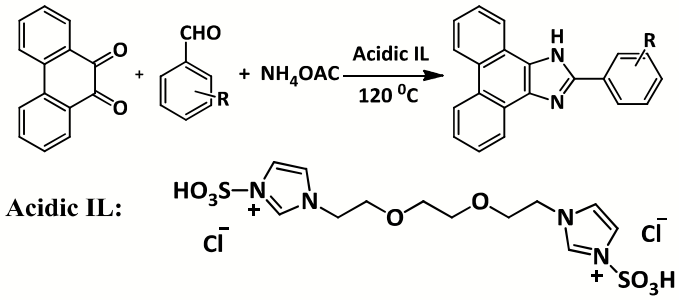
Novel acidic ionic liquid as efficient and reusable catalyst based on imidazolium cation

Maede Hasanpour, Hossein Eshghi, Mohammad Rahimizadeh*
Department of Chemistry, School of Sciences, Ferdowsi University of Mashhad, Mashhad 91775-1436, Iran;
Email: md.hasanpour@gmail.com

Application of solvent-free reactions in organic synthesis, particularly those based on imidazolium cations, has gained attention in recent years [1-3]. Herein, a novel acidic ionic liquid based on imidazolium cation is designed, synthesized and successfully used as catalyst for the one-pot synthesis of 2-aryl-1*H* -phenanthro[9,10-*d*]imidazole derivatives. The remarkable feature of this new catalyst is its ethyleneoxy bridge which participates in dissolving organic compound in ionic liquid. The application of this ionic liquid is studied in a new one-pot method for synthesis of imidazole derivatives under solvent-free conditions(Scheme 1). The advantage of this method is reusability of the catalyst, high conversion, short reaction time, and simple experimental and easy workup procedure.



Scheme 1.

References:

1. P. Wasserscheid, T. Welton, *Wiley-VCH*, Weinheim, **2008**.
2. W. Keim, P. Wasserscheid, Angew. *Chem. Int. Ed.***2000**, 39, 3772–3789.
3. N. Jain, A. Kumar, S. Chauhan, S. M. S. Chauhan, *Tetrahedron*, **2005**, 61, 1015–1060.