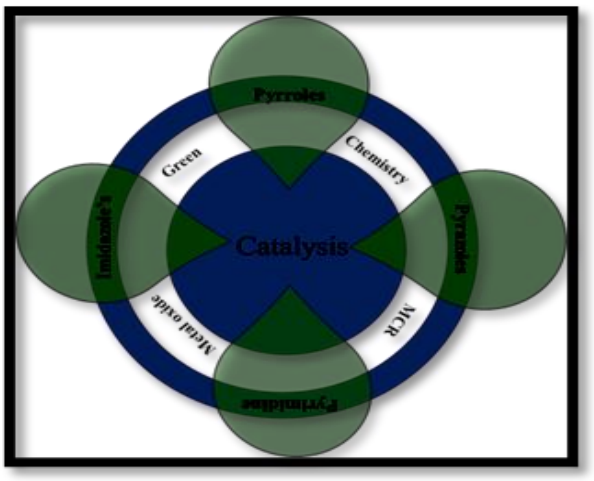

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Overview of biological significance of chromones and flavones

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