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Graphical Abstract

Heterocyclic Letters 7: iss.-2 (2017), 259-266

Another application of zirconia sulfuric acid as highly efficient recyclable nano-catalyst for selective cross-aldol condensations of ketones with aromatic aldehydes in water

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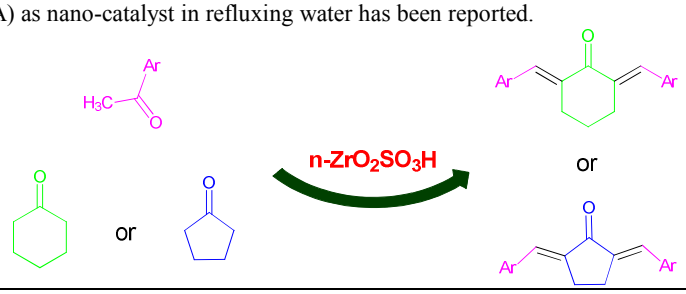
In this work, rapid and selective cross-aldol condensations of aromatic aldehydes with various ketones in the presence of Zirconia Sulfuric Acid (ZrSA) as nano-catalyst in refluxing water has been reported.



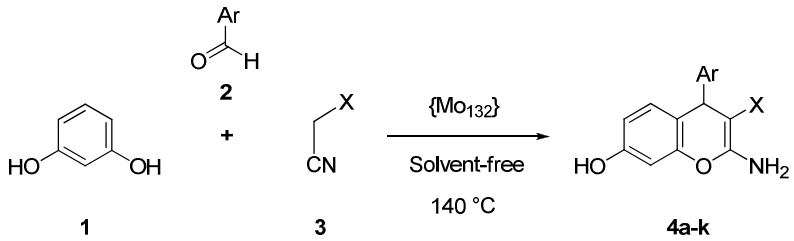
Heterocyclic Letters 7: iss.-2 (2017), 267-273

Another application of a keplerate type giant nanoporous isopolyoxomolybdate as highly efficient reusable catalyst for the one-pot synthesis of polyfunctionalized 4*h*-chromenes

Nasrin Karimi, Abolghasem Davoodnia*, and Mehdi Pordel

Department of Chemistry, Mashhad Branch, Islamic Azad University, Mashhad 91756-87119, Iran

In this paper, a new application of a Keplerate-type giant-ball nanoporous isopolyoxomolybdate formulated as $(NH_4)_{42}[Mo^{VI}_{72}Mo^{V}_{60}O_{372}(CH_3COO)_{30}(H_2O)_{72}]$ and denoted as ($\{Mo_{132}\}$), was discovered in the one-pot synthesis of several 2-amino-4-aryl-7-hydroxy-4*H*-chromenes by cyclocondensation of resorcinol, aromatic aldehydes, and ethyl cyanoacetate or malononitrile. The reactions were done under solvent-free condition giving the corresponding products in high yields within short reaction times. Other beneficial features of this protocol include ecofriendly catalyst, simple purification procedure, and the recyclability and reusability of the catalyst for up to four consecutive runs.



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Heterocyclic Letters 7: iss.-2 (2017), 275-279

Synthesis of some new molecular tweezer molecules bearing dibenzobarallene pincers using a brønsted-acid ionic liquid as catalyst

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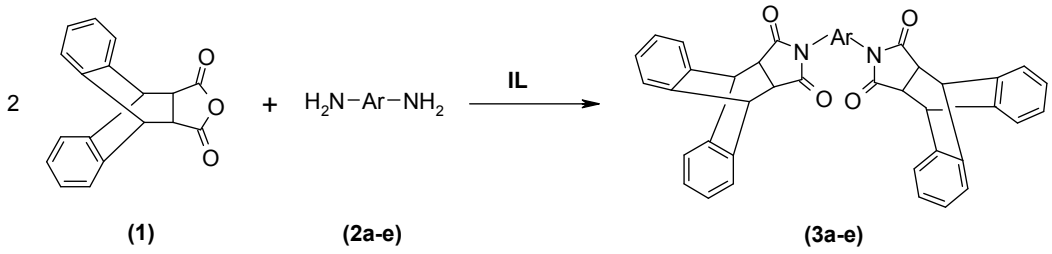
[b]*Department of Biology, Mashhad Branch, Islamic Azad University, Mashhad, Iran.*

In the present study, we have synthesized some novel molecular tweezer molecules comprising a characteristic 9,10-dihydro-anthracene-9,10-α,β-succinimide structural unit as pincers. These derivatives were synthesized by the reaction of dibenzobarallene and aromatic diamines using 1-(4-sulfonylbutyl) pyridiniumhydrogensulfate[$(CH_2)_4SO_3HPy$] [HSO_4], a Brønsted acidic ionic liquid, as a green and reusable catalyst. The products were characterized on the basis of FT-IR, ^{1}H-NMR,^{13}C-NMR spectra and elemental analyses.



(1) **(2a-e)** **(3a-e)**

Heterocyclic Letters 7: iss.-2 (2017), 281-285

Synthesis and Structural Elucidation of Novel Heterocyclic Compounds from Benzimidazol-2-one

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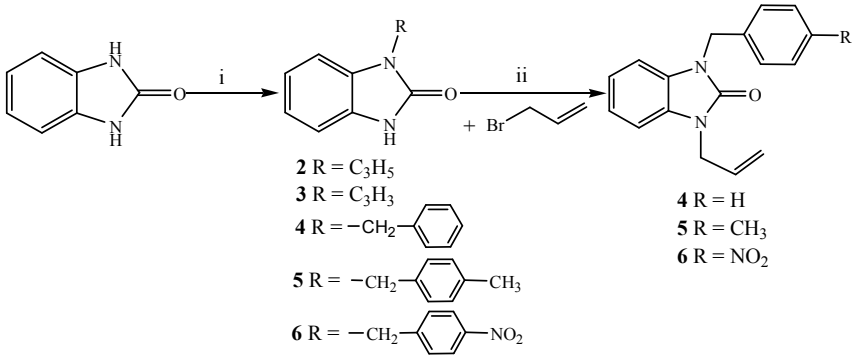
[2]*Laboratory of Applied Synthetic Organic Chemistry, Faculty of Sciences, University of Dschang, P.O. Box 067 Dschang, Republic of Cameroon. E-mail: sopbue@yahoo.fr*

The synthesis of new derivatives of N-allyl/benzyl and N-allyl, N'-benzyl benzimidazol-2-ones under phase transfer catalytic conditions has been reported. The synthesized compounds have been characterized by their physical and spectral data.



i: DMF/BTBA/K_2CO_3, R-X, RT/6 hours ii: DMF/BTBA/K_2CO_3, RT/6 hours

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Heterocyclic Letters 7: iss.-2 (2017), 287-294

