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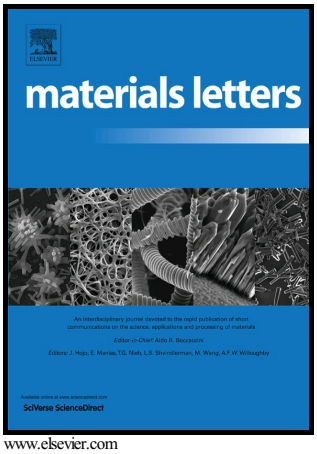

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Self-Assembly of Benzimidazole-Ended Nano Hyperbranched Polyester and Its Host-Guest Response

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ABSTRACT

Hyperbranched aromatic-aliphatic polyester HBPE-BBA was synthesized by modifying the periphery of a second-generation hyperbranched polyester (HBPE) with benzimidazole (BBA) end groups. HBPE-BBA showed interesting self-assembly behaviors, and retained one-dimensional nano bead-on-string fibers and two-dimensional helical nanocoil morphologies in different solvents. The fluorescence results indicated that HBPE-BBA exhibited remarkable selectivity for Fe^{3+} and fused ring compounds.

Keywords: Hyperbranched polyester; Self-assembly; Nanoparticle; Sensors; Fluorescence

1. Introduction

Supramolecular nanostructures produced *via* self-assembling molecules have attracted immense interest because the formation of such sophisticated supramolecular nanostructures involve weak noncovalent interactions that can be triggered by external stimuli, leading to the fabrication of dynamic materials and nanosensors [1]. Hyperbranched polymers (HBPs), demonstrate superior properties (good solubility, compact structure, and large number of terminal functional groups) and they can be fabricated by simple one-pot reaction syntheses [2, 3]. However,

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