Heterocyclic Letters
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GRAPHICAL ABSTRACT

Paper-1	Heterocyclic Letters 15: iss.-2 (2025), 269-272

Synthesis of 13-Methyldibenzoflourene Derivatives as Anticancer Agents

Chhanda Mukhopadhyay[1, 2], Ram Naresh Yadav[3], Frederick F. Becker[1] and Bimal Krishna Banik*[1, 4]

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[4]College of Sciences and Human Studies, Deanship of Research, Prince Mohammad Bin Fahd University, Al Khobar 31952, Kingdom of Saudi Arabia; bimalbanik10@gmail.com

Synthesis of new methyldibenzoflourenes was conducted. The amino products exhibited IC_{50} 1 to 4.6 (μM) against B16, BRO, HL-60, L-1210, MCF-7, OVCAR-3, P-388 and PC-3 cancer cell lines by MTT assay.

Paper-2	Heterocyclic Letters 15: iss.-2 (2025), 273-276

New Synthesis of 4,4'-Dimethoxytrityl Chloride Using Zinc Halides

Devidas B Patil,[1]Mayur B Ugale[1], Partiksha A Giramkar[1], Sayukta V Pahurkar[1], Monika J Pandarkar[1], Aarif L Shaikh[1, 2], and Bimal Krishna Banik[2, 3]*

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[2]Department of Chemistry, The University of Texas-Pan American, 1250 West University Drive, Edinburg, Texas 78539, USA;
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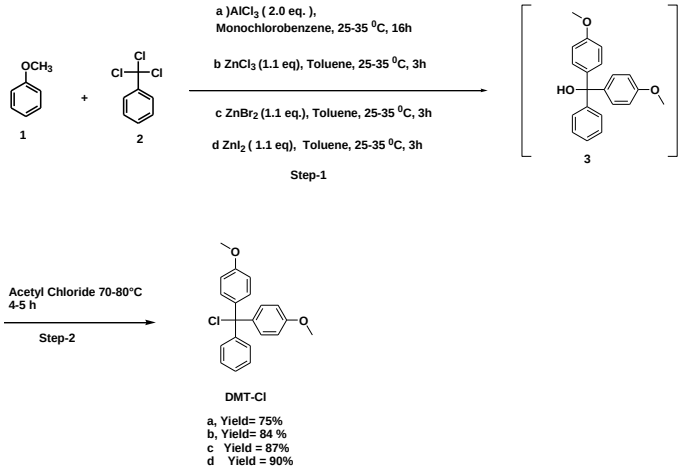
A new method for Friedel-Crafts alkylation is developed using zinc halides in excellent yield. This is an effective method for a large scale preparation of DMT-Cl from anisole and benzotrichloride.



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Paper-3 | Heterocyclic Letters 15: iss.-2 (2025), 277-279

Synthesis of Fatty Acids-Substituted *N*- Chrysenyl-β-Lactams

Aarif Latif Shaikh,[1, 2] and Bimal Krishna Banik[1,3,4]*

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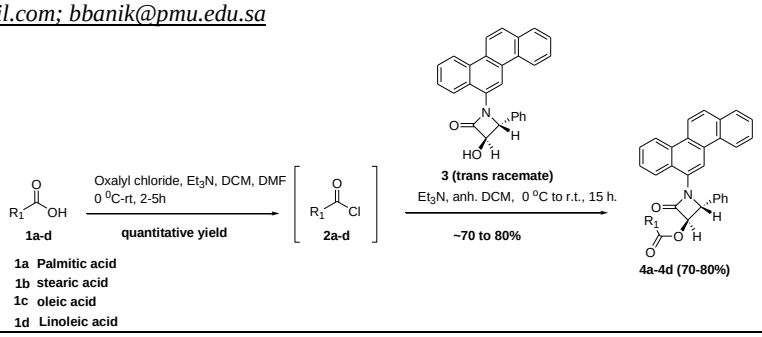

Paper-4 | Heterocyclic Letters 15: iss.-2 (2025), 281-285

A Facile Nitration for the Synthesis of API Intermediates Using Novel Nano Catalysts

Devidas B Patil[1, 2], Sharda Dagade[1], Sathiyanarayanan Lohidasan[1], Suhas Mohite[1,]
Aarif Latif Shaikh[2, 3], and Bimal Krishna Banik[3, 4]*

