Centre for Natural Sciences and Technologies

J. E. Purkyně University in Ústí n. L.
Faculty of Science
Pasteurova 3632/15
400 96 Ústí nad Labem

Mgr. David Poustka
E-mail: davidpoustka@seznam.cz
Tel.: +420 604 214 277
Room: 4.07

UNIVERZITA J. E. PURKYNĚ V ÚSTÍ NAD LABEM
Přírodovědecká fakulta

NANOFIBROUS MATERIALS FOR BIOMEDICAL APPLICATIONS

RESEARCH/TECHNOLOGY INTRODUCTION

We develop nanofibrous materials ideal for wound dressings. Our material is based on photocrosslinked nanofibers made of natural polymer chitosan. Used technology is fully compatible with a commercial mass production. We further work on addition of antimicrobial and healing agents into our stabilized nanofibers to achieve maximum effect and controlled, gradual release of active molecules.

The basis of our technology is a highly effective method of stabilizing nanofibres with photoinitiated crosslinking (PV 2016-688), which is fully compatible with industrial production and achieves exceptional parameters of stabilized nanofibers. These stabilized nanofibres resist the aquatic environment and the material keeps it structure for tens of hours, which guarantees its functionality for a very long time.

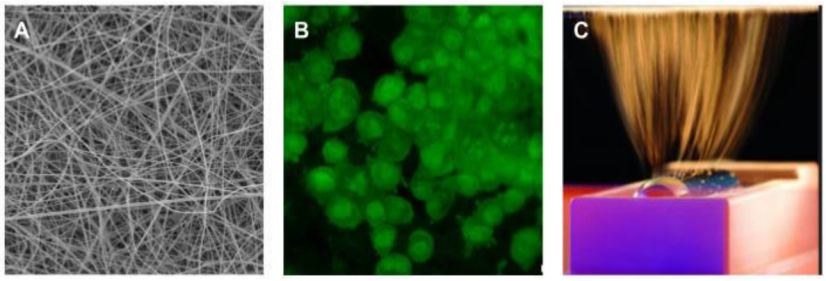
POTENTIAL USERS

Producers and manufacturers of nanofibrous materials.

ADVANCEMENT OF TECHNOLOGY AND MARKET APPLICATION

Used approach is transferable to other potential applications ofbiocompatible nanofibrous materials in medicine as well inother fields

ADDITIONAL INFORMATION



A – 3 000× magnified structure of nanofibrous chitosan (viascanning electron microscopy), B – cell culture growth on ourmaterial (via fluorescent microscopy), C – production ofnanofibers (via electrospinning, NanospiderTM).