Facile Synthesis of Some Novel Triazole and Triazine Derivatives

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[2]*Department of Chemistry and Centre of Advanced Studies in Chemistry, Panjab University, Chandigarh 160014, India*
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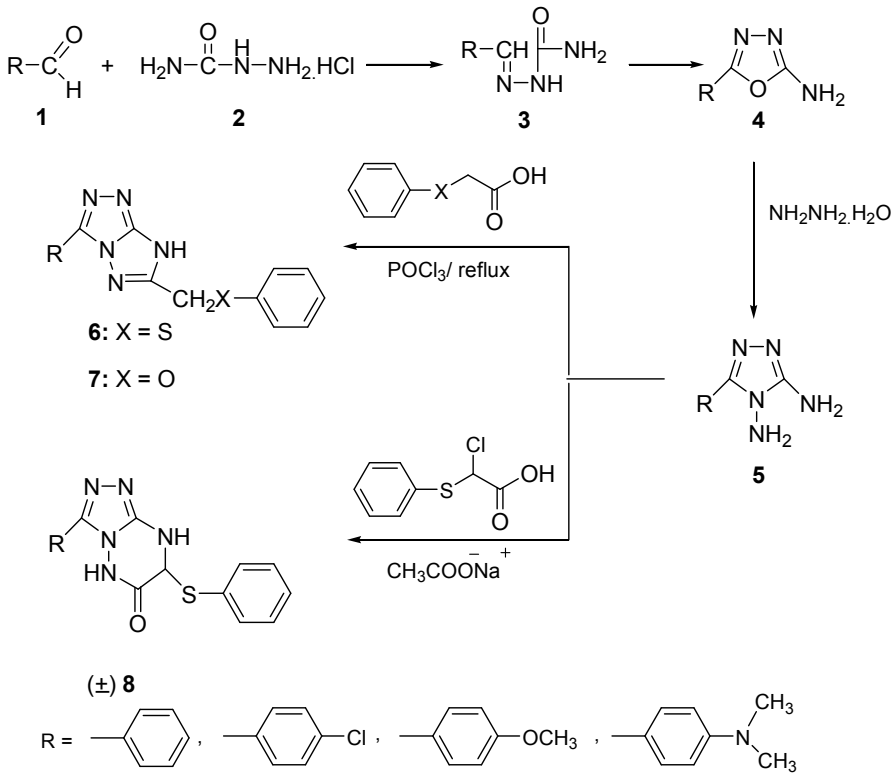
A new approach towards the synthesis of substituted triazolo-triazoles and triazin-6-ones derivatives is described. The starting substituted semicarbazones were synthesized from semicarbazide hydrochloride and appropriate aldehyde, which on oxidative cyclization afforded 2-amino-5-(substituted phenyl)-1,3,4-oxadiazole derivatives. These oxadiazoles were then converted into corresponding 5-(substituted phenyl)-[1,2,4]triazol-3,4-diamine derivatives. The triazol-3,4-diamines on reaction with phenoxy/phenylthioacetic acid and chlorophenylthioacetic acid afforded desired substituted triazolo-triazoles and triazolo-triazines derivatives respectively. All the synthesized compounds were characterized by FT-IR, NMR spectroscopy (^{1}H and ^{13}C) and elemental analysis (CHN).



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Heterocyclic Letters 7: iss.-2 (2017), 295-301

.Synthesis and antimicrobial activity of 4-(4-chlorophenyl)-n-[(substituted)methylene]thiazol-2-amine derivatives bearing different heterocycles

Vinod Tukaram[1], Ketan A. Ganure[1], V. S. Suryawanshi[2], K. S. Lohar[1]*

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[2]Department of Chemistry, S. C. S. College, Omerga-413606, Maharashtra (INDIA)
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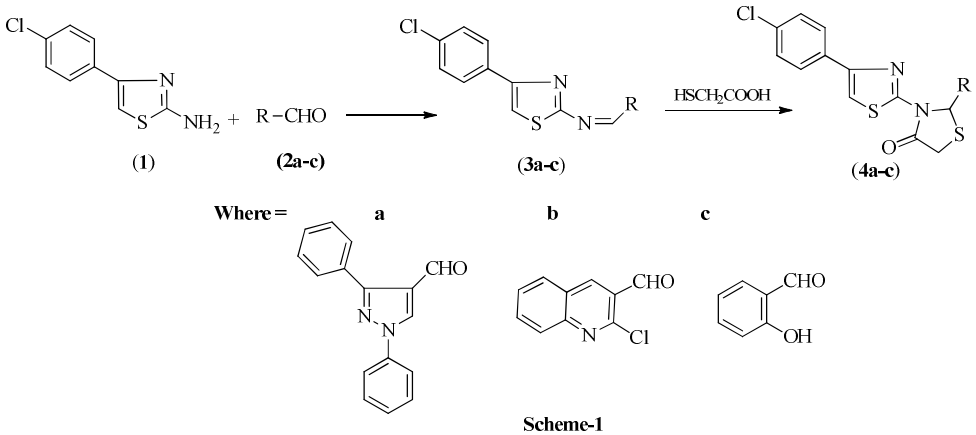
The present work reports the synthesis of novel 4-(4-chlorophenyl)-N-[(substituted)methylene]thiazol-2-amines and thiazolidinones bearing different heterocycles such as pyrazole, quinoline and salicyaldehyde moieties, in simple reaction conditions. The structures of these newly synthesized compounds have been characterized by IR, ^{1}H NMR and Mass spectral data and screened for antimicrobial activity.



Scheme-1

Heterocyclic Letters 7: iss.-2 (2017), 303-311

Microwave assisted solvent free synthesis of schiff base of functionalized 1,3,4-thiadiazole in ionic liquid

[1]A. G. Joshi, [1*]S. A. Jadhav, [1]S. R. Vaidya

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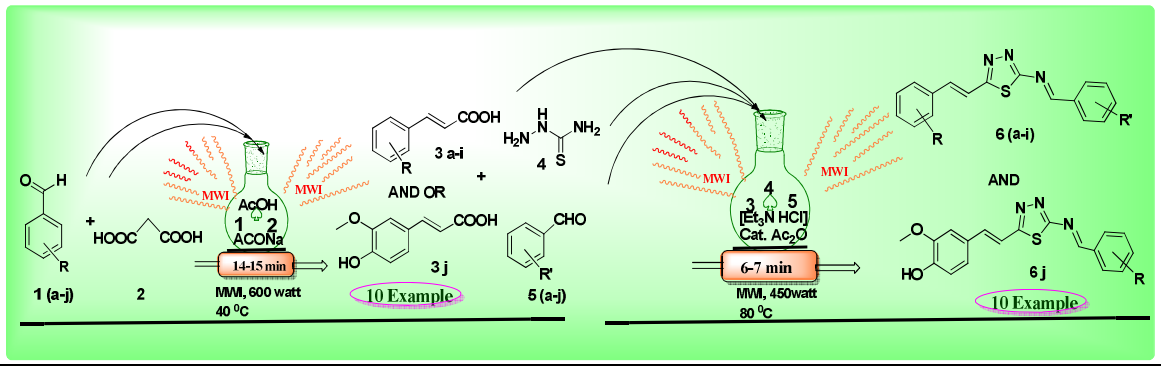
*Corresponding author E-mail: profsantoshjadhav@gmail.com



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Heterocyclic Letters 7: iss.-2 (2017), 313-321

Synthesis of 8-[4-Methylsulphonyl-Benzoyl] and 8-[4-Phenyl-Benzoyl]-4h-Furo[2,3 H]Isoflavones Using Substituted Phenacyl Halides

V. Daniel[1], K. Santosh kumar[2], N. Rameshwar[1], Y. Jayaprakash Rao[1] and G. L. David Krupadanam*

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Department of Chemistry, Osmania University, Hyderabad, Telangana, India.
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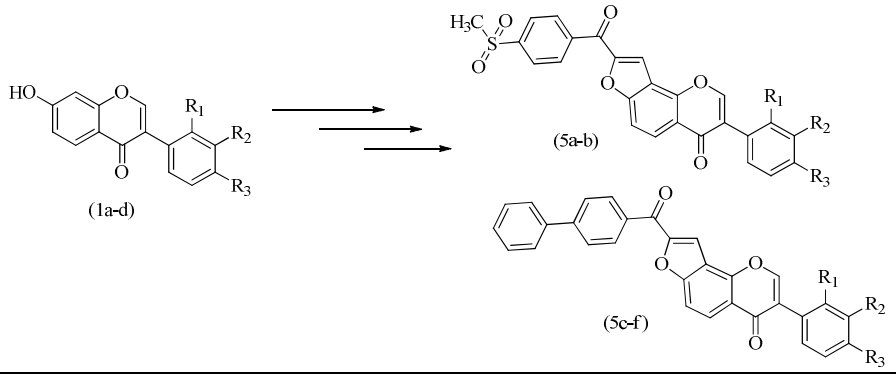
The present investigation describes the condensation of 8-formyl-7-hydroxy isoflavones **2a-d** with phenacyl bromides (p-methylsulphonyl-phenacyl bromide **3**, p-phenyl-phenacyl bromide **4)** in 1,4-dioxane/K_2CO_3 medium which afforded 8-[4-methylsulfonyl-benzoyl] and 8-[4-phenyl-benzoyl]-4H-furo[2,3-h]isoflavones **5a-f** in good yields. The synthesized compounds were purified by column chromatography and characterized by IR, ^{1}H-NMR, ^{13}C-NMR and Mass spectrometry. These compounds were tested for their antibacterial and antifungal activities



