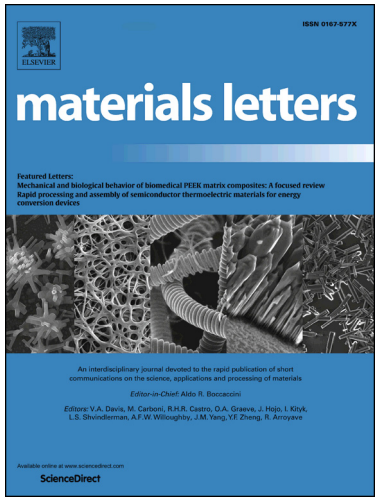

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Synthesis and characterization of flower-like carbon spheres solid acid from glucose for esterification

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Abstract: A novel flower-like carbon spheres solid acid was prepared from glucose by the simple hydrothermal method. The characterization results show that -SO_3H groups are covalently linked on the carbon spheres solid acid in sulfonation process, which enhanced acid strength and acid densities of the solid acid catalyst. The flower-like shape derived from the preparation process also increases the surface area of the catalysts and the accessibility of the active sites. The catalytic performance results indicate that the carbon spheres solid acid is an excellent catalyst for esterification reaction.

Keywords: carbon spheres; solid acid; carbon materials; biomaterials; esterification

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1. Introduction

Liquid acid has been extensively used in the acid catalyzed reaction. While considering its high toxicity, serious corrosiveness and poor recyclability, this kind of catalyst has been greatly limited in the modern chemical industry applications.