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Graphical Abstract

Heterocyclic Letters 9: iss.-2 (2019), 141-148

Optimization of n-Buthyl phthalide synthesis process

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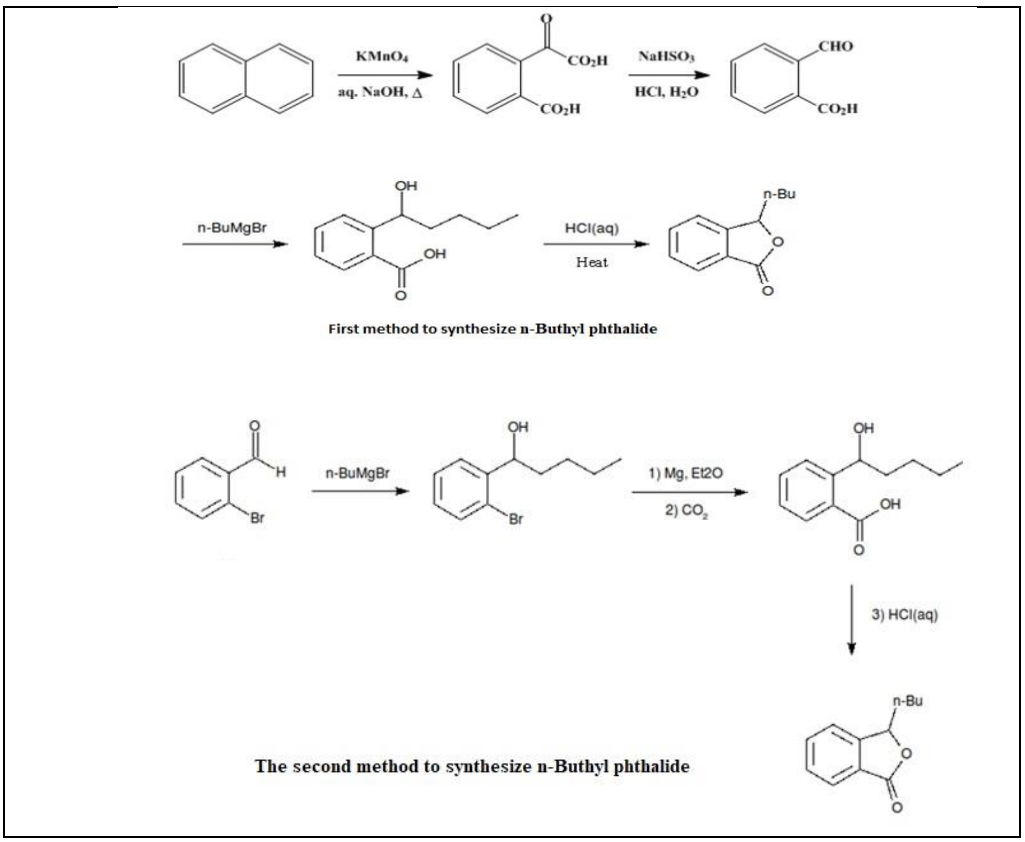
In this work, an active chemical compound, NBP (n-Buthylphthalide), was considered to be synthesized. Although some methods have been proposed, no one has a high yielding. Here, using two different starting materials, which are inexpensive, were considered to achieve higher yield and purity as well.



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Expedient access to 2,4,5-trisubstituted imidazoles by simple grinding using kaolin impregnated ZnO/SiO_2 nanocomposite: HOMO-LUMO, *in vitro* and *insilico* studies

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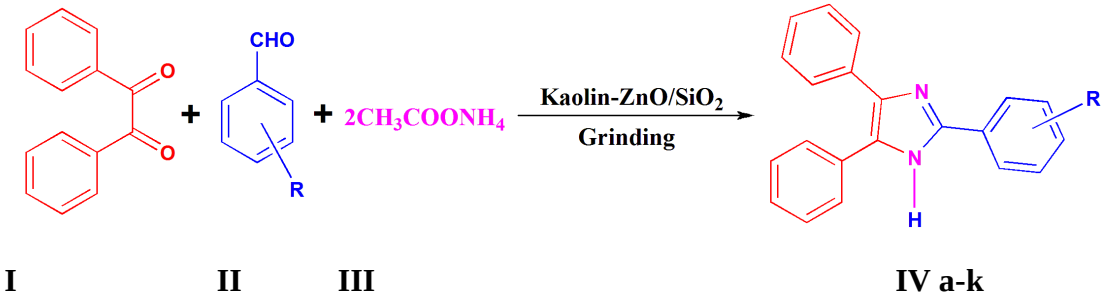
A mixture of substituted benzaldehyde II and ammonium acetate III was well mixed with a newly introduced catalytic system, kaolin impregnated ZnO/SiO_2 nanocomposite which has been characterized by FESEM and XRD analysis. Benzil I was added to the grounded mixture and grinding continued until the product IV a-k was obtained. All synthesized products were purified by recrystallization from ethanol and all new compounds were characterized by IR, ^{1}H-NMR, ^{13}C-NMR, mass spectroscopy techniques and elemental analysis. Furthermore, these compounds were tested for antioxidant and antimicrobial activities and subjected to molecular docking and HOMO-LUMO studies.



