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Graphical Abstract

Heterocyclic Letters 3: iss.-3, (2013), 307-317

Niobium pentachloride promoted synthesis of tetrahydropyridines by multicomponent reaction

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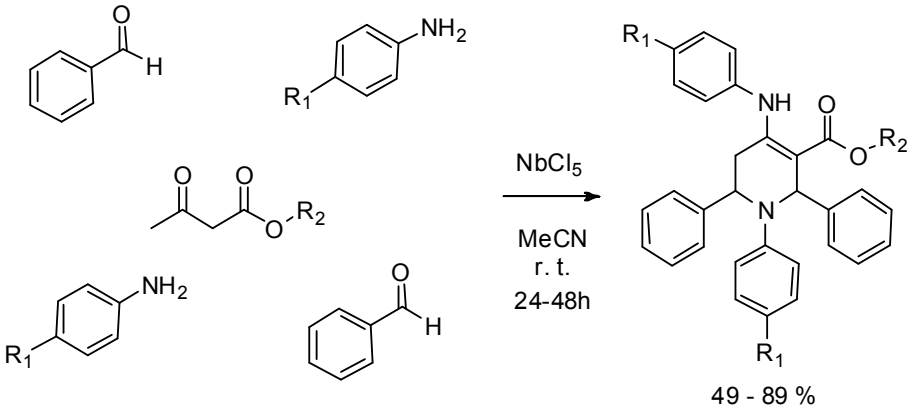
One-pot multicomponent synthesis of tetrahydropyridine derivatives between aniline derivatives, benzaldehyde and two different β-ketoester (methyl and ethyl acetoacetate) using niobium pentachloride as catalyst under mild conditions, providing good yields.



Heterocyclic Letters 3: iss.-3, (2013), 319-323

An efficient synthesis of 1,3-dioxane-4,6-diones catalyzed by boric acid

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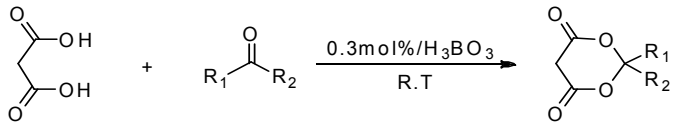
Several kinds of 1,3-dioxane-4,6-diones have been synthesized from malonic acid and ketones using boric acid as catalyst, acetic anhydride as condensing regent at room temperature. The present method does not involve any hazardous organic solvents, it gives some notable advantages such as mild reaction conditions, short reaction time,less catalyst dosage and high yields.Further study showed that H_3BO_3 was reused for four times without any noticeable decrease in the catalytic activity.



Heterocyclic Letters 3: iss.-3, (2013), 325-329

One pot synthesis of thiazolidinones in molten $(et_3nh)hso_4$

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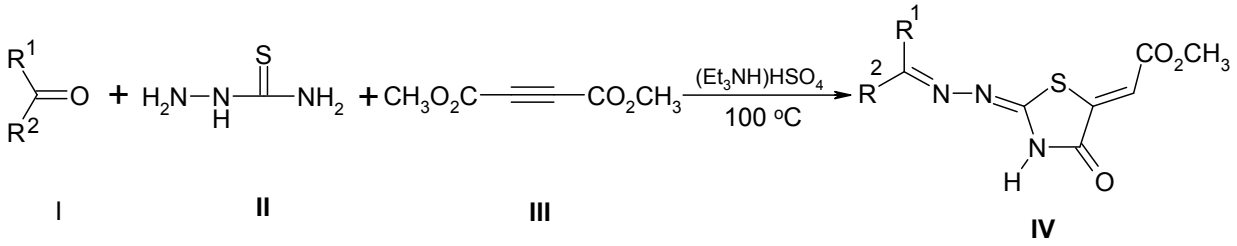
A series of thiazolidin-4-ones were synthersized via the reaction of dimethylacetylene dicarboxylate (DMAD) with thiosemicarbazide and carbonyl compounds:



Heterocyclic Letters 3: iss.-3, (2013), 331-340

Synthesis of 1-({7-methoxy-2-[4-(methylsulfanyl) phenyl]-1-benzofuran-5-yl}-n-[(n-ethylpyrrolidin-2-yl) methyl]methanamine by reductive amination

