

Highly conducting bacterial cellulose-gold nanoparticles-PEDOT:PSS films for advanced biomedical applications

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This study reports the fabrication of highly conducting and biocompatible bacterial cellulose-gold nanoparticles-PEDOT:PSS (BC-GNP-PEDOT:PSS) nanocomposites for biology-device interface applications. Structural characterization confirmed the uniform nature of the synthesized BC-GNP and BC-GNP-PEDOT:PSS composites. Four-point probe analysis indicated that the BC-GNP-PEDOT:PSS films showed high electrical conductivity. The composites were also tested for biocompatibility with animal osteoblasts (MC3T3-E1). The composites supported adhesion, growth, and proliferation of animal cells, indicating that they are biocompatible and non-cytotoxic. Therefore, BC-GNP-PEDOT:PSS composites are candidate materials for biology-device interface applications.