Research in Pharmaceutical Sciences, 2012;7(5)
School of Pharmacy and Pharmaceutical Sciences
Isfahan University of Medical Sciences

Synthesis of 2,3-dihydroquinazolin-4(1H)-ones catalyzed by malonic acid as efficient catalyst

S. Esfandiari*, J. Aboonajmi, A. Masoumnia, N. Hazeri

Department of chemistry, School of chemistry, Zahedan University of Sistan and Blouchestan, Zahedan, Iran

Background and Aims: 2,3-Dihydroquinazolin-4(1H)-ones were prepared in good yields via condensation of o-aminobenzamide with aldehydes promoted by a catalytic amount of malonic acid (propanedioic acid) under mild conditions. 2,3-Dihydroquinazolin-4(1H)-ones, an important class of heterocyclic compounds influence numerous cellular processes. This is exemplified by their broad range of pharmacological properties, for example, anticancer, antitumor, antibiotic, antidefibrillatory, antipyretic, analgesic, antihypertonic and diuretic activities. They are also useful as antihistamine, antidepressant, and vasodilating agents.
Methods: A mixture of a anthranilamide (1 mmol) and aldehyde (1 mmol) in ethanol/water (1:1) and was malonic acid (5% mol) added at room temperature. The reaction was monitored by (TLC) . was stirred to afford the 2,3-Dihydroquinazolin-4(1H)-ones. After the reaction, solid product from catalyst was separated by filtration, and after recrystallisation from ethanol, pure product derivatives were obtained.
Results: we have demonstrated a mild and efficient eco-friendly tandem synthesis of 2,3-dihydroquinazolin-4(1H)-ones under solvent-free conditions, using malonic acid as a novel organoacid green promoter, which uses neither harsh conditions nor the use of hazardous or toxicant catalysts and reagents.
Conclusions: In conclusion, a very simple, highly efficient and eco-friendly synthetic method of 2,3-dihydroquinazolin-4(1H)-ones has been found. This procedure was accompanied with several advantages, such as low loading of catalyst, improved yields and clean reaction.

Keywords: Malonic acid; 2,3-Dihydroquinazolin-4(1H)-ones; O-Aminobenzamide