Bapu R Thorat[a], Dyneshwar Shelke, Ramdas Atram and Ramesh Yamgar[a]

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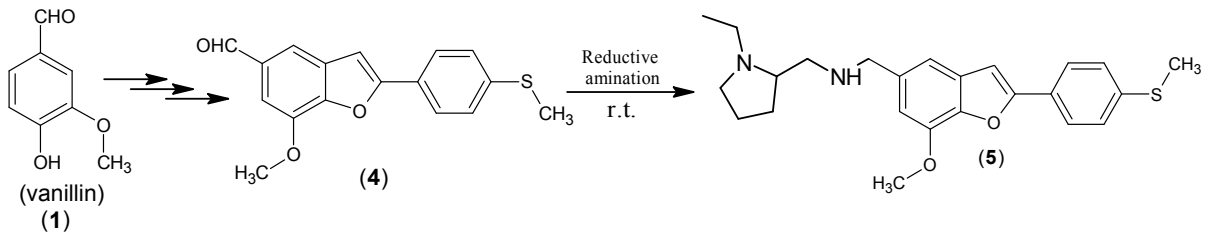
Vanillin undergoes sequence of reaction forming phosphonium salt through dimethyaminomethyl derivative (Mannich reaction). The synthesis of phosphonium salt can be achieved by sequence of three steps. A solution of Mannich base in acetic anhydride was refluxed for 24 hrs to give crude diacetate which is purified and treated with HCl to give chloromethyl derivative. It is further treated with triphenylphosphine in dry benzene under reflux condition. The phosphonium salt undergoes condensation with 4-methylsulfanylbenzoyl chloride by refluxing in toluene in presence of triethylamine. The reaction was completed in 6 hrs. The crude product was purified by using column chromatography. The resulting 7-methoxy-2-[4-(methylsulfanyl)phenyl]-l-benzofuran-5-carboxaldehyde was subjected to reductive amination and the final product 1-({7-methoxy-2-[4-(methylsulfanyl)phenyl]-1-benzofuran-5-yl}-N-[(N-ethylpyrrolidin-2-yl)methyl]methan amine was purified by column chromatography and characterized by FT-IR, NMR and Mass spectroscopy.



Heterocyclic Letters 3: iss.-3, (2013), 341-347

Synthesis on study of 2-methyl-5-nitro-n-(4-(3-((3-phenylquinoxalin-2-yl) methyl) phenoxy) phenyl) benzenesulfonamide and their antimicrobial activity

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[2]. *Department of Chemistry, Sheth .L.H. Science Collage– Mansa-382 845, Gujarat, India.*
[3]. *Department of Chemistry, South Gujarat University, Surat – 395007*
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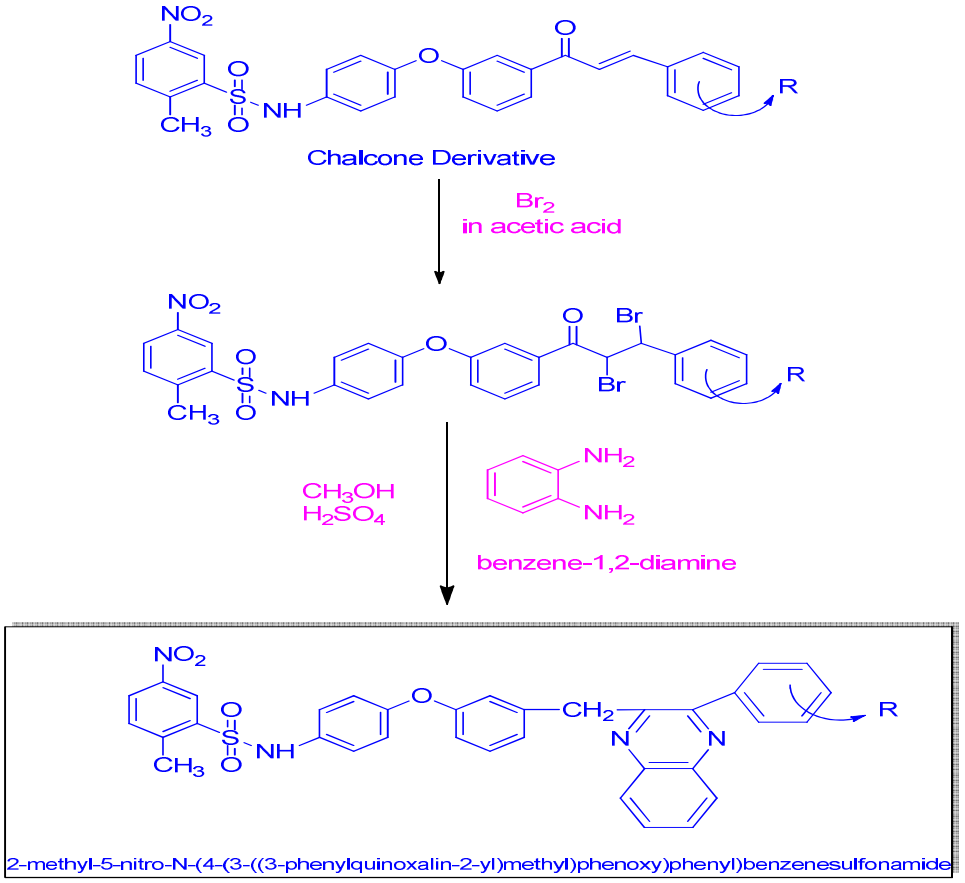
Quinoxaline and its derivatives are important nitrogen containing heterocyclic compounds of various biologically interesting properties with several pharmaceutical applications. Substituted quinoxalines are an important class of benzoheterocycles, which constitute the building blocks of wide range of pharmacologically active compounds.