Heterocyclic Letters 7: iss.-2 (2017), 323-331

Fast and green synthesis of 3,4-dihydropyrimidin-2(1*H*)-ones and –thiones using nanometasilica disulfuric acid as recyclable catalyst in water

Ahmad Nakhaei[1]*, Saeed Shojaee[2], Elnaz Yaghoobi[2], and Shirin Ramezani[3]

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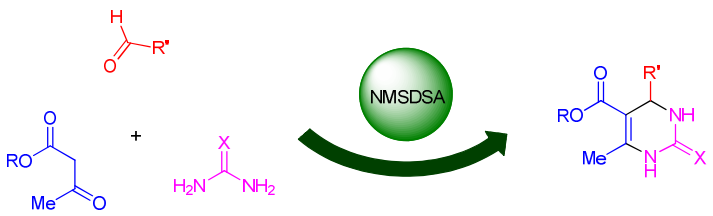
[3]Department of Chemistry, Mashhad Branch, Islamic Azad University, Mashhad, Iran

In this research work, synthesis of 3,4-dihydropyrimidin-2(1*H*)-ones and –thiones by one-pot reaction of *β*-ketoesters, an aryl aldehyde, and urea or thiourea in the presence of nanometasilica disulfuric acid (NMSDSA) as catalyst in water under reflux condition has been reported.



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Heterocyclic Letters 7: iss.-2 (2017), 333-339

Synthesis and evaluation of antimicrobial activity of some novel chalcones of 2, 6-dichloro-4-trifluoro methyl aniline

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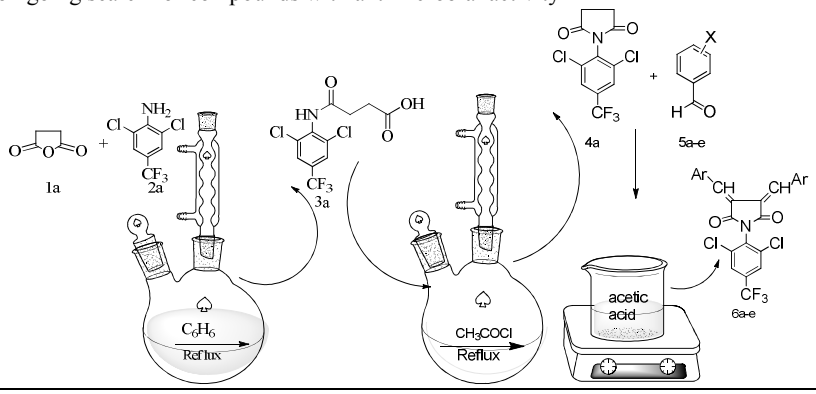
E-mail: rajputss65@gmail.com
2 Department of Chemistry, PSGVPM's Arts, Commerce and Science College, Shahada, Dist.Nandurbar (M.S) 425409, India.

As part of our research program on going search for compounds with antimicrobial activity. A new series of chalcones were synthesized via reaction between 1-(2, 6-dichloro-4-trifluoromethyl-phenyl)-pyrolidine-2, 5-dione, 1-(2, 6-dichloro-4-trifluoromethyl-phenyl)-piperidine-2, 6 dione and substituted aromatic aldehydes in presence acetic acid. The synthesized chalcones were characterized by spectral analysis and all compounds were screened for their antimicrobial activities. As part of our research program on going search for compounds with antimicrobial activity



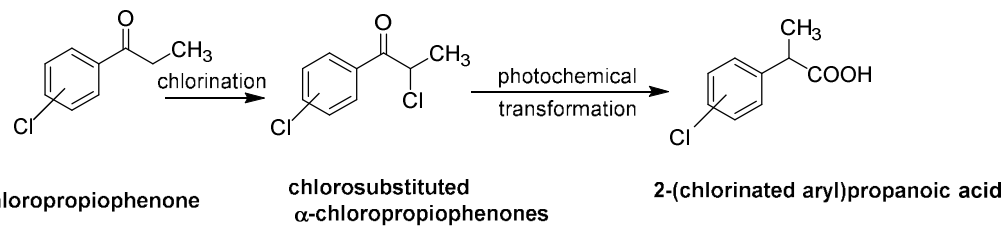
Heterocyclic Letters 7: iss.-2 (2017), 341-345

Synthesis of novel 2-(Halogenated Aryl) propanoic acids via Photolysis

Kishor R. More*, R. S. Mali

Garware Research Centre, Department of Chemistry, Pune University, Pune, 411007, India.
Email: kishor.more@ipca.com

A simple and efficient synthesis of novel 2-(Halogenated Aryl) propanoic acids starting from halogenated propiophenones.



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Heterocyclic Letters 7: iss.-2 (2017), 347-356

Synthesis and biological evaluation of certain pyrazole clubbed 1, 3-thiazolone derivatives bearing pyrazoline moiety

Rahul P. Thummar*, Ronak D. Kamani, Nirav H. Sapariya, Beena K. Vaghasiya, Sharad C. Karad, Dipak K. Raval

Department of Chemistry, Sadder Patel University, Vallabh Vidyanagar- 388 120, Gujarat, India
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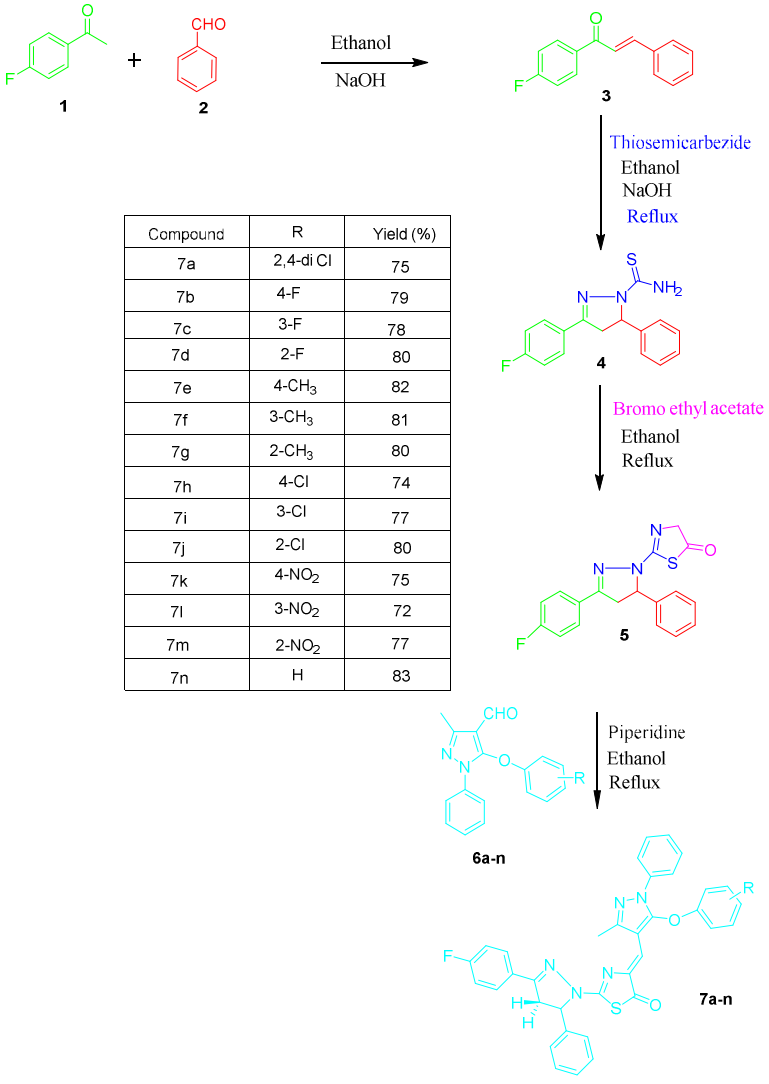
4-floroacetophenone **(1)** and benzaldehyde **(2)** and react with each other in presence of base give Schiff base which further react with thiosemicarbazide and give diazo product (**4**). Product (**4**) reacts with bromomethyl acetate and form 2-substituted thiazol-5(4*H*)-one (**5**). Pyrazole aldehyde derivatives **(6a-n)** react with 2-substituted thiazol-5(4*H*)-one **(5)** in presence of piperidine and gives final products **(7a-n)**.