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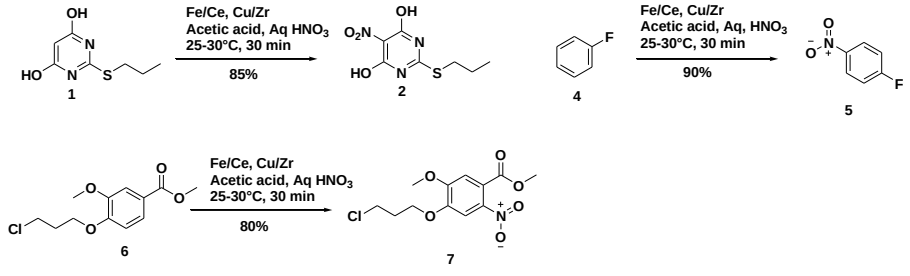

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Paper-5	Heterocyclic Letters 15: iss.-2 (2025), 287-289

Ultrasound-Mediated Stereoselectivity of β-Lactams Formation With Polyaromatic Imines

Robert Rodriguez[1], Aarif Latif Shaikh[1, 2], Ratna Mukherjee[3], and Bimal Krishna Banik[1, 4]*

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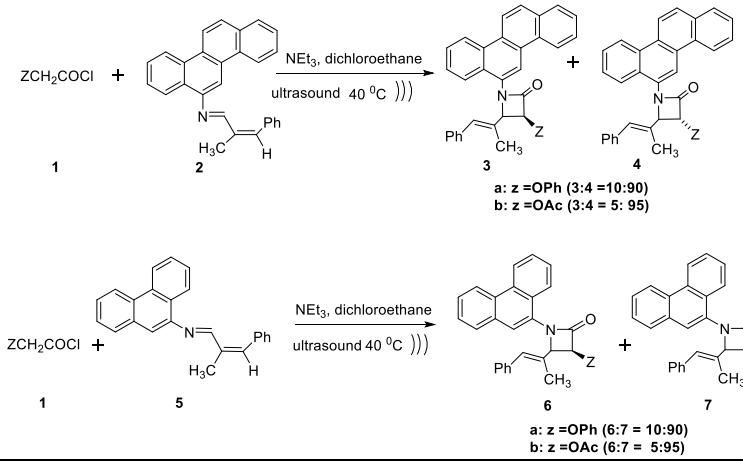
[4]College of Sciences and Human Studies, Deanship of Research, Prince Mohammad Bin Fahd University, Al Khobar 31952, Kingdom of Saudi Arabia; bimalbanik10@gmail.com; bbanik@pmu.edu.sa



Paper-6	Heterocyclic Letters 15: iss.-2 (2025), 291-298

Three step synthesis of series of 7-(4-nitrophenyl)-1-((1*h*-1,2,3-triazol-4-yl))-*1h*-imidazo[4,5-b][1,8]naphthyridines

Srikanth Podishetty[a] and Jagadeesh Kumar Ega [a*]

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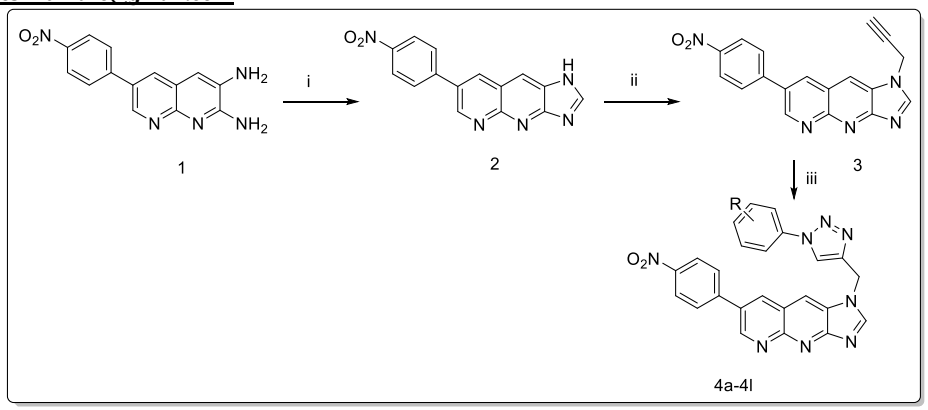