Heterocyclic Letters 3: iss.-3, (2013), 349-358

Synthesis and biological evaluation of some novel 2-chloro-4-(methylsulfonyl) phenyl containing acylthioureas and 1,3-thiazolidine-4-one as promising antimicrobial agents.

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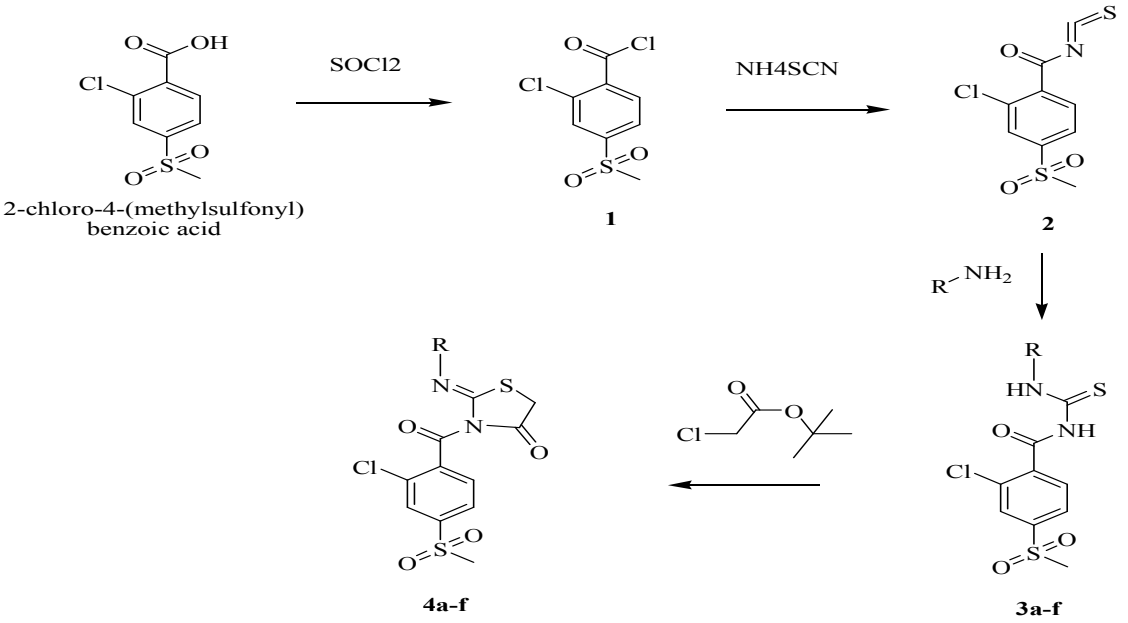
A series of acylthiourea derivatives were synthesized by reaction of 2-chloro-4-(methylsulfonyl) benzoyl chloride with ammonium thiocyanate and substituted aromatic amines. Cyclocondensation of acylthiourea derivatives tert-butyl chloroacetate yielded 1,3-thiazolidin-4-one derivatives. Structure elucidation of the synthesized compounds has been accomplished on the basis of elemental analysis, mass, IR, ^{1}H-NMR and ^{13}C-NMR data. Synthesized compounds were screened for their antimicrobial activity against gram-positive, gram-negative bacteria and some selected fungal stains.