Compound	R	Yield (%)
7a	2,4-di Cl	75
7b	4-F	79
7c	3-F	78
7d	2-F	80
7e	4-CH_3	82
7f	3-CH_3	81
7g	2-CH_3	80
7h	4-Cl	74
7i	3-Cl	77
7j	2-Cl	80
7k	4-NO_2	75
7l	3-NO_2	72
7m	2-NO_2	77
7n	H	83

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Heterocyclic Letters 7: iss.-2 (2017), 357-368

A novel sulfated choline (IL) based $FeCl_4$: Heterogeneous catalyst for the synthesis of spiro indolinequinazoline derivatives under mild conditions

Beena K. Vaghasiya*, Nirav H. Sapariya, Shailesh P. Satasia, Rahul P. Thummar, Ronak D. Kamani and Dipak K. Raval

Department of Chemistry, Sardar Patel University, Vallabh Vidyanagar- 388 120, Gujarat, India
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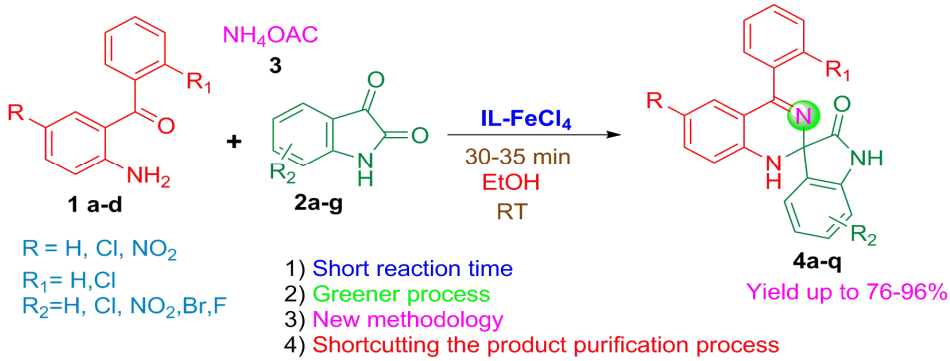
E-mail: beenapatel2808@gmail.com,dipanalka@yahoo.com

One pot three components Conversion of spiro indolinequinazoline using sulfated choline (IL) based $FeCl_4$

Graphical Abstract



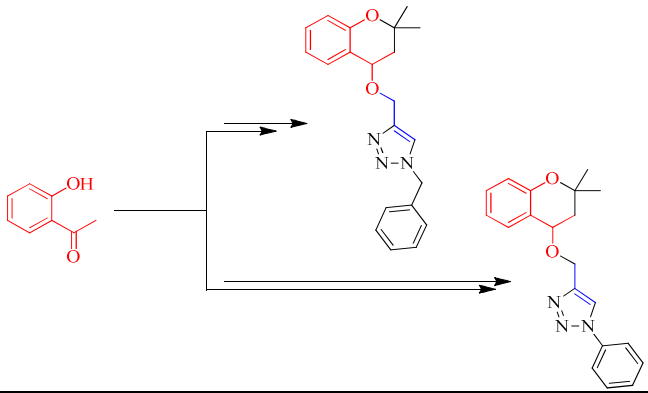
Heterocyclic Letters 7: iss.-2 (2017), 369-376

Synthesis of new 1-benzyl-4-(((2,2-dimethylchroman-4-yl)oxy)methyl)-1H-1,2,3-triazoles and 4-(((2,2-dimethylchroman-4-yl)oxy)methyl)-1-phenyl-1H-1,2,3-triazoles

P. Nagendra Reddy[a], K. Santosh Kumar[a], V. Rekha[b], Ch. Prasad Rao[a] and G. L. David Krupadanam[a]*

a) Department of Chemistry, Osmania University, Hyderabad, Telangana-500007
b) Inorganic and Physical Chemistry division, CSIR-Indian Institute of Chemical Techonology, Hyderabad..

A new series of 1-benzyl-4-(((2,2-dimethylchroman-4-yl)oxy)methyl)-1H-1,2,3-triazoles, 4-(((2,2-dimethylchroman-4-yl)oxy)methyl)-1-phenyl-1H-1,2,3-triazoles were synthesized by the reaction of 2,2-dimethyl-4-(prop-2-yn-1-yloxy)chroman and substituted benzyl and phenyl azides.



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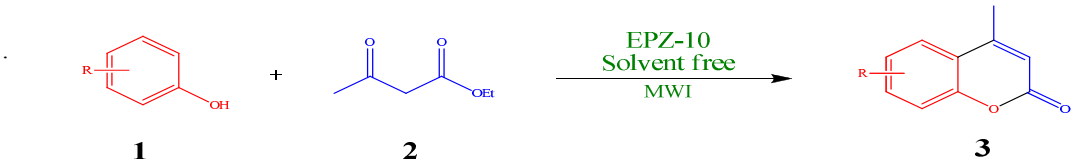
Heterocyclic Letters 7: iss.-2 (2017), 377-380

Envirocat EPZ-10: An efficient catalyst for synthesis of coumarins by Pechmann reaction under solvent free microwave irradiation method.

Omprakash Chavan[1], Mahesh Shioorkar[2], Santosh Jadhav[2], Mahadev Sakhare[3], Yashoda M. Pawar[1], Shivaji Chavan[1], And Mohammad Abdul Baseer*[1]

[1]P.G. Department of Chemistry, Yashwant College, Nanded (MS) India.
[2]P.G. Department of Chemistry, Vivekanand College, Aurangabad (MS) India.
[3]P.G. Department of Chemistry, Balbheem College, Beed (MS) India.
**Corresponding auther. Email: omprakashschavan@gmail.com*

EPZ-10 is a clay catalyst was found to be an efficient ecofriendly catalyst for the synthesis of coumarins by Von-Pechmann condensation which includes cyclocondensation of phenol with β-ketoester under solvent free conditions by using conventional heating with excellent yield with good purity.The advantage of present methods is use of EPZ-10 as a ecofriendly biodegradable clay catalyst under solvent free condition with better yield in shorter reaction time.



1 **2** **3**

Heterocyclic Letters 7: iss.-2 (2017), 381-383

Synthesis of new phase transfer catalyst and its applications

Anil Chidrawar*

**Department of Chemistry, Degloor College, Degloor - 431717, Dist: Nanded.*
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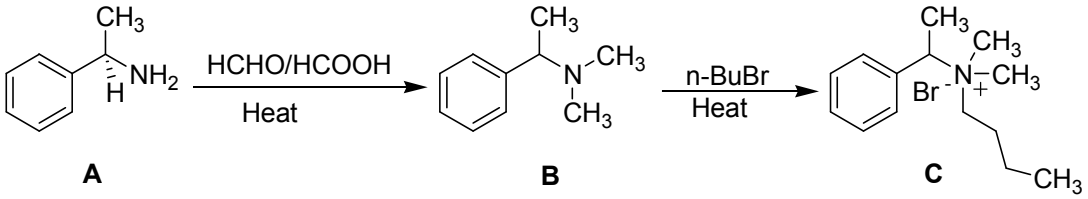
Email : anilchidrawar74@gmail.com

A mixture of α-phenyl ethyl amine (**A**), formic acid and formaldehyde on reflux to give N,N-dimethyl-α-phenylethylamine (**B**). This N,N-dimethyl-α-phenylethylamine reflux with n-butyl bromide to yield *N*-butyl-*N*,*N*-dimethyl-α-phenylethylammonium bromide (C). This catalyst is used in esterification reactions of esfenvalarate and cypermethrin, oxidation of aryl carbinols and alkylation of phenols.



