



WoodWisdom-Net

BioPack: Design of biocomposites based on nanocellulose and hemicelluloses for future packaging materials

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Project Objectives and Main Tasks

- The objective is *to develop a new biobased packaging material based on nanocellulose and hemicelluloses providing both good mechanical properties such as strength and flexibility as well as good oxygen barrier properties.*
- Main tasks
 - *Isolation and characterization of various hemicelluloses*
 - *Engineering of hemicelluloses with targeted properties*
 - *Material development based on combining of bacterial cellulose and suitable hemicelluloses*
 - *Material characterisation; physical properties and polymer interaction*
 - *Assessing functional packaging applicability*

Project Partners and their Roles

- STFI-PF
 - *Coordinator,*
 - *Material preparation, characterization physical properties*
- Chalmers
 - *Isolation and characterization of hemicelluloses*
 - *Material preparation*
- University of Helsinki
 - *Engineering of hemicelluloses*
 - *Material preparation and characterization*
- INRA, Reims
 - *Assessing functional packaging applicability*

- Development of targeted hemicelluloses
- Production of strong and flexible films from blends of bacterial/nano cellulose and hemicelluloses
- Environmental property characterization
- Understanding basis of permeability

Expected Impact and Target Groups

- Impacts
 - *improved use of sustainable materials in the packaging area*
 - *diminished dependence of oil-based raw materials*
 - *reduced CO₂-emissions*
- Main target groups
 - *packaging industry*
 - *pulp and paper*

- Benefits of the transnational research
 - *combination of highly specialized research skills from different laboratories forming a critical mass for the project task*
 - *possibility of interaction with a broader scientific community in relation to the basic research topics*