

# One pot synthesis of pyrimido pyrimidine derivatives using Cu/RHA-AIMCM-41

Nazanin Bavafa Lalami\*,

Multi-component reactions have been very much considered in recent years because of the important benefits such as high reaction speeds, reduced purification processes, costs, time, and production of higher-yielding products, One of the most well-known multi-component reactions is Biginelli reaction, one of the important processes for the production of dihydropyriminones ethyl acetate, aromatic aldehydes and urea or thiourea, which are highly valued in pharmaceutical chemistry. Dihydropyrimidines are a group of heterocyclic organic compounds that are of interest due to medicinal and therapeutic properties. Regular mesoporous materials are a batch of materials with regular porosity in the range of 2-50 nm. In the meantime, mesoporous silica materials are of particular interest to researchers, and in particular in the field of adsorbent and catalytic materials. In this research, MCM-41 was synthesized rice husk ash at room temperature in a simple way and modified with aluminum and copper during the reaction and Cu/RHA-AIMCM-41 nanocatalysis was obtained, and Identified by XRD, FT-IR, SEM, FE-SEM and EDS methods, and then as an environmentally friendly catalyst in a three component and one pot Biginelli reaction To synthesize some of the pyrimido [4,5-d] pyrimidines, the reaction between barbituric acid, aldehyde and thiourea was used. The product of the reaction was purified by recrystallization using conventional methods in organic chemistry such as NMR, FT-IR, TLC, Also, the melting point of the product was examined and confirmed.

**Keywords :** Biginelli reaction, MCM-41, Rice husk, Nano catalyst, Pyrimido [4,5-d] pyrimidine

[Islamic Azad University, Rasht Branch - Thesis Database](#)  
[دانشگاه آزاد اسلامی، واحد رشت - سامانه بانک اطلاعات پایان نامه ها](#)