

W dniach 2-5 kwietnia 2013 r. Katedra Materiałoznawstwa, Towaroznawstwa i Metrologii Włókienniczej Politechniki Łódzkiej, uczestniczyła w Międzynarodowym Salonie Wynalazków i Technologii Innowacyjnych w Moskwie "Archimedes". W ramach promocji wynalazków biodegradowalnych, w ramach realizacji projektu Biodegradowalne wyroby włókniste „BIOGRATEX”, został przedstawiony wynalazek pt. „Tekstylija biodegradowalne i sposób ich wytwarzania”. Wynalazek ten jest wynikiem prac zespołu w skład, którego wchodziła Politechnika Łódzka, Instytutu Biopolimerów i Włókien Chemicznych, Uniwersytet Medyczny we Wrocławiu oraz Uniwersytet Rolniczy w Krakowie. Wynalazek promowany był za pomocą posteru, filmu prezentującego prace w BIOGRATEXie, ulotek oraz katalogu próbek. W wyniku znakomitej prezentacji naszego wspólnego dzieła, zostaliśmy nagrodzeni złotym medalem.



BIOGRATEX

Biodegradable fibrous products



Lodz University of Technology

Biodegradable textiles and methods of their manufacturing

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During last years common products made from biodegradable polymers were developed. The objective of number of studies was to replace non-degradable polymers with an environmentally friendly polylactide, that would come from a renewable resource. At the Department of Material and Commodity Sciences and Textile Metrology, Lodz University of Technology, together with other partners, the research on the new biodegradable products was conducted.

In the frame of the project titled „Biodegradable fibrous products” three innovative products were developed:

- half - masks with antibacterial properties,
- twine for agricultural uses,
- foams with expanded micro and mezoporous phase.

All those products developed on the basis of renewable resources, contribute to sustainable growth of industry. Due to their biodegradability, they are environmentally friendly.



The first innovative product developed in the frame of this project is filtration half-masks with an antibacterial layer. This product is produced by melt – blown technology, where nonwoven is finished with layer by layer technique. Such surface modification with poly(dimethylaminoethyl methacrylate) (PDMA), ensures antibacterial properties of final product. In presented solution all elements, including confection elements (tapes, looms, etc.) are made from biodegradable PLA.



Another innovative product is twine for agricultural uses, which is characterised by good mechanical properties and softness, together with biodegradability. All twines can be dyed on different colours.



The last innovation, which is presented are medical foams produced from polylactide and polylactide/dibutylchitin blends. Innovation in this field is based on creation of foams with expanded micro and mezoporous phase. Developed foams were examined in vitro and in vivo to confirm their biocompatibility.



1. Patent Application, No. P 400769, 2012, title: Biodegradable core twine. Inventors: Krucinska Izabella, Czekalski Jerzy.
2. Patent Application, No. P 401751, 2012, title: Method of manufacturing a composite material with antibacterial properties. Inventors: Stawski Dawid, Polowski Stefan, Wojciechowska Dorota.
3. Patent Application, No. PCT/PL2013/000020, 2013, title: Medical material the method of its production and use of the medical material. Inventors: Krucinska Izabella, Komisarczyk Agnieszka, Kowalska Stanisława, Chrzanowski Michał.

The foregoing products were developed as part of the project titled "Biodegradable fibrous products", financed out of the Structural Funds and Poland's budget (Innovative Economy Operational Programme).