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A facile synthesis of 2,3-dihydroquinazolin-4(1H)-ones catalyzed by fumaric acid

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Background and Aims: 2,3-Dihydroquinazolin-4(1H)-ones have been synthesized in the high to excellent yields via condensation of 2-aminobenzamide with aldehydes and ketones in the presence of catalytic amount fumaric acid in EtOH and watwr at room temperature. Mild reaction conditions, clean reaction media, simple workup and easy purification are advantages of this methodology. 2,3-Dihydroquinazolin-4(1H)-ones are an important class of heterocyclic compounds that have been attracted considerable attention. The natural quinazolinones and their synthetic analogous have been reported to possess a wide range of pharmacological and biological activities including antimalarial, antibacterial, anticonvulsant, anticancer and antifungal activities.
Methods: A mixture of a anthranilamide (1 mmol) and aldehyde (1 mmol) in ethanol/water (1:1) and was fumaric 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 at room temperature, using fumaric acid as a novel organoacid green promoter, which uses neither harsh conditions nor the use of hazardous or toxicant catalysts and reagents. When compared with previous reported methodologies, notable advantages of our protocol include simple operations, short reaction time, metal-free, the relatively nontoxic, inexpensive, water-solubility organoacid, broad substrates scope, and high yields.
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: 2,3-Dihydroquinazolin-4(1H)-one; Fumaric acid; 2-Aminobenzamide