

Development of a new wound dressing material with antibacterial properties comprising of bacterial cellulose-montmorillonite nanocomposites

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Clays and their products have been used for medicinal properties from ancient times. Montmorillonite (MMT) clay possesses antibacterial properties and can be used for treatment for skin and other problems. Bacterial cellulose (BC) is a biopolymer that is used as temporary skin substitute and wound dressing material. BC itself does not possess wound healing properties. The healing process is directly related with the microbial infections. Thus a wound dressing material with inherent antibacterial properties would be helpful in rapid and safe wound healing. In the present study, an attempt was made to combine the properties of BC and MMT for the development of new dressing materials. For this purpose, the nanocomposites of BC and MMT were synthesized. The antibacterial properties of these composites were tested against *Escherichia coli* and *Staphylococcus aureus*. The results obtained showed positive effects regarding the development of antibacterial characteristics in the BC-MMT nanocomposites.