

Accepted Manuscript

RAFT derived Chiral and Achiral Poly(ionic liquids) Resins: Synthesis and Application in Organocatalysis

Nellepalli Pothanagandhi, Kari Vijayakrishna

PII: S0014-3057(17)30552-9
DOI: <http://dx.doi.org/10.1016/j.eurpolymj.2017.08.002>
Reference: EPJ 7995

To appear in: *European Polymer Journal*

Received Date: 31 March 2017
Revised Date: 2 August 2017
Accepted Date: 3 August 2017

Please cite this article as: Pothanagandhi, N., Vijayakrishna, K., RAFT derived Chiral and Achiral Poly(ionic liquids) Resins: Synthesis and Application in Organocatalysis, *European Polymer Journal* (2017), doi: <http://dx.doi.org/10.1016/j.eurpolymj.2017.08.002>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



RAFT derived Chiral and Achiral Poly(ionic liquids) Resins: Synthesis and Application in Organocatalysis

Nellepalli Pothanagandhi and Kari Vijayakrishna*

Department of Chemistry, School of Advanced Sciences, VIT University, Vellore 632014,
Tamil Nadu, India

*Corresponding Author:

E-mail: kari@vit.ac.in, vijayakrishnakari@gmail.com

Kari Vijayakrishna,

Department of Chemistry, School of Advanced Sciences,

VIT University, Vellore 632014, Tamil Nadu, India

Telephone: +91 416 224 2334

Fax: +91 416 224 3092

Abstract

Chiral and helical polymers and their resin are very attractive components in catalysis and separation chemistry. This manuscript discusses the synthesis and application of achiral and chiral imidazolium based poly(ionic liquids) (PILs). Imidazolium based cross-linked poly(ionic liquids) or polyelectrolytic-resins (**PIL-resin**) were synthesized by RAFT copolymerization of 1-vinyl-3-ethylimidazolium bromide with different cross linkers. In these PIL-resins, the chirality is induced at anionic part by simple anionic metathesis with optically pure amino acids, L & D-proline that gave six chiral PIL-resins. The morphology of PIL-resins was studied by SEM which shows microfibrils, twisted ribbons, and layered structures. The PIL-resins exhibit very good activity towards Diels-Alder reaction (cyclization of isoprene with different dienes), where quantitative conversions were achieved within 30 min at room temperature. Both catalytic activity and the selectivity remain same during first four recycles of the resin. The **chiral PIL-resin** catalysed heterogeneous asymmetric Baylis Hillman and Michael addition reactions shown better catalytic activities in comparison with chiral homo polymer.

Keywords: Poly(ionic liquids); Resin; Cross-linking; Organocatalysis; Diels-Alder reaction; Michael addition; Baylis Hillman reaction

Download English Version:

<https://daneshyari.com/en/article/7804241>

Download Persian Version:

<https://daneshyari.com/article/7804241>

[Daneshyari.com](https://daneshyari.com)