

Water Soluble Chitosan Derivatives via the Freeze Concentration Technique

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Abstract : Chitosan has been an attractive biopolymer for decades, but its processibility is lowered by its poor solubility, especially in physiological pH values. Freeze concentrated reactions of Chitosan with several organic acids including acrylic, citraconic, itaconic, and maleic acid revealed improved solubility and morphological properties. Solubility traits were assessed with a modified ninhydrin test. Chitosan derivatives were characterized by ATR-FTIR and morphological characteristics were determined by SEM. This study is a unique approach to chemically modify Chitosan to enhance water solubility.

Keywords : chitosan, freeze concentration, frozen reactions, ninhydrin test, water soluble chitosan

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