Heterocyclic Letters 3: iss.-3, (2013), 359-369

Sodium saccharin as a clean and efficient catalyst for the synthesis of 4-arylidene-3-methylisoxazol-5(4*h*)-ones *via* one-pot three-component reaction in aqueous medium

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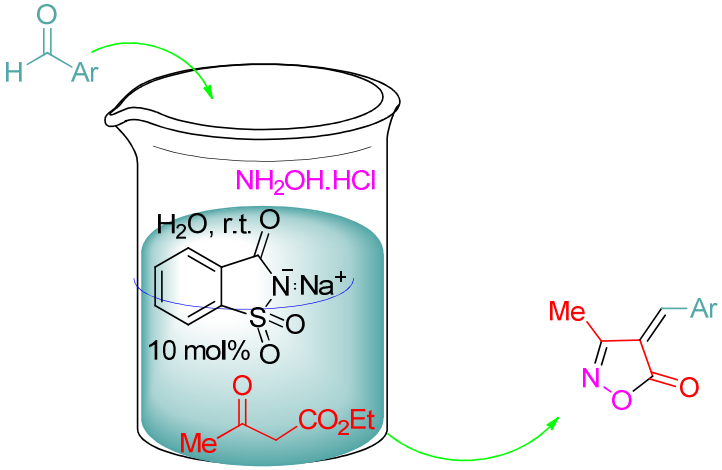
Abstract
As a result of one-pot three-component reaction of ethyl acetoacetate with hydroxylamine hydrochloride and various aromatic aldehydes using sodium saccharin as a catalyst in water, a green and environmentally benign solvent, 4-arylidene-3-methylisoxazol-5(4*H*)-ones were obtained in high yields. The advantage of this method is efficient, clean, easy work-up, high yields, and shorter reaction time.



Heterocyclic Letters 3: iss.-3, (2013),371- 375

One-pot synthesis of functionalized 2-thiazolidin-4-ones from thiosemicarbazone derivatives and acetylenic esters in water

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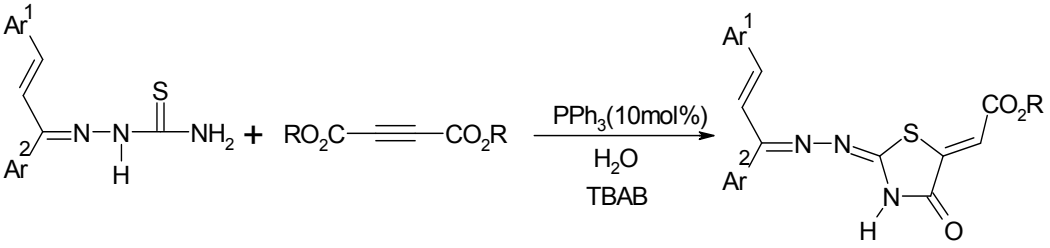
The reaction of thiosemicarbazone derivatives of chalcones and dialkyl acetylene dicarboxylate produced functionalized 2-thiazolidin-4-ones in good yields



Heterocyclic Letters 3: iss.-3, (2013), 377-383

Synthesis and characterisation of novel metal chelates of 2-(8-quinolinol-5-yl) –methyl amino-5-pyridinyl-1, 3, 4-thiadiazole derivatives

