

### Preparation of bactericidal composites of bacterial cellulose with various modified montmorillonite clays

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The deficiency of antibacterial properties is offering a barrier in using bacterial cellulose (BC) as wound dressing material. Synthesis of BC containing antibacterial reagents could overcome the dearth. Medicinal and therapeutic applications of various clays and their products have been in use from ancient time. Montmorillonite (MMT) is one of the most widely used medicinal clay. The composites of bacterial cellulose (BC) with various modified MMTs including (Ca, Na, Cu-MMTs) were synthesized and their antibacterial activities were evaluated against *Escherichia coli* (*E. coli*) and *Staphylococcus aureus* (*S. aureus*) through disc diffusion assay and colony forming unit (CFU) count methods. Impressive results were obtained regarding the antibacterial effects of BC-MMTs composites with both methods. Zones of inhibition were observed for BC-Cu-MMT with both treated bacterial species. CFU count method showed, from weak (for BC-MMT) to mild (for BC-Ca-MMT, BC-Na-MMT), antibacterial activities. Very strong % reduction in CFU was observed with (BC-Cu-MMT). The pure BC didn't display any antibacterial activity in either method.