A **B** **C**

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Synthesis, charachterisation and biological evaluation of 2-aryl-4-phenl-2h-chromene-3-benzimadazoles

K. Santosh Kumar, P. Nagendra Reddy, B. Srinivas, Y. Jayaprakash Rao and G.L. David Krupadanam*

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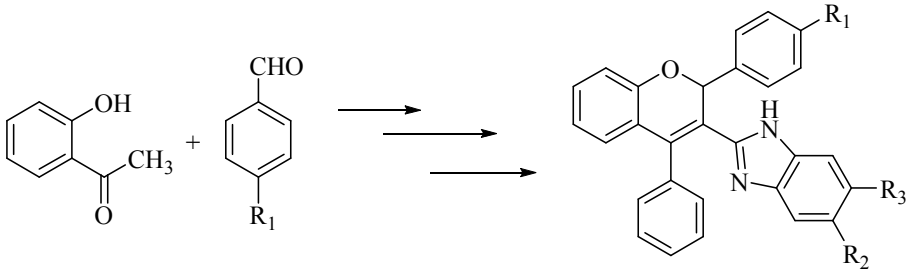
Email:gldavidk@gmail.com

A new series of 2-aryl-4-phenyl-2H-chromene-3-benzimadazoles **(9a-j)** were synthesized by the condensation of 2,4-diary-2H-chromene carbaldehyde and *o*-phenylenediamines. The products were purified by column chromatography and structures of these compounds are established by IR, ^{1}H-NMR, ^{13}C-NMR and mass spectral data. All the synthesized compounds were screened for their anti-microbial activity and the results were compared with ciprofloxacin. Compound **9f** was found to be most potent compound of this series and with activities better than ciprofloxacin under the tested conditions.



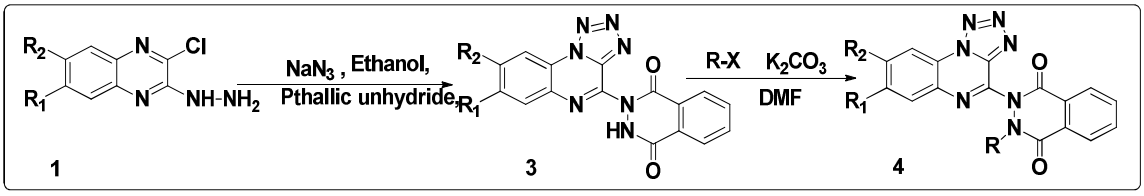
Heterocyclic Letters 7: iss.-2 (2017), 395-403

Synthesis and anti-microbial activity of substituted tetrazolo quinoxalines containing pthalazine analogues

B. Srinivas, D.Goutami, G.Kumaraswamy, B.Prasanna, M. Ravinder

[1]*Department of Chemistry, Chaitanya Postgraduate College(Autonomous), Hanamkonda, Warangal-506001, India.*
[2]*Department of chemistry, Mahatma Gandhi Institute of Technology, Hyderabad-India-500 075*
E-mail: rku76@yahoo.co.in

N-substituted-3-(tetrazolo[1,5-*a*] quinoxalin-4-yl)-2,3-dihydrophthalazin-1,4-diones (4) were synthesized from substituted 2-(tetrazolo[*1,5-a*]-quinoxalin-4-yl)-2,3-dihydrophthalazine-1,4-diones (3) is synthesized from cyclic condensation of substituted 2-chloro 3-hydrozinyl quinoxaline with phthalic anhydride.The titled compounds were screened for their antimicrobial activity and characterized by spectral (IR,1HNMR,and Mass) data.



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Heterocyclic Letters 7: iss.-2 (2017), 405-410

Synthesis of novel fused heterocyclic compounds 4-benzylidene-1-(substitued-2-benzothiazolyl)-2-(p-nitro)-1h-imidazol-5(4h)-one

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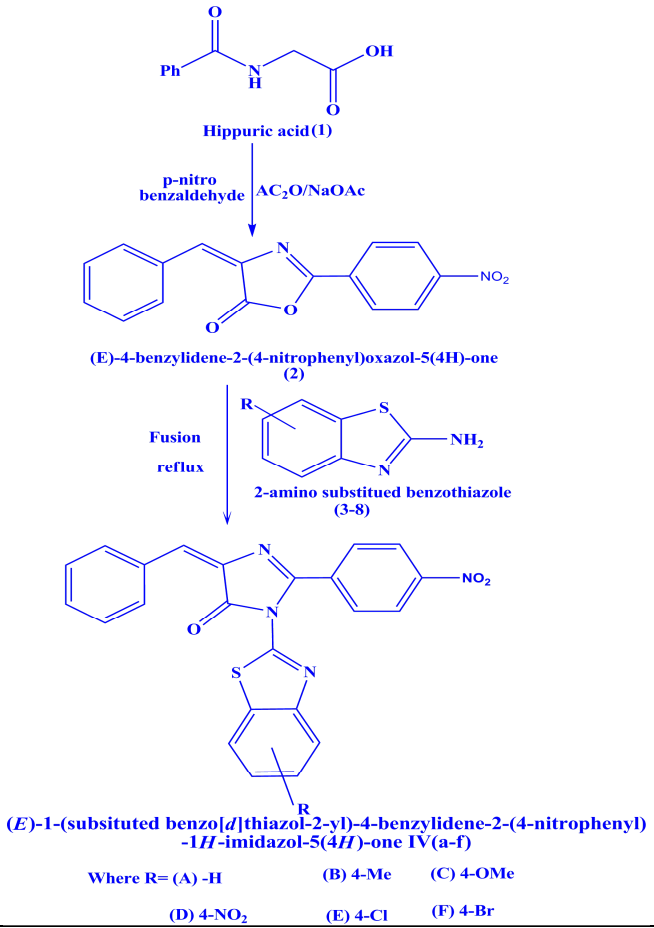
A novel heterocyclic compounds series of (E)-1-(subsituted benzo[d]thiazol-2-yl)-4-benzylidene-2-(4-nitrophenyl)-1H-imidazol-5(4H)-one (9-14) was synthesized by condensation reaction of 4-benzylidene-2-p-nitrooxazol-5(4H)-one **(2)** with various substituted benzothiazole **(3-8)**.The reaction between hippuric acid (1) with p-nitro benzaldehyde yielded previous compound 4-benzylidene-2-p-nitrooxazol-5(4H)-one **(2)**. The novel prepared compounds were characterized by IR, ^{1}H-NMR and ^{13}C-NMR spectral data. All the prepared compounds were screened for their antibacterial activities and antifungal activities.



