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Abstract

The utilization of biodegradable materials for solid electrolyte membrane fabrication can solve disposal problem of waste created after its service life. Membranes fabricated as part of this work are eco-friendly in nature and also broaden the scope for using sustainable materials such as poly(vinyl alcohol) (PVA), chitosan (CS) and cellulose nanocrystals (CNCs) based technologies for future direct methanol fuel cell applications. Protonation of PVA-CS-CNC membranes resulted in improved proton conductivity, which is found to be in the range of 10^{-4} S cm^{-1}. The