

Effect of additives on the water holding capacity and water release rate of bacterial cellulose

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Keeping the wound moist is an important factor in modern healing process. A moist environment increases the penetration of the active substances. Bacterial cellulose (BC) has been extensively investigated as wound dressing materials due to its hydrophilic nature, high water holding capacity (WHC) and slow water release rate (WRR). It can absorb water more than 100 times of its dry weight which can further be improved by alteration in culture media for BC production or treatment of the final product. In the current study, we investigated the effect of addition of single sugar α -linked glucuronic acid-based oligosaccharide (SSGO) to the culture broth on WHC and WRR of BC. WHC and WRR of the newly prepared composites of BC with montmorillonite (MMT) and chitosan (Ch) was also investigated. The addition of SSGO to the culture medium improved the WRR while WHC was not much affected. Similarly, WHC and WRR were improved in BC-Ch composites while WRR increased and WHC decreased in case of BC-MMT nanocomposites.