

Abstract

Multi-component reactions are an important part of the reactions in chemistry. These reactions are well received by the scientists due to the ease of carrying out, as well as the lack of separation of intermediates. Pyran are a major category of heterocyclic compounds that have many medicinal properties.

In this research, from the reaction of malonitrile, cyclohexyl isocyanide and various oxiran in the presence of polyethylene glycol 400, 8 derivatives of 4,3-dihydro-2H-pyran were synthesized. Optimization of catalyst, solvent and temperature was performed first, and after obtaining optimal conditions, derivatives of 4,3-dihydro-2H-pyran compounds were synthesized. The results showed that the products were synthesized by using the opening mechanism of the oxirane ring and through the inter molecular mechanism.

This method was selected based on available materials, ease of use and eco-friendly. The solvent used makes hydrogen bonding, and this causes the yield of some products.

Keywords: 4,3-dihydro-2H-pyran, oxiran, isocyanide, 2H-pyran and lithium triflate



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**Multicomponent synthesis of some 3,4-Dihydro- 2H-pyran
derivatives**

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