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Synthesis Characterization and biological evaluation of novel 1-(5-((3,5-dimethyl-4-((4-(trifluoromethyl)phenyl)diazenyl)-1H-pyrazol-1-yl)methyl)-2-methyl-2-phenyl-1,3,4-oxadiazol-3(2H)-yl)ethanone

S.Murali Krishna, P.Jagadeeswara Rao, P.Ravisankar Reddy

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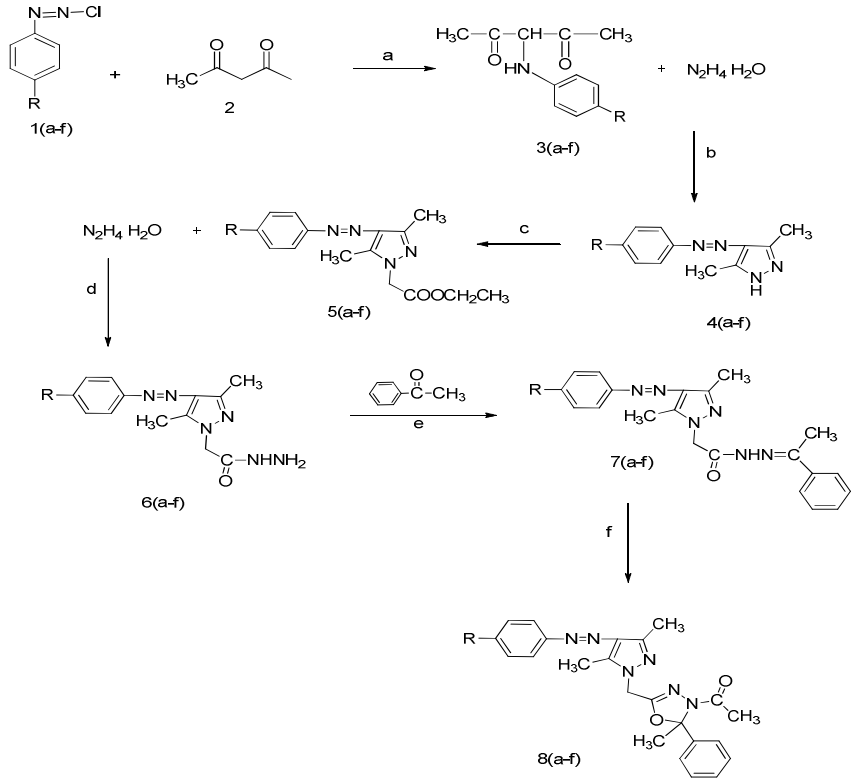
[2]*Biological E.Ltd Company, Shameerpet, Hyderabad*
Department of Chemistry

The article is aimed to synthesize, characterize and screening the biological activity of 1-(5-((3,5-dimethyl-4-((4-(trifluoromethyl)phenyl)diazenyl)-1H-pyrazol-1-yl)methyl)-2-methyl-2-phenyl-1,3,4-oxadiazol-3(2H)-yl)ethanone 8(a-f). 1-Chloro-2-phenyldiazene and pentane-2,4-dione were dissolved in DMF. To this reaction mixture anhydrous K_2CO_3 was added and the reaction mixture was stirred at room temperature(35^0C) for 8 hours to afford 3-(phenylamino)pentane-2,4-dione**.** To this reaction mixture hydrazine hydride, chloroethylacetate, acetophenone, EtoH and three drops of acetic acid was added and then heated on a steam bath for 5-6 hrs to obtain 2-(3,5-dimethyl-4-((4-(trifluoromethyl)phenyl)diazenyl)-1H-pyrazol-1-yl)-N'-(1-phenylethylidene)acetohydrazide compound(7). Finally compound 7(a) is treated with acetic anhydride to obtain target molecule 1-(5-((3,5-dimethyl-4-((4-(trifluoromethyl)phenyl)diazenyl)-1H-pyrazol-1-yl)methyl)-2-methyl-2-phenyl-1,3,4-oxadiazol-3(2H)-yl)ethanone. The structure of these newly synthesized compounds were characterised by ^{1}H NMR,^{13}CNMR ,Mass ,IR, and elemental analysis. The antimicriobial activity of the novel compounds was screened by agar disc diffusion method



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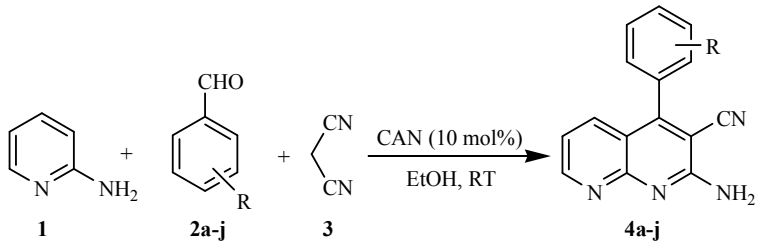
An expedient one-pot synthesis of benzo-1,8-naphthyridines under ambient temperature condition

Suresh C. Jadhavar, Akshay A. Tare, Shekhar S. Solunke, Madhukar S. Gaikwad, Santosh V. Goswami*

Department of Chemistry, Yogeshwari Mahavidyalaya, Ambajogai, MS, India
goswamisv@rediffmail.com

A convenient catalyst ceric ammonium nitrate was employed for the synthesis of benzo-1,8-naphthyridines via a one-pot reaction of aromatic aldehydes, 2-amino pyridine and malononitrile in solvent ethanol under ambient temperature condition. The present protocol offers some of the agreeable features such as mild reaction conditions, environmentally benign, non-toxicity of reagent, easy experimental workup and excellent yields of desired products.



Heterocyclic Letters 7: iss.-2 (2017), 425-429

Transition metal chelates of azo ligand containing salicylic acid: synthesis, Characterization and biological evaluation

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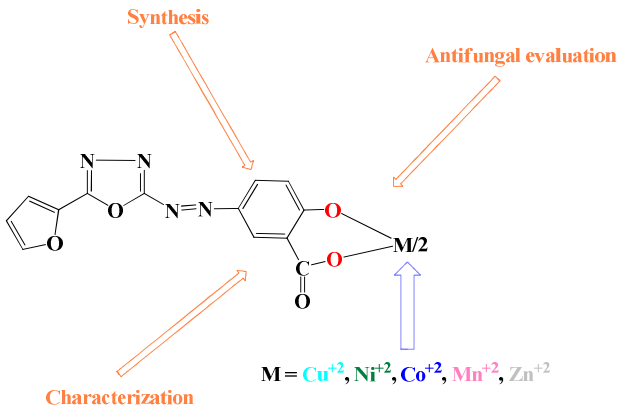
5-((5-(furan-2-yl)-1,3,4-oxadiazol-2-yl)diazenyl)-2-hydroxybenzoic acid **(DAFOSA)** is synthesized by coupling reaction between diazonium salt of 2-amino-5-(furan-2-yl)-1,3,4-oxadiazol and salicylic acid. Further, a series of transition metal chelates of **DAFOSA** were synthesized. The synthesized compounds have been characterized and evaluated for their antifungal activity.



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Synthesis of Aromatic Heterocyclic Ketimines: Part-III. Synthesis, Characterization and Biological Studies of Zinc complex of Biomolecule

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† Department of Zoology, Dr. A. G. D. Bendale Mahila College, Jalgaon, Dist-Jalgaon-425 001.
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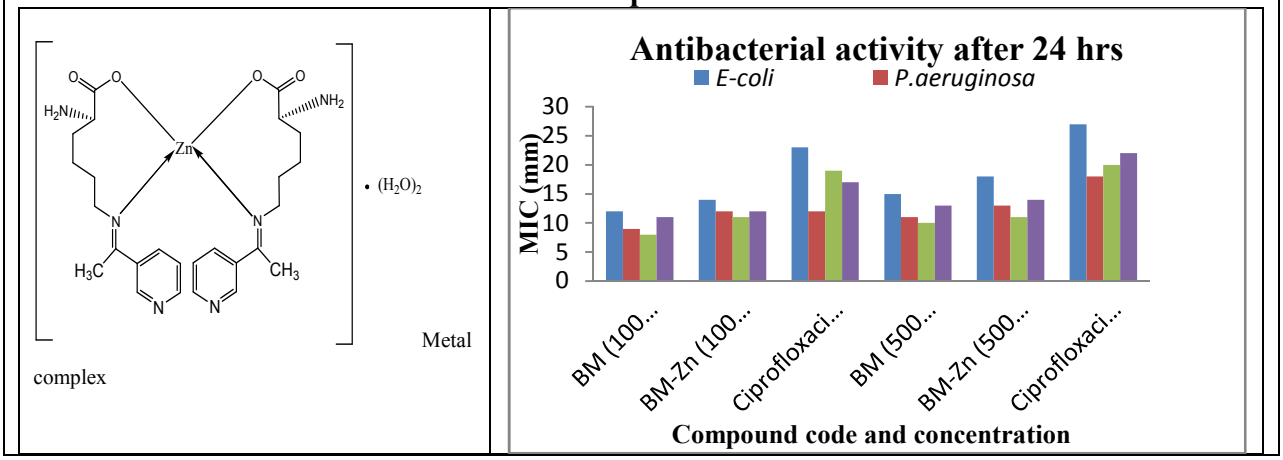
E mail: ***nandapatil10@rediffmail.com, drcjpatil@yahoo.com*** *m: 09420282229*

The Zn-complex of Biomolecule or Ketimine was synthesized by reacting the Biomolecule and metal salt by conventional method. Further the synthesized Zn-complex was characterized by colour, TLC, physical constant and UV-Vis spectra and FTIR spectral method. The Zn-biomolecule complex was also tested for the *in-vitro* biological activity and the results obtained were compared with biomolecule itself as well as Ciprofloxacin as standard drug.

