

DEVELOPMENT OF HERBAL-LOADED CHITOSAN / POLYETHYLENE OXIDE NANOFIBER WOUND DRESSING: ANTIBACTERIAL POTENTIAL OF CHAMOMILE EXTRACT

Parmida Nafei^a, Zohreh Mohammadi^{b*}, Ali Rastegari^b and Nasrin Samadi^c

(Received 08 April 2025) (Accepted 20 August 2025)

ABSTRACT

The use of chitosan nanofiber to accelerate wound healing has received great attention in recent years. Chamomile extract shows anti-inflammatory and antibacterial effects. In this study, solutions of chitosan and polyethylene oxide were prepared with different ratios and nanofibers are prepared by electrospinning method. After evaluation of prepared nanofibers by electron microscopy, ratio 80: 20 was selected for electrospinning of chamomile extract with different concentrations. The physicochemical characteristics of nanofibers and their antibacterial activity were investigated on *Staphylococcus aureus* and *Pseudomonas aeruginosa*. Obtained results showed release rate of extract and degradability of nanofibers to have increased with increasing extract concentration. Antibacterial results showed nanofiber containing 20%, 25% and 30% of chamomile extract could significantly reduce more than 4 logarithmic cycles after 2 h incubation. In conclusion, formulated nanofiber loaded by chamomile extract can be considered as a potential wound dressing with antibacterial property.