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Paper-7	Heterocyclic Letters 15: iss.-2 (2025), 299-312

A perchloric polyborate: reusable green catalyst promopted one-pot synthesis of trisubstituted imidazoles under solvent-free conditions via a domino sequential facile multicomponent reaction

D. Aute[1], G. Dethe[1], A. Parhad[2], B. Uphade[1] and A. Gadhave[1]*

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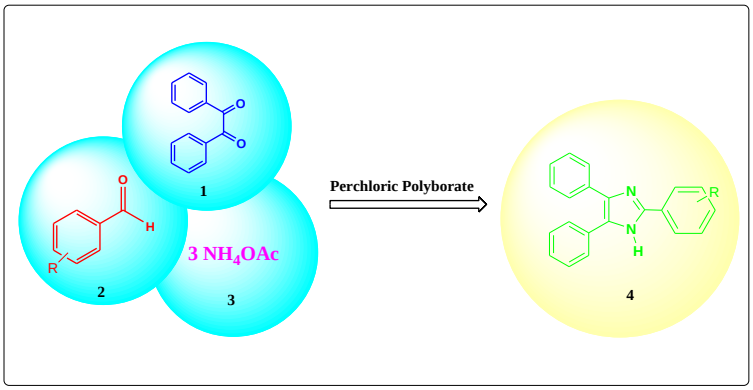

Paper-8	Heterocyclic Letters 15: iss.-2 (2025), 313-317

Synthesis and antimicrobial assessment of novel isoxazole, pyrazole, and benzodiazepine derivatives derived from chalcones

Vijay V. Dabholkar* and Dinesh Udawant [#], Rahul Jaiswar

Organic Research Laboratory, Department of Chemistry,
**Jai Hind College, Church gate, Mumbai-400 020,*
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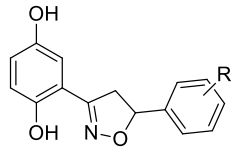
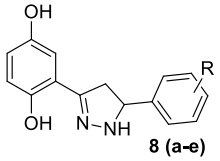
E-mail: vijaydabholkar@gmail.com

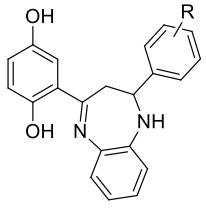
The substituted chalcones were produced through the reaction of quinacetophenone with various substituted aromatic aldehydes. Subsequently, these derivatives underwent treatment with hydrazine hydrate, hydroxylamine hydrochloride, and o-phenylenediamine, leading to the formation of isoxazole, pyrazole, and benzodiazepine derivatives, respectively. The structures of these compounds were verified using spectral techniques, including IR, NMR, and Mass spectrometry. Additionally, they were evaluated for their antimicrobial activity against both gram-negative and gram-positive bacteria, yielding promising results.



7 (a-e)



8 (a-e)



9 (a-e)

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Paper-9	Heterocyclic Letters 15: iss.-2 (2025), 319-326

Degradation of methylene blue dye using $ZnFe_2O_4$ nanoparticles

Mhaske A. K, Gadhave A. G, Uphade B. K*

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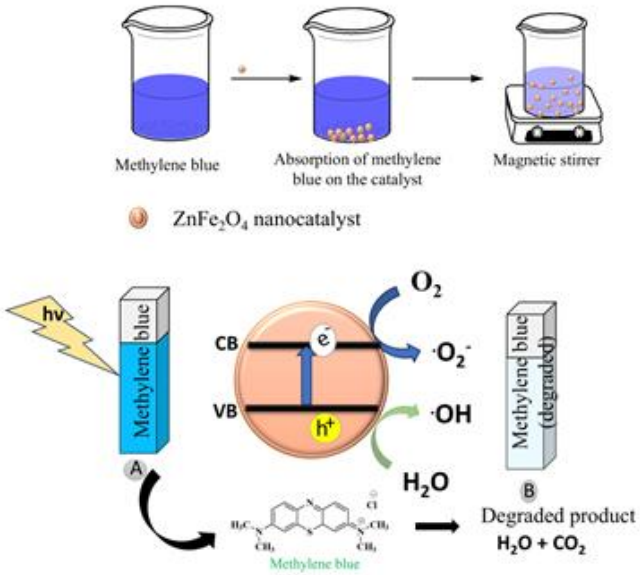