Key Words: Biomolecule (BM), Ketimines, 3-Acetyl-pyridine, 2-Amino-6-(1-pyridin-3-yl-ethylideneamino)-hexanoic acid(BM), Zn-complex, Conventional method, TLC and UV-Vis, FTIR, and Biological activity studies.

L + Metal salt ------> L-Metal complex



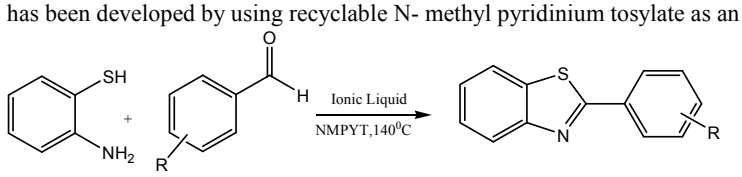
Heterocyclic Letters 7: iss.-2 (2017), 439-445

An efficient solvent free green synthesis of 2- aryl benzothiazole derivatives using ionic liquid

Nayana V. Pahade[1], Mangesh A. Kulkarni[1], Sangeeta P. Pawar, Dinesh L. Lingampalle[1]

"Department of Chemistry, Vivekanand Arts, Sardar Dalipsingh Commerce and Science college, Samarth nagar Aurangabad, Maharashtra, India."

A convenient solvent free method for the synthesis of 2-aryl benzothiazole derivatives on reaction with 2- Aminothiophenol and various aromatic aldehydes has been developed by using recyclable N- methyl pyridinium tosylate as an ionic liquid



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Synthesis, Characterisation and Anti-Microbial Activity of Some Novel Pyrazoline Derivatives having Thieno [2, 3-*d*] Pyrimidine as a Core Unit

Virupakshi Prabhakar[*1], Kondra Sudhakar Babu[2], L.K. Ravindranath[2], J.Latha[3]

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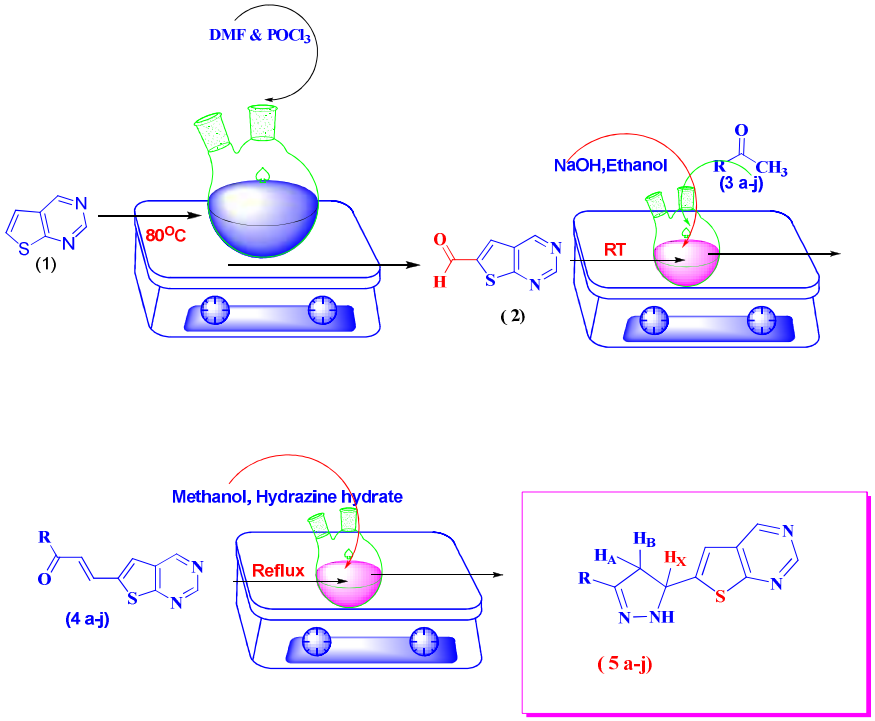
In This Article New series of 6-(3-p-Substituted-4,5-dihydro-1H-pyrazol-5-yl)thieno[2,3-*d*]pyrimidinederivatives (5a-j) were synthesized by applying the cyclo condensation of (E)-3-(thieno [2, 3-*d*] pyrimidin-6-yl)-1-p-Substituted prop-2-en-1-one derivatives 4a-4j with hydrazine hydrate in methanol at reflux. The new intermediate chalcone derivatives 4a-j were obtained from interaction of various P-substituted acetophenone & Heterocyclic Acetyl derivatives 3(a-j) and thieno [2, 3-*d*] pyrimidine-6-carbaldehyde. The synthesized new pyrazolines 5a-5j have been screened for their antimicrobial activity. From anti-bacterial and anti-fungal activity screening results, it has been observed that compounds 5e, 5d, 5i and 5g possess good activity

Synthetic Scheme



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Heterocyclic Letters 7: iss.-2 (2017), 463-465

Ammonium Chloride-Induced Synthesis of Pyrroles via Paal-Knorr Reaction

Debasish Bandyopadhyay[1] and Bimal K. Banik[1, 2*]

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bimalbanik10@gmail.com; bimal.banik@chsst.org

Ammonium chloride-catalyzed synthesis of N-substituted pyrroles

Starting Compound	Product	Yield (%)
2,5-Hexanedione and allylamine	N-Allyl 2,5-dimethylpyrrole	88

Heterocyclic Letters 7: iss.-2 (2017), 467-472

A facile approach to transformation of hetero aryl amides from hetero aryl halides

B. Nagaraju,[a, b] T. Subbaiah[b] & B. Prasanna [a]*

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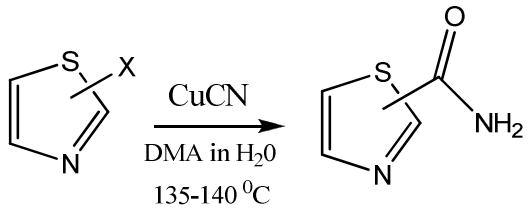
b) Research & Development, Department of Chemistry, K.L University, Guntour (Andhra Pradesh)- 522502
E-Mail: prasschem@gmail.com.

A novel and efficient amidation method for the synthesis of hetero aryl amides has been developed under mild and environment benign conditions, which is a facile one-pot approach to synthesis of heteroaryl amides from heteroaryl bromides/ chlorides by CuCN with DMA under aqueous conditions.



