



NANOTEXTILES FOR BIOMEDICAL APPLICATIONS

Aim of developed technology

Problem: Chronic surface wound infections such as venous or diabetic ulcers are a very common disease affecting 1-2% of the population with a marked increase in the incidence of seniors with diabetes and circulatory problems

Solution: We are developing nanofibrous materials suitable for large-volume commercial production of covers of difficult-to-surface surface wounds based on photocrosslinked nanofibres made from natural polymer of chitosan. We develop technology to modify these stabilized nanofibres with antimicrobial and healing agents to achieve maximum effect and controlled, gradual release of active molecules. Thanks to the stabilization of nanofibres with photoinitiated crosslinking (PV 2016-688), the durability of their structure in an aqueous environment is guaranteed for tens of hours (see Figure 1)

The technology was developed in cooperation with NanoMedical s.r.o.

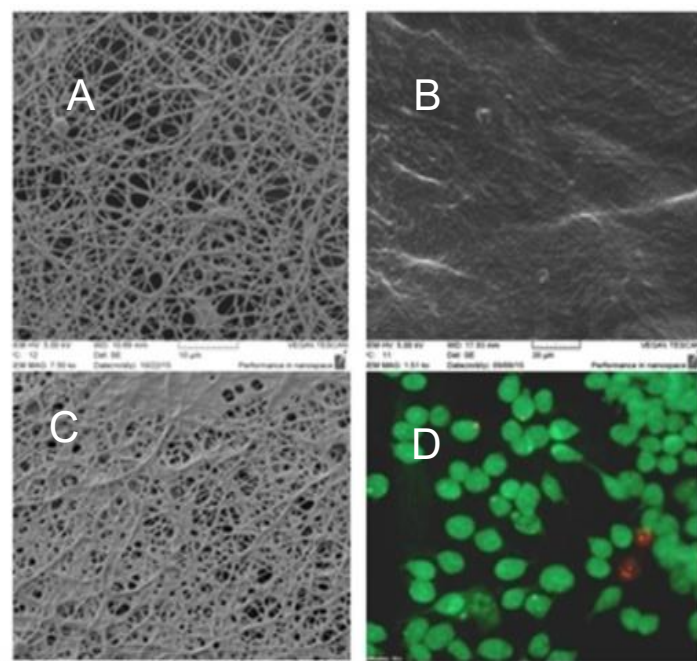


Fig.1: Resistance of nano-fibrous material (cross-linked chitosan) to exposure to H₂O and biocompatibility. (A) After spinning; (B) incubation in H₂O without crosslinking for 2h; (C) incubation in H₂O after crosslinking for 72 hours; (D) crosslinked chitosan after 72 h incubation with B-14 cells (Chinese hamster fibroblasts).