

عنوان مقاله:

piperazine an efficient base catalyst for the one pot synthesis of 3,4-dihydropyrano 3,2-c chromene derivatives

محل انتشار:

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نویسندگان:

.Sharmin Irani - Chemistry Department, The University of Sistan and Baluchestan, P. O. Box 98135-674, Zahedan, Iran

Malek Taher Maghsoodlou - Chemistry Department, The University of Sistan and Baluchestan, P. O. Box 98135-674, Zahedan, Iran

خلاصه مقاله:

An efficient and simple protocol for the one-pot three-component synthesis of 3,4-dihydropyrano[3,2-c]chromenes (4) is described, via the reaction of aromatic aldehydes (1), malononitril (2) and 4-hydroxycumarin (3) in the presence of 10 mol% of piperazine as catalyst, in ethanol (EtOH) at ambient temperature. Short reaction times, environmentally friendly procedure and excellent yields are the main advantages of this procedure, which makes it more economical than other environment-friendly methods.

کلمات کلیدی:

dihydropyrano[3,2-c]chromenes, piperazine , ambient temperature-3,4

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