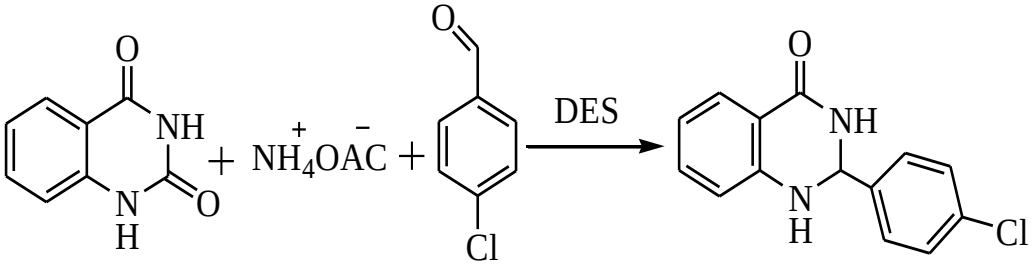
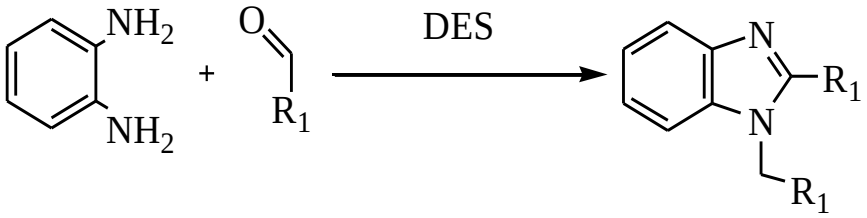
Abstract:

Quinazolines and benzimidazoles derivatives belong to the group of nitrogen containing heterocycles for which possess diverse biological and therapeutic properties. 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. The deep eutectic solvents were emerged as a fully green and appropriate alternative to harmful organic solvents around a decade ago. So, we have come up with a novel methodology for the synthesis of quinazoline and benzimidazoles derivatives using these solvents as medium and promoter. In the present work, isatoic anhydride and benzaldehyde derivatives and ammonium acetate or aniline reaction ratio of 1:1:3 was used for the preparation of quinazoline and a reaction between phenylenediamine and benzaldehyde derivatives for reaction ratio of 1:1 was applied for benzimidazoles derivatives. Many deep eutectic solvents were examined for the reaction and $SnCl_2$/choline chloride/ZnO mixture was chosen as optimized conditions for the reaction. Various benzaldehyde derivatives were studied under optimized conditions and the products were obtained with high purities and interesting yields. Short reaction time, ambient reaction temperature, no use of any extra catalyst and oxidant, and simple work-up are among the most important characteristics of the present methodologies.



The synthesis of Quinazolines derivatives in the presence of $SnCl_2$/choline chloride/ZnO deep eutectic solvent.



The synthesis of benzimidazoles derivatives in the presence of $SnCl_2$/choline chloride/ZnO deep eutectic solvent.

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Study of Benzimidazoles and Quinazolines synthesis using Benzaldehydes derivatives as starting materials under various novel green conditions in the presence of novel eutectic solvents

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