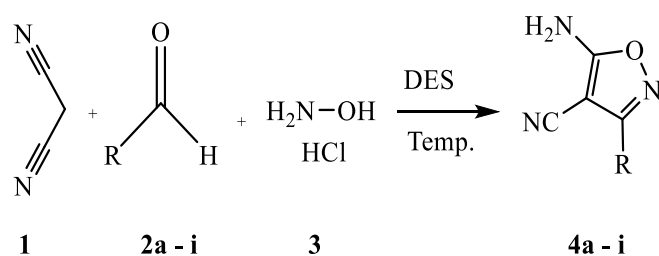


Abstract

Isoxazol derivatives belong to the group of nitrogen containing heterocycles for which diverse biological and therapeutic properties have been reported. Antibacterial antifungal and antioxidant activities are amongst the reported biological applications of isoxazol derivatives. So, the study toward finding novel and more efficient methodologies for the synthesis of this class of compounds has been a very important field of research in synthetic organic chemistry. So, we have come up with a novel methodology for the synthesis of isoxazol derivatives using deep eutectic solvents as medium and promoter. In the present work malononitrile, and benzaldehyde derivatives and hydroxylamine hydrochloride with ratio of 1:1:1 were used for the preparation of novel isoxazol derivatives. Finally, synthesized derivatives were investigated for possible antibacterial, antifungal and antioxidant activities. Many deep eutectic solvents were examined for the reaction and potassium carbonate /glycerol mixture was chosen as optimized conditions for the reaction. The optimum conditions for this reaction such as solvent, and temperature is determined and the products were obtained with good to excellent yields and acceptable purities. This process merits advantage such as mild conditions, easy work-up, shorter reaction times, excellent yields of the products. No use of harmful organic solvents, no extra catalyst and oxidant are among the other most important features of the present methodology.



R= **a**: 4-Me-C₆H₄; **b**: 4-OH-C₆H₄; **c**: pyridin-4-yl; **d**: 2,6-(Cl)₂-C₆H₃; **e**: furan-2-yl;
f: 4-NO₂-C₆H₄; **g**: 2-OH-3-OMe-C₆H₃; **h**: thiophen-2-yl; **i**: 2,4-(Cl)₂-C₆H₃

The synthesis of isoxazole-4-carbonitrile derivatives in the presence of potassium carbonate /glycerol deep eutectic solvent.

Keywords: Isoxazole, Deep eutectic solvent, Green Chemistry, Antibacterial properties, antifungal activity, antioxidant activity



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Synthesis of new derivatives of isoxazole in deep eutectic solvent-glycerol-potassium carbonate and evaluation of antibacterial, antifungal and antioxidant activity of synthesized compounds

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