Paper-10	Heterocyclic Letters 15: iss.-2 (2025), 327-335

Co(ii) and cu(ii) complexes of Schiff base ligands: synthesis, spectral characterization, thermal analysis and antimicrobial activity

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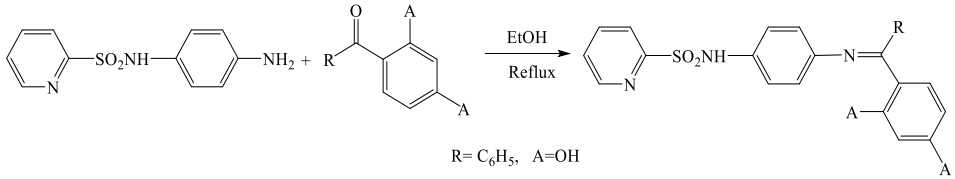
[a*]*Department of Chemistry, Adarsha Science, J. B. Arts & Birla Commerce Mahavidyalaya, Dhamangaon Rly, Amravati, India*

Corresponding authors email: vasadafale1980@gmail.com



Scheme 1

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Paper-11 | Heterocyclic Letters 15: iss.-2 (2025), 337-347

A Novel Chromatographic Estimation of Bempedoic acid and Ezetimibe in Bempedoic acid and Ezetimibe Pharmaceutical Dosage Forms

Degavath Manjunath Naik[a] , V. Krishnamurthy Naik[a], J. Latha[b] and K. Sudhakar Babu[a]

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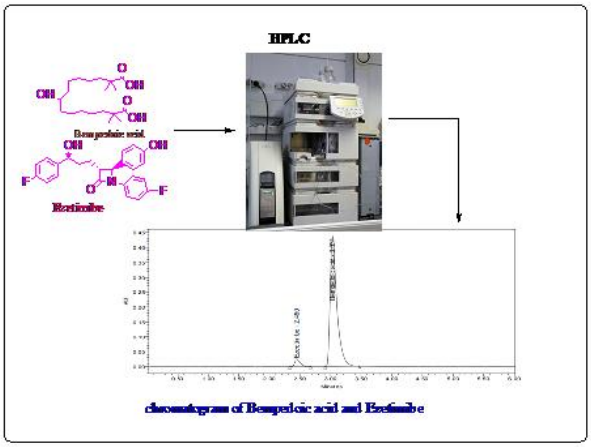
*Corresponding mail: **degavathmanjunath.111@gmail.com***



Paper-12 | Heterocyclic Letters 15: iss.-2 (2025), 349-355

$Co_{0.9}Sm_{0.05}Fe_{2.05}O_4$ Nanoparticles catalyzed one pot synthesis of 4-aryl-2-aminothiazoles in water

Akash Solunke[a], Devendra Wagare[b], Vishnu shinde[a*]

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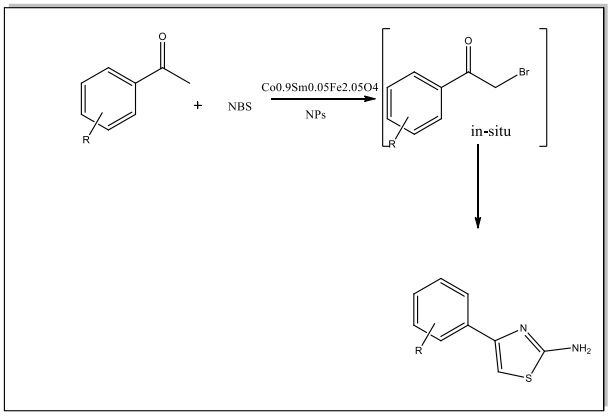

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Paper-13 | Heterocyclic Letters 15: iss.-2 (2025), 357-363

Synthesis and characterization of some novel asymmetric tetradentate schiff bases of 2,4-diamino -6-phenyl-1,3,5- triazine

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[b]*Department of Chemistry, S.B.E.S. College of Science Chh.Sambhajinagar.431001 (M.S.) India.*
[a*]*Department of Chemistry and Research Center, Vivekanand Arts, Sardar Dalipsingh Commerce & Science College Chh.Sambhajinagar.431001 (M.S.) India.*

