新型苯并咪唑类**Brønsted**酸性离子液体的合成、表征及其在芳香酯合成反应中的应用

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摘要   以苯并咪唑，溴乙烷和四氟硼酸为原料，合成了一种含有功能化苯并咪唑阳离子的新型Brønsted酸性离子液体1-乙基苯并咪唑四氟硼酸，通过[1]H-NMR、IR、MS和元素分析对离子液体进行了表征。与咪唑类酸性离子液体相比，1-乙基苯并咪唑四氟硼酸对芳香醇和芳香酸具有更好的溶解性。以此新型离子液体作为酸性催化剂和反应介质，研究了其在芳香酯合成反应中的应用。实验结果表明，该酸性离子液体对芳香酯的合成反应具有很高的催化活性。反应结束，离子液体经过简单的旋蒸除水后即可重复使用。循环使用10次后，芳香酯的选择性仍为100%。

关键词   功能化离子液体,Brø nsted酸性催化剂,芳香酯
分类号

Preparation and Characterization of a Novel Benzimidazolium Brønsted Acid Ionic Liquid and Its Application in the Synthesis of Arylic Esters

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Abstract A novel Brønsted acid task specific ionic liquid 1-ethylbenzimidazolium tetrafluoroborate ([Hebim]BF$_4$) with functional benzimidazolium cation was synthesized and characterized by ^{1}H NMR, IR, MS spectra and elemental analysis. This novel ionic liquid was successfully used as dual solvent-catalyst for the synthesis of arylic esters. Higher yields were obtained in the presence of [Hebim]BF$_4$ in comparison with other imidazolium ionic liquids because of the good solubility of the aromatic alcohols and aromatic carboxylic acids in [Hebim]BF$_4$. The product could be separated conveniently from the reaction system, and the ionic liquid could be easily reused after removal of water under vacuum. After 10 times reuse, the selectivity of the ester was still 100%.

Key words   task specific ionic liquid   Brø nsted acid catalyst   arylic ester

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