Abstract

Pyrido[2,3-*d*]pyrimidine and 1,3,5-triazine derivatives belong to heterocyclic building blocks possessing long range of biological properties. So, the search toward finding novel efficient synthetic methodologies for their preparation has found considerable interest in recent decades.

In the present study, various derivatives of aldehyde and benzoimidine hydrochloride in the presence of a nano catalyst α-Fe_2O_3-MCM-41 in DMF as solvent were used for the synthesis of 1,3,5-triazine derivatives. Also, various derivatives of aldehyde and acetophenone and 4(6)-aminouracil in the presence of deep eutectic solvent were used for synthesis and pyrido [2,3-d] pyrimidine derivatives.

These reactions were carried out at a temperature of 90-100 ^{o}C for 1,3,5-triazine derivatives and at 100-120 ^{o}C for pyridopyrimidine product, and the products of 2,4,6-triaryl-1,3,5-triazine and pyrido [2,3-d]pyrimidine-2,4-dione were formed which were easily separated from the catalysts and reaction media by simple purification. Eleven derivatives of the product of 1,3,5-triazine and 5 derivatives of pyridine [2,3-d] pyrimidine were synthesized most of them are synthesized for the first. The optimal reaction conditions for these syntheses, such as solvent type, temperature, and catalyst type, were studied to eventually produce products with high purities and the yields of 60-90%.

Keywords: Nitrogen heterocycles, Pyrido[2,3-*d*]pyrimidine, 1,3,5-triazine, Green chemistry, Deep Eutectic Solvent

University of zabol

Graduate School

Faculty of Science

Department of Chemistry

The Thesis Submitted for the Degree of Master of Science

(In the field of organic chemistry)

Multicomponent synthesis of 1,3,5-triazine and pyrido[3,4-*d*]pyrimidine derivatives under novel green reaction conditions in the presence of eutectic solvents and nanocatalysts

Supervisors:

Dr. Reza Aryan

Dr. Hamid Beyzaei

Advisors:

Dr. Masoomeh Nojavan

Dr. Noshin Mir

By:

Atefehsadat Mousavi-Siavashi

October 2018