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**البحث رقم (٤)**

## Title:

**"Novel chitin/chitosan-glucan wound dressing: Isolation, characterization, antibacterial activity and wound healing properties."**

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## Abstract:

Chitin/chitosan-glucan complex (ChCsGC) was isolated from *Schizophyllum commune* (*S. commune*) and dissolved for the first time in precooled (−15 °C) 8 wt.% urea/6 wt.% NaOH aqueous solution. Novel nonwoven microfiber mats were fabricated by wet-dry-spinning technique and evaluated the mechanical of fabrics mats and surface morphology. Isolated and nonwoven mat were characterized employing FTIR-ATR, Optical microscope, TGA, DSC, H/C NMR, SEM and XRD techniques. According to the physical/chemical characterization measurements we can assumed that, the net and the novel dressing mats have the same chemical structure with slightly changes in the thermal stability for the dressing mats. The biological activity of the nonwoven ChCsGC fabric was tested against different types of bacteria exhibiting excellent antibacterial activity. Cell viability of the plain complex and nonwovens mats were evaluated utilizing mouse fibroblast cell line varying concentrations and treatment time. ChCsGC did not show any cytotoxicity against mouse fibroblast cells and the cell-fabrics interaction was also investigated using fluorescence microscope. The novel ChCsGC nonwovens exhibited excellent surgical wound healing ability when tested using rat models.