

Accepted Manuscript

Polysuccinimide and Its Derivatives: Degradable and Water Soluble Polymers
(Review)

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PII: S0014-3057(18)30372-0
DOI: <https://doi.org/10.1016/j.eurpolymj.2018.08.056>
Reference: EPJ 8569

To appear in: *European Polymer Journal*

Received Date: 21 February 2018
Revised Date: 1 August 2018
Accepted Date: 29 August 2018

Please cite this article as: Jalalvandi, E., Shavandi, A., Polysuccinimide and Its Derivatives: Degradable and Water Soluble Polymers (Review), *European Polymer Journal* (2018), doi: <https://doi.org/10.1016/j.eurpolymj.2018.08.056>

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Polysuccinimide and Its Derivatives: Degradable and Water Soluble Polymers (Review)

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Abstract

Interest for water soluble polymers which show biocompatibility and degradability is growing due to their potential applications in medical sciences. Polysuccinimide (PSI), commonly synthesized through thermal polymerization, is a polyimide precursor for the production of such biocompatible and degradable polymers namely polyaspartic acid and various polyaspartamides. Polyaspartic acid is usually obtained by hydrolysis of PSI while polyaspartamide is produced by ring opening of PSI using a nucleophilic reagent. The presence of amide linkages in these polymers gives them peptide-like structures which is prone to hydrolysis and subsequent degradation. These derivatives could be potential substitutes for different polyamino acids in many medical applications. This review compiles the works carried out on developing polysuccinimide and its derivatives as well as the main synthetic routes and characterization methods.

Keywords: polysuccinimide, degradability, biocompatibility, polyaspartamide, polyaspartic acid

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