

Bacterial cellulose composites with biocompatible polymers for enhanced biological properties

Mazhar-ul-Islam, 유보완, Shaukat Khan, Waleed Ahmad Khattak, Muhammad Wajid Ullah,

김예지, 김민아, 박중곤*

경북대학교

(parkjk@knu.ac.kr*)

The well arranged fibrous network structure of bacterial cellulose (BC) can act as matrix in the synthesis of numerous composites. Lack of certain biological characteristics of BC could be overcome in its composites with polymers and nanomaterials. Currently with prepared the BC composites with biocompatible polymers including chitosan (Ch) and gelatin (gel) through ex-situ penetration strategy with the aim to impart biocompatible properties in BC films. FT-IR results produced specified peaks for respective polymeric functionalities, while XRD crystallographic peaks confirmed the composite synthesis. It was evident from FE-SEM results that both Ch and Gel covered the BC surface and penetrated inside the fibrous network. When studied with animal cells, the composites highly enhanced the cell adhesion, and proliferation properties of BC. Moreover the composite didn't produce any toxic effects on animal cells. These synthesized composite can enhance the BC applications in medical field.