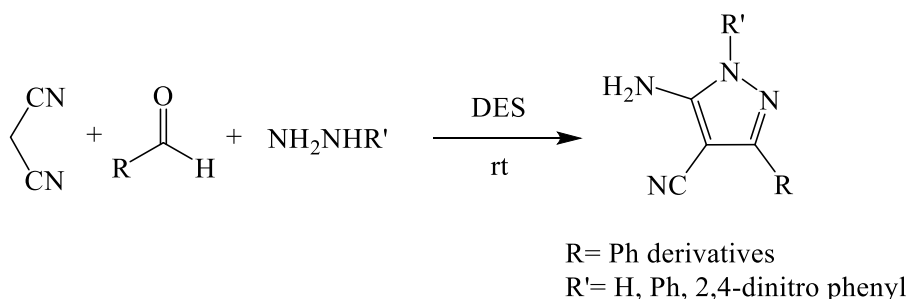


Abstract

Pyrazole derivatives have been considered as a very important class of heterocycles possessing a five membered ring with two adjacent nitrogen atoms. Herein, a novel efficient and robust methodology for the synthesis of pyrazole-4-carbonitrile derivatives using multicomponent reaction of malononitrile, benzaldehyde and hydrazine derivatives in the presence of deep eutectic solvents as medium and promoter is reported. This novel class of green solvents have found application in organic synthesis. The present methodology provides valuable pyrazole-4-carbonitrile derivatives in high to excellent yields within very short reaction times. A plethora of deep eutectic solvent mixtures were applied and Urea/Choline chloride mixture was found as the best solvent of choice for this process. No need for extra oxidant and catalyst, not using any toxic organic solvents simple work-up and low reaction temperature were among the advantages of this protocol over the previously reported methods.



Keywords: Pyrazole-4-carbonitrile, Multi-Component Reaction, Deep eutectic solvent, Green solvent



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**The Thesis Submitted for the Degree of M.Sc
(In the field of Organic Chemistry)**

**The study of poly-substituted heterocyclic
pyrazole derivatives synthesis under novel
green conditions in the presence of new deep
eutectic solvents**

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October 2015