

Synthesis and characterization of conducting bacterial cellulose-Poly (3,4-ethylenedioxythiophene) Polystyrene sulfonate (BC-PEDOT: PSS) composites

Shaukat Khan, Mazhar-ul-Islam, Muhammad Wajid Ullah, , , *

(parkjk@knu.ac.kr*)

Bacterial cellulose (BC) produced under static culture represents a semi transparent membrane that can receive good impact in development of conducting materials. BC represents a dense fibrous network structure with high mechanical strength and crystallinity. However, pure BC is deprived of conducting properties. It is therefore required to blend BC with some conducting material prior to its applications in developing such devices. Electrically conducting bacterial cellulose (BC) membranes were prepared by the ex-situ incorporation of Poly (3, 4-ethylenedioxythiophene) Polystyrene sulfonate (PEDOT: PSS) into the BC pellicles. The structural features of composites were analyzed through X-ray Photoelectron Spectroscopy (XPS), Field Emission Scanning Electron Microscopy (FE-SEM), Fourier Transform Infrared Spectroscopy (FTIR) and X-ray diffraction (XRD). The electrical conductivity of the BC-PEDOT: PSS composites enhanced with high % weight of PEDOT: PSS incorporated into the BC matrix.