I **II** **III** **IV a-k**

Heterocyclic Letters 9: iss.-2 (2019), 165-176

To study the analgesic, antioxidant , antifungal & anti-inflammatory activity of synthesized dihydropyrimidin-2(1h)-ones

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To evaluate and compare the antioxidant potential and anti-inflammatory activity Reducing power assay method for determination of antioxidant activity/potential of samples.The medium used for the study of antimicrobial activity of the newly synthesized compounds was Hi-Media Laboratories Pvt. Limited, India. . The antibacterial and the antifungal agents having the property of inhibiting bacterial or fungal multiplication are called as bacteriostatic or fungistatic.
The substance or compound to be evaluated must be brought in an intimate contact with the test organisms against which activity is to be estimated.Favorable conditions like nutritional media, temperature, incubation time etc. must be provided to offer a maximum opportunity for optimum growth of the organisms in absence of antimicrobial agents.The synthesized compounds are subjected to invitro inhibition of protein denaturation in various concentration i.e. 100, 200, 400, 800, 1000 ug/ml

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Green synthesis of 1, 2, 4-triazine-2-substituted benzamide derivatives

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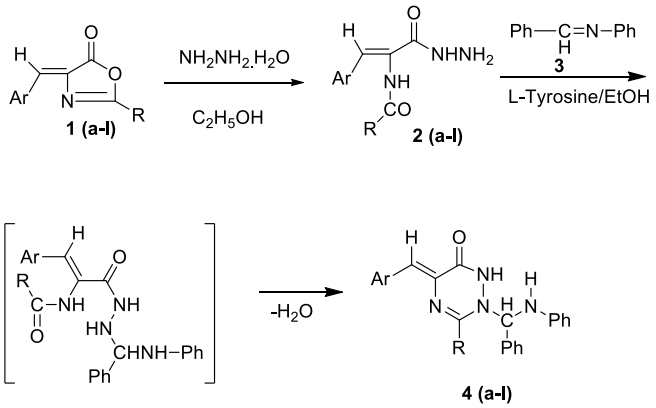
Green synthesis of (Z)-N-5-(benzylidene/substituted benzylidene)-3-(methyl/phenyl)-6-oxo-1, 2, 5, 6-tetrahydro-1, 2, 4-triazine-2-substituted benzamide derivatives have been developed by reaction of (Z)-4-(benzylidene / substituted benzylidene)-2-(methyl/phenyl)-oxazol-5(4H)-ones **3(a-l)** with hydrazine hydrate to form (Z)-N-(3-hydrazinyl-3-oxo-1-phenylprop-1-en-2-yl)acetamides or benzamides **4(a-l)**. Then, **4** was reacted with Schiff base **5** in the presence of L-tyrosine in ethanol for 1 h under reflux condition**.**



Heterocyclic Letters 9: iss.-2 (2019), 185-190

The corrosion inhibition study of expired doxercalciferol drug as nontoxic inhibitor for mild steel (ms) in 3 m hcl medium

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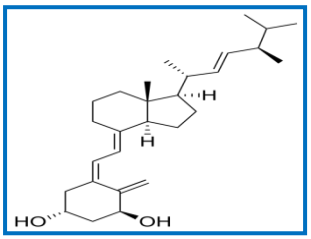
Corrosion inhibition role of expired Doxercalciferol drug was studied on the mild steel (MS) corrosion in 3 M HCl medium at 333 K by electrochemical (Tafel curves and AC impedance spectroscopy), atomic absorption and scanning electron microscopy techniques. Tafel plot studies confirm that, the corrosion inhibition property of expired Doxercalciferol drug is of mixed type. The impedance study proves that, the corrosion inhibition property enhanced with increase in the expired Doxercalciferol drug concentration. The atomic absorption spectroscopy and scanning electron microscopy (SEM) results fully supports the adsorption of electron rich elements of expired Doxercalciferol drug on the MS surface in 3 M HCl medium.



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An Efficient and Novel process for the synthesis of Nizatidine

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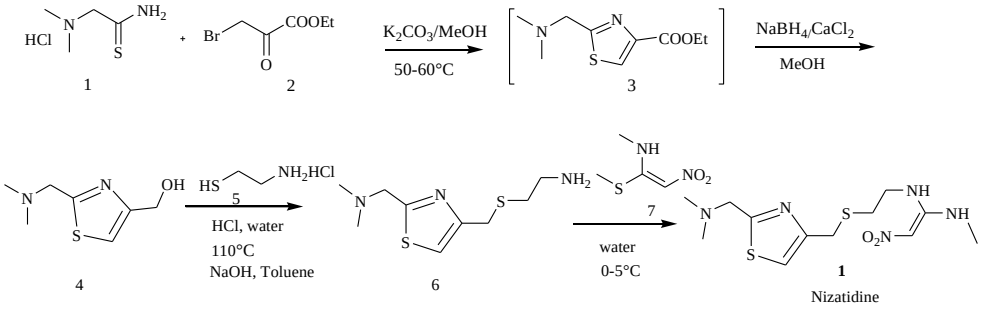
A facile, echo friendly, cost effective and robust process for the synthesis of Nizatidine *via* the cyclocondensation of 2-(dimethylamino) ethanethioamide with ethyl bromopyruvate followed by reduction then coupled with cystamine hydrochloride. The later formed product was coupled with (N-methyl-1-(methylthio)-2-nitroethenamine in water resulted Nizatidine. Synthesized product was meet European pharmacopeia (*EP*) monograph.



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A facile synthesis and docking studies of 6-chloro-2-methoxy-7-(trifluoromethyl)imidazo[1,5-a]pyrido[3,2-e]pyrazine

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6-Chloro-2-methoxy-7-(trifluoromethyl)imidazo[1,5-a]pyrido[3,2-e]pyrazine has been synthesized and characterized as both potent and selective phosphodiesterase 10A (PDE10A) inhibitors. In accordance with the known antipsychotic potential of PDE10A inhibitors, MK-801 induced stereotypy and hyperactivity in rats were reversed by selected compounds. Thus, a promising compound class has been identified for the treatment of schizophrenia that could circumvent side effects connected with current therapies. The compounds were characterized by spectral analysis.