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Department of Chemistry and Research Center, Vivekanand Arts, Sardar Dalipsingh Commerce & Science College Chh.Sambhajinagar.431001 (M.S.) India.
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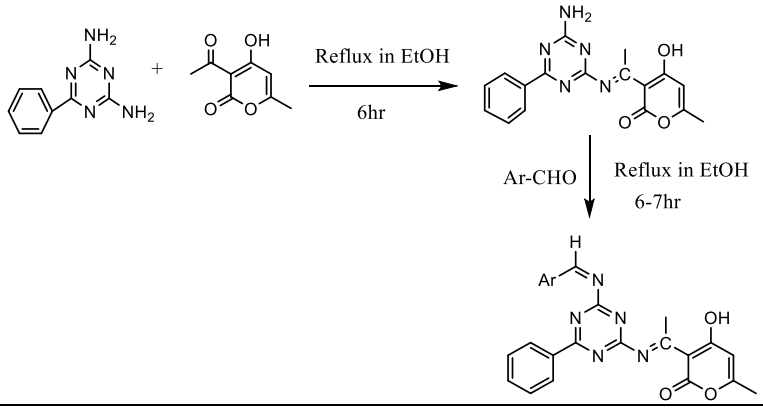
The present work involves synthesis of some novel asymmetric tetradentate Schiff bases derived from 2,4-diamino-6-phenyl-1,3,5-triazine and Dehydroacetic acid in two steps. First step of scheme involves preparation of mono Schiff base by condensation of 2,4-diamino-6-phenyl-1,3,5-triazine and Dehydroacetic acid . The second step involves preparation of some novel asymmetric tetradentate Schiff bases from condensation of mono Schiff bases with substituted aromatic aldehydes. Prepared ligands were characterized by spectral analysis i.e. FT-IR, LCMS, ^{1}HNMR.



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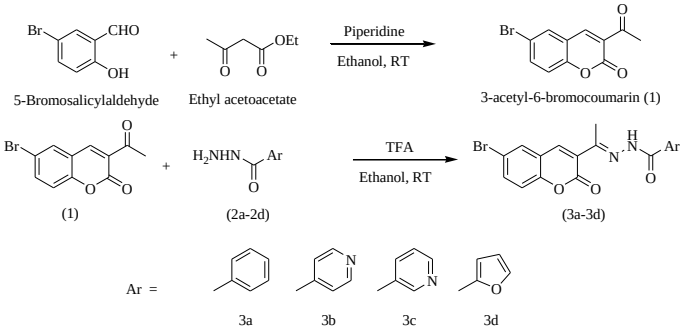
Paper-14	Heterocyclic Letters 15: iss.-2 (2025), 365-370

Synthesis of some coumarin derivatives containing azomethine funtionality and evaluation of their antioxidant potential

P. Dhapate[a], A. Shaikh[a], A. Attar[a], D. Fartade[a], A. Khursheed[a] and A. Pangal[a]*

[a]Advanced Scientific Research Laboratory, Department of Chemistry and Post Graduate Centre, Abeda Inamdar Sr. College of Arts, Science & Commerce (Autonomous), Camp, Pune – 411001, India
**Corresponding Author: E-mail: pangalanees@azamcampus.org*

In the current study, four new 3-acetyl-6-bromocoumarin hydrazones (**3a-3d**) were synthesized, and their structures were characterized using FTIR, ^{1}H-NMR, and HRMS techniques. The antioxidant activity of these hydrazones was evaluated using the DPPH radical scavenging method. Among them, hydrazones **3c** and **3d** exhibited significant antioxidant activity, with noteworthy IC50 values compared to the standard antioxidant, ascorbic acid. These results may be attributed to the presence of various functional groups, which could have enhanced the activity of **3c** and **3d**. Overall, the findings suggest that these compounds could serve as promising lead structures for the development of new drugs.



