Abstract

Artemisia is used in the treatment of skin diseases and has antimicrobial properties. This research was carried out with the aim of making nano-fibers containing Artemisia extract and analyzing the antimicrobial properties of nanofibers for control of *Pseudomonas aeruginosa* and *Staphylococcus aureus* bacteria in a laboratory environment. For this purpose, *Artemisia* extract and chitosan solution was prepared and then nanofibers were produced by electrospinning of solutions. After the formation of nanofibers, scanning electron microscopy, cytotoxicity, thermal analysis, infrared spectrometer and antimicrobial activity of nanofibers were investigated. According to the results of cytotoxicity, the fiber containing *Artemisia* extract had no toxicity to the body and can be used in the medical applications. The nano-fibers containning *Artemisia* extract had inhibitory properties on both bacteria. In nano-fibers containing 10% of the extract, the bacterial growth was completely controlled and also had a better effect on the gram-negative bacteria of Pseudomonas aeruginosa than the gram-positive bacteria of Staphylococcus aureus in lower concentrations of inhibitory extract. The fibers containing the drug had a tension at the lower rupture point as well as a change in the length at the rupture point. The nanofibers containing extracts compared with free extract nanofiber had more temperature resistace due to the artemisia extract crystals and the bond between the extract and the nano fiber.

Keywords: Encapsulation, Electrospinning, medicinal plant, Artemisia extract

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**Fabrication of chitosan nanofibers for encapsulation of
Artemisia extract and characterization of their properties**

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