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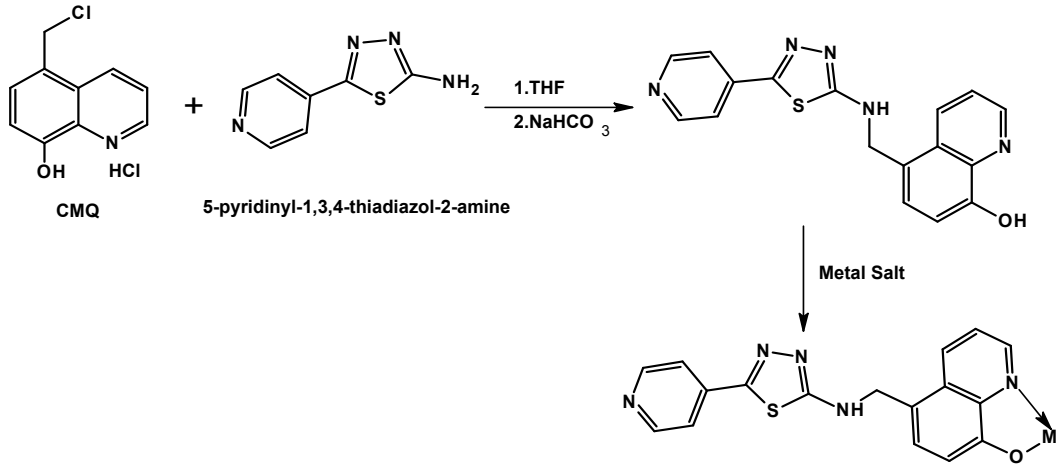
The Synthesis of novel Metal chelates of 5-Chloromethyl-8-quinolinol coupled with 5-pyridinyl-(1,3,4) thiadiazol-2-yl amine has been carried out in the presence of sodium bicarbonate.The newly synthesised compounds were confirmed on the basis of their spectral characterisation like IR,NMR,Mass and their Elemental analysis. The transition metal chelates *viz*. Cu^{2+}, Ni^{2+}, Co^{3+}, Mn^{2+} and Zn^{2+} of novel ligand were prepared and characterized by metal-ligand (M:L) ratio, IR and reflectance spectroscopic and magnetic properties.



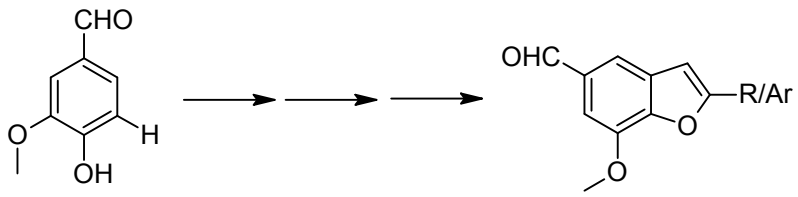
Heterocyclic Letters 3: iss.-3, (2013), 385-396

Wittig reaction approach for the synthesis of 7-methoxy-2-[4-alkyl/aryl]-l-benzofuran-5-carboxaldehyde

Bapu R Thorat[a], Dyneshwar Shelke, Ramdas Atram and Ramesh Yamgar[a]

a. P. G. Dept of Chemistry, Govt. of Maharashtra, Ismail Yusuf College of Arts, Science and Commerce, Jogeshwari (East), Mumbai 400 060.
Corresponding e-mail: **iycbrthorat@gmail.com**

Vanillin undergoes sequence of reaction forming phosphonium salt through dimethyaminomethyl derivative (Mannich reaction). The synthesis of phosphonium salt can be achieved by sequence of three steps which was condense with series of aliphatic/aromatic acid chlorides by refluxing in toluene in presence of triethylamine (Wittig reaction) as key step resulting 7-methoxy-2-alkyl/aryl-l-benzofuran-5-carboxaldehyde. The crude product was purified by using column chromatography and characterized by FTIR, NMR and Mass spectroscopy.



Heterocyclic Letters 3: iss.-3, (2013), 397-401

Regioselectivity in the Cu-catalyzed synthesis of substituted benzo- and pyrido-fused imidazo[2,1-*b*]thiazoles and pyrimido[2,1-*b*]benzothiazol-4-one

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A simple one-flask method for the selective preparation of benzo- and pyrido-fused imidazo[2,1-*b*]thiazoles and pyrimido[2,1-*b*]benzothiazol-4-one from corresponding thiones and 1-bromo-2-iodobenzenes or 2,3-dibromopyridines in the bicatalytic system solid KOH / CuI / 1,10-phenanthroline / Bu_4NBr / DMF has been developed. Reaction of 1,3-dihydrobenzimidazol-2-thione with 3-bromo-4-iodotoluene in the above system leads to 5-methylbenzimidazo[2,1-*b*]benzothiazole as single cyclization product by selective stepwise S- and N-arylation tandem reaction.