Ionic Liquids for Processing Biopolymers and Biopolymer-based Composites

이상현*
건국대학교 미생물공학과
(sanghlee@konkuk.ac.kr*)

The insolubility of unmodified biopolymers in most organic solvents has limited the applications of biopolymer-based materials and composites. Because of their inherent biocompatibility and biodegradability, such materials have many potential applications in biomedicine, including for tissue engineering, drug delivery systems, wound treatment, dialysis membranes, and biosensors. Ionic liquids (ILs) are good solvents for polar organic, nonpolar organic, inorganic and polymeric compounds. Biopolymers such as cellulose, chitin/chitiosan, silk, and DNA can be fabricated from ILs into films, membranes, fibers, spheres, and molded shapes. In this presentation, application of ILs to process biopolymers and biopolymer-based composites will be introduced. ILs can be used for the pretreatment of lignocellulosic biomass, development of cellulose-based energy storage device, forming of various biopolymers-based films, and preparation of biocompatible/blood compatible biopolymer composites.