Paper-15	Heterocyclic Letters 15: iss.-2 (2025), 371-375

Synthesis of Novel chalcones by chloromethylation of 1-hydroxy Acetophenone

S.Y. Mane[1*], K. G. Huge[2] S.B. Sapkal[3]

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[2] Department of Chemistry, K. K. M. College, Manwat Dist. Parbhani, Pin-431505, MS India.
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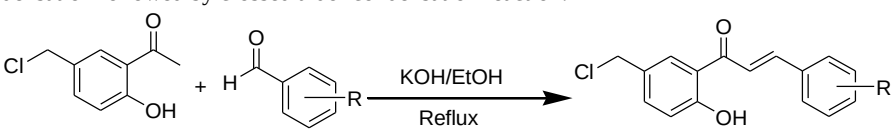
Synthesis of Chalcone followed by Chloromethylation of ortho hydroxy acetophenone using formaldehyde solution in the presence of concentrated hydrochloric acid and $ZnCl_2$ as a Lewis acid in chloroform as a solvent at around 35 to 40 °C temperature 1-(5-(chloromethyl)-2-hydroxyphenyl) ethanone which on further reaction with substituted aromatic benzaldehyde in the presence of alcoholic KOH under reflux condition, chalcones are obtained. The reaction is proceeding through Claisen–Schmidt condensation followed by crossed aldol condensation reaction.



R = 2-Cl, 3-Cl, 4-OH, 3-OMe, 4-No_2, 4-Me, 4-Me, 3-Me

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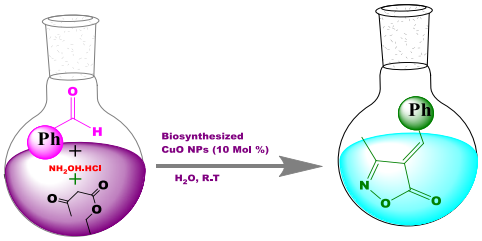
Paper-16	Heterocyclic Letters 15: iss.-2 (2025), 377-393

Efficiently synthesize Isoxazol-5(4H)-One derivatives in aqueous medium using CuO nanoparticles catalysis with a biosynthesized approach

Abhimanyu P. Pawar[a*], Kishor S. Naktode[a] and Arvind J. Mungole[b]

[a]*Department of Chemistry, Nevjabai Hitkarini College, Bramhapuri, Maharashtra 441 206, India*
[b]*Department of Botany, Nevjabai Hitkarini College, Bramhapuri, Maharashtra 441 206, India*
Corresponding author E-mail: abhaypawar1988@gmail.com

Abstract:
In our study, we capitalized on the potential of copper oxide nanoparticles derived from plant extracts as environmentally friendly catalysts for various reactions, particularly in the synthesis of isoxazol-5(4H)-one derivatives. This innovative approach presents a green, efficient, and straightforward method for producing these compounds through a one-pot, three-component reaction involving aromatic aldehydes, ethyl acetoacetate, and hydroxylamine hydrochloride, all conducted at room temperature. Impressively, this procedure yielded the title compounds in high to excellent yields, all while maintaining short reaction times. Copper oxide nanoparticles are a standout catalyst choice due to their low toxicity, cost-effectiveness, easy availability, and manageable handling. Overall, this method offers several notable benefits, including high yields, swift reaction times, and an environmentally friendly profile, making it a valuable contribution to sustainable chemical synthesis practices.



Paper-17	Heterocyclic Letters 15: iss.-2 (2025), 395-403

Dihydro Isoxazole Scaffolds: Design, Synthesis, And Biological Evolution

Ganesh Shingare[a*], Dharnidhar Mundhe[a*], Priti Gupta[b], Balaji Madje[a], Jaishree Chamargore[a]

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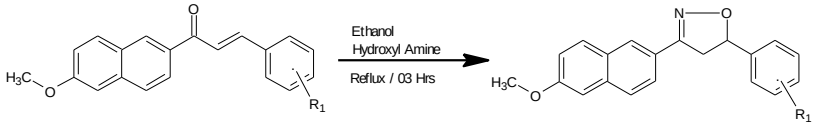
[b]Center of excellence in Material & Science, Department of Chemistry, CMR Institute of Technology, Bengluru-460 037, India.
**Corresponding authors: 1) gpshingare86@gmail.com 2) mundhedj@gmail.com*

A new series of isoxazole derivative with potent antibacterial and antifungal activity had been synthesised. Chalcone cyclised with hydroxylamine hydrochloride at refluxed where no use of hazardous solvent, simple operations and apparatus, short reaction time, diverse range of substrate at different positions, easy work up, catalyst free, no column chromatography, excellent yields are features for isoxazole series.