1(a-h) **2(a-j)**

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Heterocyclic Letters 7: iss.-2 (2017), 473-474

Microwave-Induced Paal-Knorr Reaction With Ammonium Chloride: Synthesis of Pyrroles

Debasish Bandyopadhyay[a] and Bimal K. Banik[a, b*]

[a]*Department of Chemistry, University of Texas-Pan American, 1201 W. University Dr., Edinburg, TX 78539 USA;*
[b]*Current address: 3135 South Sugar Road, Edinburg, TX 78539 USA; bimalbanik10@gmail.com and bimal.banik@chsst.org*

Starting Compound	Product	Yield(%)
2,5-Dimethoxytetrahydrofuran and aniline	N-Phenylpyrrole	93

Heterocyclic Letters 7: iss.-2 (2017), 475-492

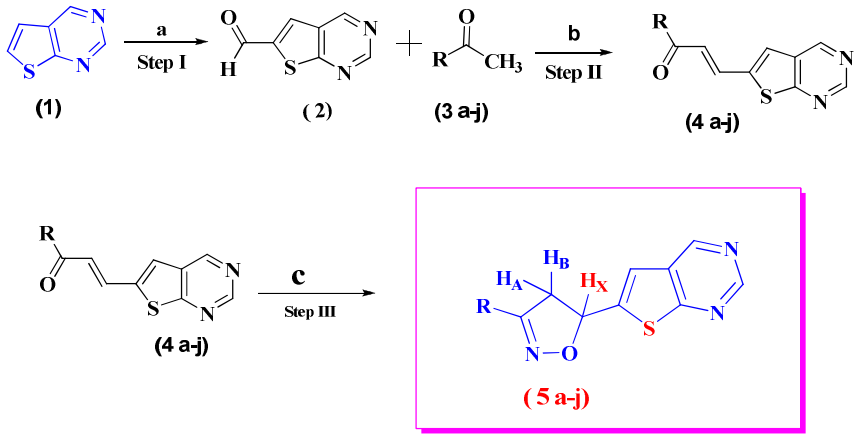
Synthesis and anti-microbial studies of novel isoxazoline derivatives bearing thieno [2, 3-*d*] pyrimidine as a core unit.

Virupakshi Prabhakar[*1], Kondra Sudhakar Babu[2], L.K. Ravindranath[2], J.Latha[3]

[*1]*Faculty of Engineering Chemistry, SVR ENGINEERING COLLEGE, Jawaharlal Nehru Technological University-Ananthapuramu (JNTU-A), NANDYAL, PIN 518502, KURNOOL (Dist), A.P., INDIA.*
[2] *Professor of Chemistry, Sri Krishnadevaraya University, Ananthapuramu, (A P), INDIA.*
[3]*Faculty of Environmental Science, Sri Krishnadevaraya University College of Engineering & Technology, S.K.University, Ananthapuramu – 515003 (A.P), India.*
.*Corres. Author E-mail:- Viruchem765 @gmail.com

Thieno [2,3-*d*] pyrimidine (1) Coupling with DMF/$POCl_3$ Formation of **thieno [2, 3-*d*] pyrimidine-6-carbaldehyde** (2) ,Then Compound (2) reacts With Substituted Acetophenone derivatives 3(a-j) in Presence of ethanolic NaOH Solution to get chalcone Derivatives 4(a-j), Which were reacts With Hydroxylamine hydrochloride in pyridinel to get Isoxazoline Heterocyclic ring derivatives (5 a-j), with excellent yields. The compounds are characterizes by IR, NMR, Mass spectral analysis.Anti-bacterial and Anti-fungal Activities were evaluated and compared with the standard drugs, some compounds of the series Exhibited Promising Anti-microbial and Anti-fungal Activity Compared to Standard Drugs.

Synthetic Scheme



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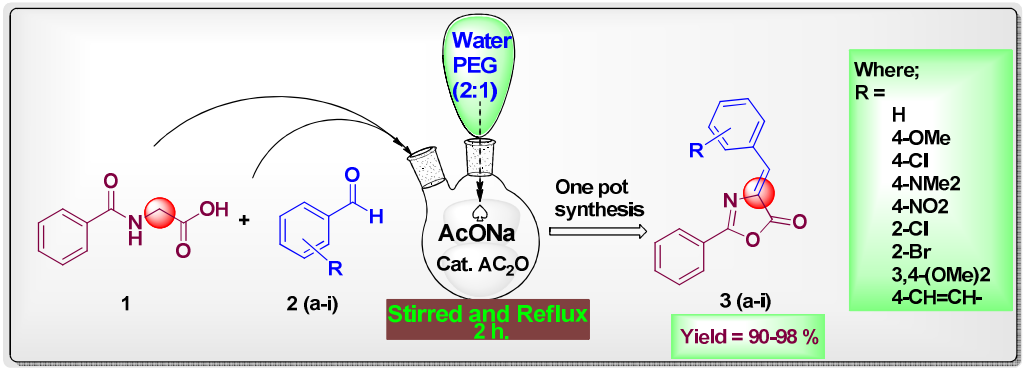
Water-PEG mediated One-pot Synthesis of 4-arylidene-2-phenyl-5(4*H*)-oxazolones or azlactones

[1]Mitkari G. S., [1*]Jadhav S. A., [1]Vaidya S. R.

[1]Department of Chemistry,
Vivekanand Arts S. D. Commerce & Science College, Aurangabad 431001 (MS) India
**Correspondence author E-mail: profsantoshjadhav@gmail.com*



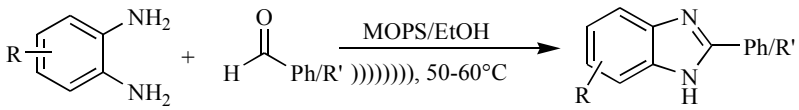
Heterocyclic Letters 7: iss.-2 (2017), 499-505

An organocatalyzed expeditious synthesis route to benzimidazoles under ultrasound technique

Suchita Gadekar[a], Suryakant Sapkal[b], Ramesh Shingare[a], Balaji R.Madje[a]*

[a]Department of Chemistry Vasantrao Naik Mahavidyalaya, Aurangabad-431003, India.
Email:-drmadjebr@gmail.com
[b]Department of Chemistry, Jawaharlal Nehru Engineering College, Aurangabad-431 004, India.

The cyclocondensation of *o*-phenylinediamine and aromatic/heteroaromatic/aliphatic aldehydes catalyzed by organocatalyst 3-morpholinopropane-1-sulfonic acid (MOPS) in alcohol under ultrasound technique at 50-60 °C has been reported for the first time. A potentially valuable reaction medium in the presence of MOPS in ethanol has been reacted smoothly retaining near-neutral pH with a pKa of 7.20 and contributed a lot for the synthesis of benzimidazole derivatives which resulted into facile, sustainable and high yielding methodology.



Ph = Aromatic/heteroaromatic
R' = Aliphatic

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Heterocyclic Letters 7: iss.-2 (2017), 507-511

Microwave-Induced Bismuth Triiodide-Catalyzed Facile Synthesis of Octahydroxanthenes

Ashlee Chavez[1], Jessica Cruz[1], Alexdra Munoz[1], Ram Naresh Yadav[1], Debasish Bandyopadhyay[1] and Bimal K. Banik[1, 2*]

[1]Department of Chemistry, University of Texas-Pan American,
1201 W. University Dr., Edinburg, TX 78539 USA; [2] Current Address: Community Health Systems of South Texas; 3135 South Sugar Road, Edinburg, TX 78539, USA
bimalbanik10@gmail.com; bimal.banik@chsst.org

Microwave-induced reaction of 1,3-cyclohexanedione with numerous aldehydes using bismuth iodide is performed successfully toward the synthesis of important octahydroxanthenes. A most probable mechanism is suggested to explain the formation of products

REVIEWS

Heterocyclic Letters 7: iss.-2 (2017), 513-540

Biological and synthetic studies of four, five and six membered heterocycles

Priyanka Kalal, Divyani Gandhi and Shikha Agarwal*

Department of Chemistry, Synthetic Organic Chemistry Laboratory, M. L. S University, Udaipur, 313001
E mail: shikha_urj@yahoo.com, kalalpriyankan@gmail.com

Heterocycles form the major division of organic chemistry and are of immense importance biologically as well as industrially. This review includes a detailed discussion about different synthetic pathways and pharmaceutical importance of different heterocyclic moieties **(azetidinone, imidazole, pyrimidine and 2-aminobenzenethiol**). These compounds possess immense biological activities *viz.* antimicrobial, anticancer, antitubercular, anti-inflammatory, anticonvulsant, antidiabetic, antiviral, antineoplastic etc. Their versatile synthetic applicability & biological functioning will help the scientists to develop new approaches towards discovery of potential drug candidates.