**Nanotechnology and nanomaterials**

**Chitosan-based nonwoven materials obtained by electrospinning**

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Chitosan-based nonwoven materials obtained by electrospinning are used to make bandages for the treatment of wounds of various origins. The use of such materials based on chitosan, which are biocompatible and biodegradable, accelerates skin regeneration [1-2].

The effect of the prescription composition of the PVA/chitosan composition (dissolved in aminocaproic acid) was investigated, in the ratios of the composition 1:1, 2:1, 3:1, 4:1, 5:1, 6:1. The use of a solution of chitosan in aminocaproic acid improves electrospinning, and aminocaproic acid has hemostatic properties. For PVA/chitosan compositions (1:1, 2:1) droplet formation was observed, leading to the impossibility of electrospinning. For PVA/chitosan compositions up to a ratio of 4:1, 5:1, 6:1 there was a slow electrospinning with the formation of droplets. Good results were observed for the PVA/chitosan composition in the ratio (3:1) and the distance between the electrodes of 10 cm. Nonwoven materials obtained from the PVA/chitosan compositions have fibers with a diameter in the range of 0.6-1.5 μm.

For samples of polymer compositions, the increase in the content of chitosan solution decreases the viscosity and surface tension. It is shown that the process of thermal stabilization of nonwoven materials based on ultrathin fibers for 1-3 hours allows you to adjust the water absorption from 250 % to 1250 % depending on the composition and duration of stabilization. In the study of NaCl sorption for PVA/chitosan-based films 3:1 and 5:1, respectively, the maximum absorption of physiological solution is observed from 200 % to 750 %, for samples 4:1 and 6:1 – from 150 % to 550 %.

1. *Qasim SB, Zafar MS, Najeeb S, Khurshid Z, Shah AH, Husain S, Rehman IU.* Electrospinning of Chitosan-Based Solutions for Tissue Engineering and Regenerative Medicine // International Journal of Molecular Sciences. -2018.-19(2):407. <https://doi.org/10.3390/ijms19020407>
2. *Ishchenko ОV, Plavan VP, Lyashok IО, Shevchuk TV, Patrikhina ZS.* Technology for obtaining of ultrafine nonwoven materials based on polymer compositions with chitosan *//* Bulletin of the KNUTD. Technologies and Engineering.-2020.-**148.-**Р. 107-116.