R_1=OCH_3, Cl, CH_3 substituted at different positions

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Paper-18	Heterocyclic Letters 15: iss.-2 (2025), 405-419

Fabrication of graphene oxide-reinforced composite polymers from biodegradable resins incorporated with styrene and methyl methacrylate monomers for enhanced mechanical strength

Newton Balakrishnan Mercy Eben [1], R. Nalini Suja [2], Justus Shakina[1*], P. Tharmaraj[3], Jebasingh Bhagavathsingh,[4]

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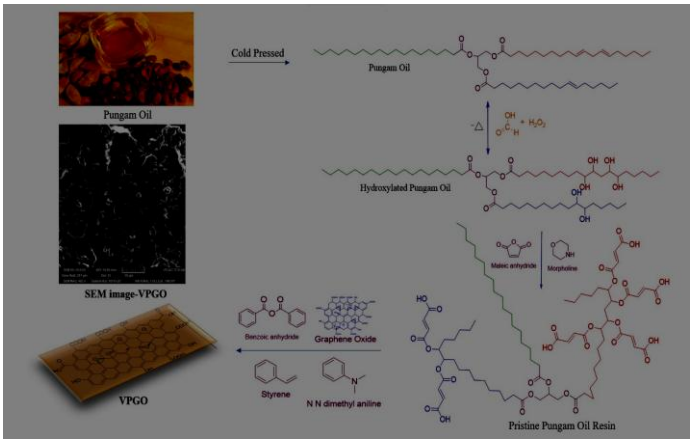
[3]pg and research department of chemistry, thiagarajar college, madurai.
[4]department of applied chemistry, karunya institute of technology and sciences, coimbatore, tamil nadu, india
shakina@sarahtuckercollege.edu.in, jebasinghb@karunya.edu



Paper-19	Heterocyclic Letters 15: iss.-2 (2025), 421-429

Microwave Assisted Synthesis of substituted (3*E*)-1-(1,3-benzothiazol-2-yl)-*N*-phenyl-1,2-diazetidin-3-imine (1e-1h):-

A.W. Wakode[a*], Y.S. Banginwar[b], M.S. Panchbhai[c], M.N. Gulhane[d], A.Y. Dawande[e]

[a,d,]Department of Chemistry, Arts & Science College, Pulgaon, Dist- Wardha 442302 (M.S.)India
[b,e]Department of Microbiology, Arts & Science College, Pulgaon, Dist- Wardha 442302 (M.S.)India
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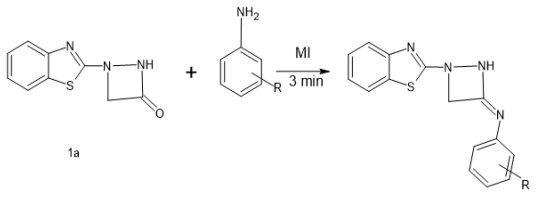

R= p-NO_2, o-Cl, m-Cl, p-Cl

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REVIEWS

Review No.1	Heterocyclic Letters 15: iss.-2 (2025), 431-441

Review on Synthesis of OxochromenylXanthenone and IndolylXanthenone derivatives

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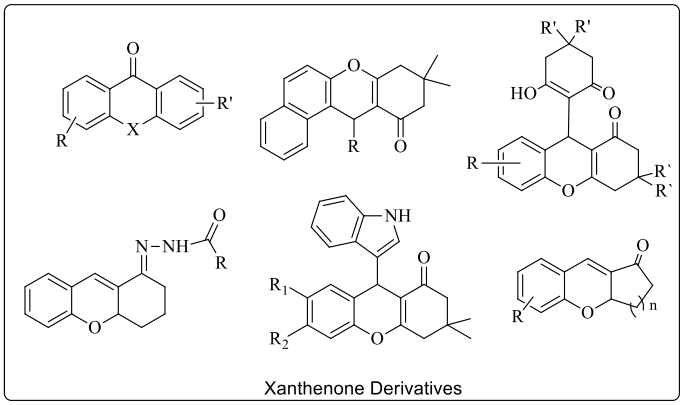

Review No.2	Heterocyclic Letters 15: iss.-2 (2025), 443-451

Effect of hazardous waste material on surroundings and their executive strategies

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Different types of bags for collection of different types of wastes