Innovation in Burn Wound Dressing and Regeneration Wound through Nano fiber of Gum Tragacanth.

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Abstract

Existence of antibacterial agent in a hydrocolloid network could prevent the possibility of detection in wound infections. Tragacanth with properties such as moisture absorption and creating a network of hydrocolloid as well as maintenance and delivery of drugs, shows good potential in this field. So the aim of this study was to introduce cotton gauze containing nano-fibers obtained from gum tragacanth in wet conditions with the ability to heal wounds and absorb wound exudates simultaneously.

This research was an experimental study. The gum tragacanth from Iranian Astragalus was examined in this study. The solution were prepared from Tragacanth powder and their components and it was converted to the scaffold of nano-fibers by electro spinning and lyophilizing methods. The structure and functional groups of specimens was determined by FTIR. All rheological tests were performed by using a Brookfield viscometer and the images were observed with a SEM microscope.

The nano-coating created on the surface of the cotton gauze is able to enhance the increase of burn wound exudate absorption and prevent the possibility of infection and also the adhesion of cotton gauze to the wound.

Keywords: Gum Tragacanth , Nano Fiber ,exudate, Electrospinning , Lyophilization

Image:

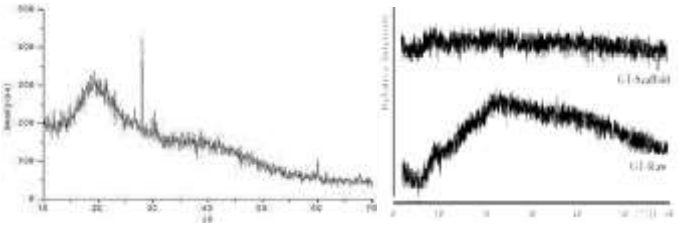


Image1:Gum tragacanth XRD

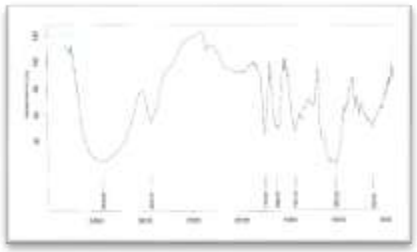
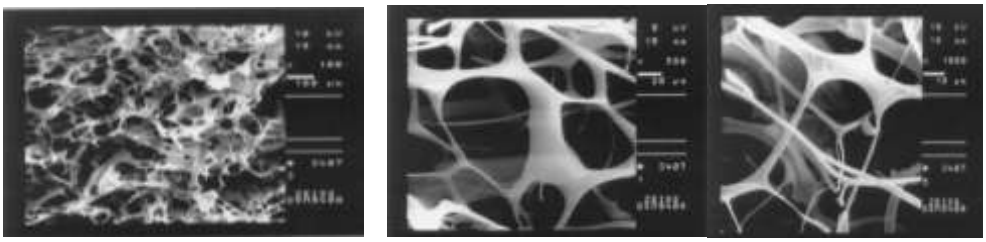


Image2:Gum tragacanth FTIR



a b c

Image 3: Network structure Gum with enlarge a:100x b:500x c:1000x

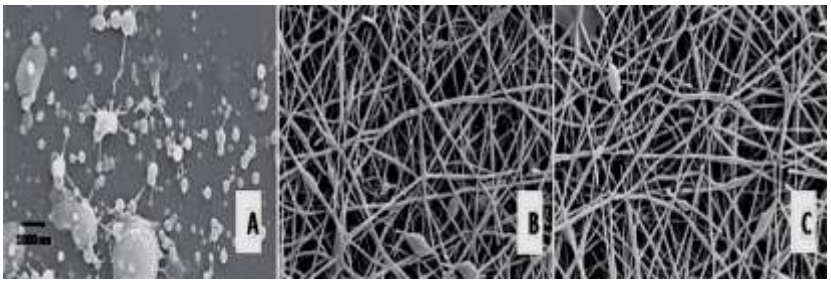


Image 4: A: Pure Tragacanth solution that does not have the ability to form fibers
B: Composite solution Gum Tragacanth / PEO ,70/30 with magnification 1000nm
C: Composite solution Gum Tragacanth / PEO , 50/50with magnification 1000nm

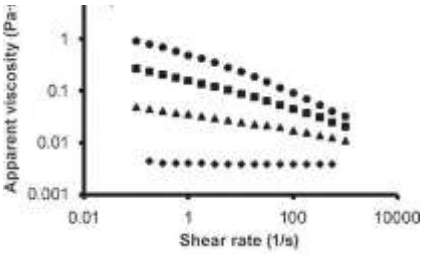


Image 5: **Rheological properties**:Apparent viscosity dependence of the Shear rate in samples Gum Tragacanth,from top to bottom with different concentrations at 25 ° C.

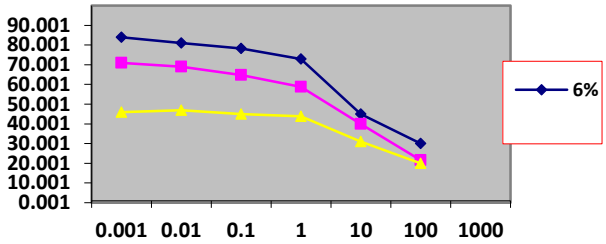


Image 6: Steady shear measurements of shear rata Gum Tragacanth solutions at the same pH of the emulsions (pH 4.5) were carried out at 0.1e500 s1 on serrated parallel plates using rotational rheometer All the measurements were carried out at 25 ° C with duplication measurement.

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Biography:



My name is Farnaz Nayeb morad at the end of my cource in,Ph.D Chemiststry Textile and Nano Technology in Iran..I have responsible at nano polyemer Lab in university and research about smart textiles for sport. My expertise in Sport Engineering textile and Wound Dressing and Medical Textiles.











