Bio-Nrg-Store

Bio-Based Phase Change Materials in Lignocellulose Matrix for Energy Store in Buildings

"The project objective is to develop and validate insulation materials based on incorporated bio-based phase change materials into lignocellulose structure for energy saving in buildings"

Project Duration

Project Budget
Total Budget: € 1,280,304.-

Project Coordinator
Ali Temiz (Turkey)

Project Partners
- Swedish University of Agricultural Sciences (Sweden)
- Institute of Bioeconomy (Italy)
- Salzburg University of Applied Sciences (Austria)
- Rundvirke Poles AB (Sweden)
- PiCell (RS EcoSaver AB) (Sweden)

Project Website
www.ktu.edu.tr/bionrgstore

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**Joint Programming for Flourishing Innovation – from Local and Regional Trials towards a Transnational Knowledge Community**

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**Main Objectives**

Main objectives are:

To use lignocellulose micro/macro structure (e.g. wood cell wall and lumen) as low-cost porous structures (storage cell) for encapsulation of BPCM for use in “green” building products for energy saving.

To develop an efficient and upscalable process from laboratory testing and optimisation of the bio-composites to insulation materials for building;

Implementation of the new bio-based insulation materials into “green” buildings with low carbon finger print as a novel, high-value “benchmark” application;

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**Expected Key Results**

To develop an efficient and upscalable process for incorporation of selected BPCM into lignocellulose matrix

To use lignocellulose micro/macro structure (e.g. wood cell wall and lumen) as low-cost porous structures (storage cell) for encapsulation of renewable phase-change materials (PCM) of biological origin for eventual use in “green” building products for energy saving.

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**Technology**

- To develop an efficient and upscale process for incorporation of selected BPCM into lignocellulose matrix

**Market**

- Implementation of the new bio-based insulation materials into “green” buildings with low carbon finger print as a novel, high-value “benchmark” application;

**Adoption**

- Provide validation for suggested product innovations from laboratory (according to technology readiness level (TRL) 4 of the European Commission) to upscaling, with prototyping trials under various climate conditions and with extensive characterization under practical conditions (according to TRL 6)