Progress on biopolymer as an application in electrolytes system: A review study

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ABSTRACT

An interest in searching for a light, compact, and longer life cycle of energy storage devices among researchers has been increasing over the years, leading to the development of polymer electrolytes (PEs), which is a powerful platform due to their unique properties. PEs have been successfully developed into various types, i.e., solid, gel, and composite. As the researchers have zeroed in on finding new trades to use conventional synthetic polymer electrolytes to address environmental contamination concerns, biodegradable polymers or bio-polymers can be assumed to be an essential part of various other options. It has been found that these bio-polymers can be viably utilized as a polymer host in the preparation of the electrolyte framework. Various possible applications have been made using bio-polymer electrolytes (BEs), especially in energy storage devices, such as supercapacitors, batteries, fuel cells, and solar cells, as described in this review. The present review article also consists of a glimpse of the challenges in developing bio-polymers in the application of electrolyte systems.

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KEYWORDS: Biopolymer electrolyte, Physicochemical, Ionic conductivity, Electrochemical devices

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