

MWP – Young Researcher Abstract 2025

Project title: From Forest to Future: Advancing Sustainability with Green Insulation	
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Abstract (approx. 200 words): My research focuses on applying Life Cycle Assessment (LCA) to the forest-based industry to enhance environmental performance across the entire product life cycle. By developing tailored LCA methodologies, my work aims to guide more sustainable decision-making in forestry operations, processing, and product design. This research contributes to increasing transparency, optimizing resource use, and aligning the sector with broader sustainability goals and the transition to a circular bioeconomy for SMEs. As part of this research, I have investigated the development of sustainable, thermally protective packaging materials. My work presents a scalable process for creating hybrid insulation by integrating a porous lignocellulose carrier with a phase change material. This involved evaluating different production methods to identify an approach that is both effective and environmentally sound for large-scale production. The comprehensive LCA conducted on these processes demonstrated that material and energy choices during manufacturing significantly impact the overall environmental footprint. This study highlights the value of using LCA to optimize production methods from a sustainability perspective, thereby supporting the forest-based sector in its role as a key contributor to climate change mitigation and sustainable consumption.	
Key words: Forest-Based Industry, Life Cycle Assessment, Green Insulation Materials, Circular Bioeconomy	