



Topic of the Speech:

Strengthen of Linen/Hemp Clothing Bioactivity by Application of Medicinal Plants Extracts

Dr. Malgorzata Zimniewska

Institute of Natural Fibers and Medical Plants
Poland



Dr. Malgorzata Zimniewska works at the Institute of Natural Fibres & Medicinal Plants. She graduated from Textile Faculty, Mechanical Technology of Fiber at the Technical University of Lodz. Her PhD Thesis was completed with honours at the Technical University of Łódź in 2006 and habilitation in 2016. She received a title of Assoc. Prof. of Institute of Natural Fibres & Medicinal Plants in 2011.

Malgorzata Zimniewska was a director of the Institute of Natural Fibres & Medicinal Plants 2018 – 2021 and worked as Head of Department of Innovative Textile Technologies and the Laboratory of Physiological Influence of Textiles on Human Body at the Institute of Natural Fibres & Medicinal Plants. Her main area of interest is development of natural lignocellulosic fiber processing, technologies and evaluation, to meet the specific needs of different fiber applications. M. Zimniewska's favorite study is related to development of pro-healthy textiles with positive influence on human physiology and evaluation of their effect on the body. She leads a research team working on bast fibers application to reinforce composites. She developed bio-textiles based on pure hemp functionalized by industrial hemp cannabidiol. M. Zimniewska is also focused on new approach on circular bioeconomy particularly in terms of bio-materials and zero waste strategy.

M. Zimniewska is a member of many international and national bodies, the latest the most important functions are listed below:

1. Member of the Scientific Committee of the Circular Bio-Based Europe Joint Undertaking (CBE JU) under Horizon Europe, Brussels, from 2022
2. Member of Advisory Group for European Frame Programmes of Ministry of Education and Science from 2020
3. Member of Advisory Council of BIOEAST Board - Central and Eastern European initiative for knowledge-based Agriculture, Aquaculture and Forestry in the Bioeconomy, from 2021
4. Vice Chair of Quality Control, Horizon Europe, European Innovation Council Pathfinder, HORIZON-EIC-2021-PATHFINDEROPEN, European Commission, Brussels, 2021
5. Member of Scientific Council, Working Group on Fibres and Textile, EIHA European Industrial Hemp Association, from 2020
6. Vice Chair of Quality Control, H2020, Research Executive Agency, Future and Emerging Technologies, European Commission, Brussels 2018 – 2020
7. Council Member of The Textile Institute, 2019, award of Fellowship of The Textile Institute given by Professional Qualifications Committee, Manchester, UK.

Malgorzata Zimniewska has led many international, European and national projects. Currently she is a leader of Polish tasks of the project H2020-NMBP-TO-IND-2018-2020, INN-PRESSME, "Open Innovation ecosystem for sustainable Plant-based nano-enabled biomaterials deployment for packaging, transport and consumer goods", 2020-2025.

She worked as an expert of BIOEAST Macro-Regional BIOECONOMY Foresight, Project of Visegrad Group Countries, 2020 – 2021 and is coauthor of Bioeast Foresight Exercise Report: Sustainable Bioeconomies towards 2050.

She has authored and co-authored more than 160 articles published in research journals, conference proceedings and book chapters. She is a co-author of six patents, which were awarded with 6 gold, one silver and one bronze medals at international innovation exhibitions and of President of Polish Chamber of Commerce Award KIG INNOVATICA 2010.

She was awarded by President of Poland with Silver Cross of Merit in 2010 and Knight's Cross of the Order of Polonia Restituta in 2021.

ABSTRACT SUBMISSION

-FOR INVITED SPEAKER ONLY



Strengthen of Linen/Hemp Clothing Bioactivity by Application of Medicinal Plants Extracts

Malgorzata Zimniewska*, Barbara Romanowska, Katarzyna Schmidt-Przewozna
Institute of Natural Fibers and Medicinal Plants, Wojska Polskiego 71b; 60-630 Poznan, Poland

*Presenter's email: malgorzata.zimniewska@iwnirz.pl

ABSTRACT (NO MORE THAN 500 WORDS:)

The presentation will cover results of research on strengthen of bioactive properties of linen and hemp textiles. Flax and hemp fibers contain in their chemical composition phenolic acids, which are known as natural antioxidant. During the technological processes applied to produce textiles, the level of bioactivity can decrease due to the fact, that some of the phenolic acids are water soluble, for example *p*-coumaric acid is slightly soluble in water. In current study, two different methods have been developed to give added value for bast fiber based textiles:

1. Application of microcapsules filled with kannabidiol extract obtained from industrial hemp panicles – the technology is protected by Patent application: PL 438388
2. Application of dyestuff collected from medicinal plants, which are antioxidant-rich extracts - Patent application: PL 434684.

Results of the study confirmed improvement of bioactivity of linen/hemp apparels dyed with extracts of Madder or Reseda and enriched with CBD, which have potential to act as cosmetic-textiles.