

عنوان مقاله:

In situ polymerization of poly(vinylimidazole) into the pores of hierarchical ZSM-5zeolite as an acid–base bifunctional catalyst for cascade reaction

محل انتشار:

دومین کنفرانس کاتالیست انجمن شیمی ایران (سال: 1398)

تعداد صفحات اصل مقاله: 1

نویسندگان:

Roozbeh Javad Kalbasi - *Faculty of Chemistry, Kharazmi University, Tehran, Iran*

Sanaz Mansouri - *Department of Chemistry, Islamic Azad University, Central Tehran Branch, Iran*

خلاصه مقاله:

Poly(vinylimidazole)/hierarchical ZSM-5 has been prepared as a novel and efficient acid–base bifunctional catalyst by a simple method. First, the hierarchical ZSM-5 zeolite was synthesized by an indirect method from KIT-6 as a silica source. By this method, control of the zeolite crystallization was achieved due to the adjustment transformation processing of amorphous mesoporous silica to zeolite crystal. Then, vinylimidazole as a basic part was polymerized by an in situ method into the zeolite's pores. This acid–base bifunctional heterogeneous catalyst was characterized by FTIR, TG-DTG, N₂ adsorption–desorption, TEM, SEM, NH₃-TPD, and XRD. The catalyst has been applied to one-pot C–C bond formation tandem cascade reactions condensation by the simple method at low temperature. Due to the uniform distribution of poly(vinylimidazole) in the micro-meso pores of the hierarchical zeolite reactants, the products easily pass through the catalytic active sites. The co-existence of acidic and basic sites in the structure of the catalyst has a crucial role in the superior activity of this catalyst. Moreover, the catalyst showed excellent recyclability and high activity even after 7 runs with only a 10% reduction in activity being detected.

کلمات کلیدی:

Hierarchical ZSM-5, Acid–base bifunctional catalyst, Poly(vinylimidazole), Deacetalization–Henry reaction, Deacetalization–Aldol condensation

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1009814>

