22nd Iranian Chemistry Conference, 23-25 August, 2023
University of Kurdistan

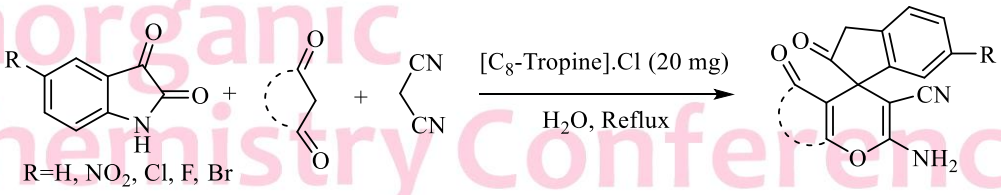
Utilization of a new ionic liquid based on tropine as an efficient catalyst for the acceleration of the synthesis of spiro-2-amino-4*H*-pyran-oxindoles

Mahdi Ramezanpoor Touchahi, Masoumeh Mazloumi, Farhad Shirini* and Hassan Tajik

Department of Chemistry, College of Science, University of Guilan, Rasht, 41335-19141, Iran

** E-mail: shirini@guilan.ac.ir, fshirini@gmail.com*

In recent years ionic liquids (ILs) have become a promising area of concern for organic chemists due to their distinctive properties such as high thermal stability, low vapor pressure, high load capacity, ease of recycling and environmental friendliness [1]. Tropine, a bicyclo structured compound, is one of the important tropane alkaloids which under the influence of special features in main structure such as having a nitrogen atoms and hydroxyl group and its ability to form hydrogen bonds has a high potential for the synthesis of ionic liquids with high biocompatibility. Heterocyclic systems containing pyran rings specially spiro-2-amino-4*H*-pyrans have received considerable attention due to their various biological and pharmacological activities [2]. These compounds form the structural unit of many natural products and are potential calcium channel antagonists, also having various activities such as anti-allergy, anti-tumor, and anti-bacterial [3]. In this work, we wish to introduce a efficient ionic liquid based on tropine **(**[C_8-Tropine].Cl) for the acceleration of the synthesis of the spiro-2-amino-4*H*-pyran-oxindoles. The green conditions, simple catalyst preparation, straightforward separation and recovery of the catalyst from the reaction mixture, simple work-up method requiring no special separation procedure, use of water as a reaction media, short reaction times, and high yields of the products are the significant points of interest of this study.



Keywords: Ionic liquid, Spiro-2-amino-4*H*-pyran-oxindoles, Tropine, [C_8-Tropine].Cl.

References

[1] A. Mulik, D. Chandam, P. Patil, D. Patil, S. Jagdale, M. Deshmukh, *Journal of Molecular Liquids*, **2013**, 179, 104.
[3] O. Goli-Jolodar, F. Shirini, M. Seddighi, *Dyes and Pigments*, **2016**, 133, 303.
[2] K.A. Kumar, N.Renuka, G.V. Kumar, D.M. Lokeshwari, *J Chem Pharm Res*, **2015**, *7*, 693.