

## Novel Chitosan-based Nanofibers for Wound Healing Applications

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### Abstract

Wound dressing such as nanofibers are artificial extracellular matrices which show two key properties: a high surface/volume ratio and high porosity responsible for cellular adhesion, proliferation and differentiation. The classical method of producing these biomaterials is via the electrospinning technique, which offers the possibility of working at a nano-scale with a high yield. Blends of natural and synthetic polymers can be a suitable option to overcome low spinnability of natural polymers per se. New nanofibers based chitosan have been developed and characterized. Propolis extract (7.5% v/v), L-arginine HCl (5% wt/v) and Manuka Honey (7.5% wt/v), propolis-Calendula officinalis extract respectively were dissolved in a mixture (1:1 v ratio) of polyethylene-oxide (2% wt/v) and chitosan (3% wt/v) acetic acid solution (50% v/v). The solutions were spun using a 18-gauge-needle at 15-20kV, 20-27 cm needle-collector distance and a 0.2-1 mL/h flow-rate. The viscosity of the solutions was measured using a parallel-plate measuring system. Fiber morphology and average diameters were observed by a scanning electron microscope. By adding the additives to the polymeric solution, both viscosity and fiber diameter increase, which is confirmed by literature data. By increasing of the shear stress, the viscosity decreases. In this work, we successfully developed smooth, continuous Manuka Honey/L-arginine and propolis nanofibers providing a new option for developing wound dressings.

### Speaker Publications:

1. "Evaluation of Effectiveness and Tolerability of Boric Acid in the Treatment of Vaginal Infection with Candida Species";
2. "A fixed herbal combination-a new approach in hiv cervical infection treatment" Journal of Romanian society for Pharmaceutical sciences, 2018
3. "The Use of Mersilene Tape in Transabdominal Cerclage"; Key Engineering Materials, Vol-752, August-2017
4. "Hormone replacement therapy and the impact of "gap time" in cardiovascular versus breast cancer risk"; Journal of Midlife Health and Beyond/ Vol 100, page-152,2017.
5. "Acute cholecystitis in pregnancy. A case report "GINECO, Vol. 12, Issue 1, March 2016

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### Biography:

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