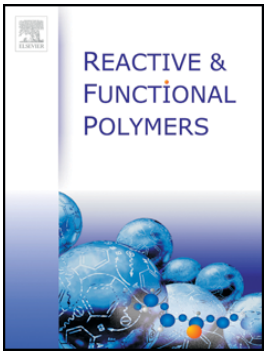

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Dissolution and resourcfulization of biopolymers in ionic liquids

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Abstract

Cellulose, starch, chitosan, β-cyclodextrin, lignin and proteins are the most abundant elements in the universe with excellent properties, such as good biodegradability and biocompatibility, thus have gained tremendous interest in many fields. Unfortunately, these biopolymers suffer greatly from the solubility in neutral or basic solutions, insufficient mechanical properties, brittleness, and also have other drawbacks. Ionic liquids (ILs) are a kind of greener solvents for biopolymers, owning to their excellent physical-chemical properties. ILs also provide a premise condition for the homogeneous reaction of biopolymers; improve the utilization value of biopolymer. In this paper, the dissolution, regeneration and modification of cellulose, starch, chitosan, lignin and protein in ionic liquids are reviewed.

Keywords: biopolymer, ionic liquid, dissolution, regeneration, resourcfulization

Introduction

With the development of industry, the consumption of non-renewable resources such as petroleum, coal and natural gas is increasing. Apart from exhaustion of fossil fuels, the resulting synthetic polymers are difficult to be degraded, leading to serious environmental pollutions[1]. Therefore, studies on the development and utilization of renewable biopolymers, such as cellulose, starch, chitosan, β-cyclodextrin, lignin and

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