



SCIENTIFIC REPORT

on the PhD thesis entitled

Research on the Use of Recycled Paper and Cardboard for the Manufacture of Indoor Panels,

written by Eng. Mohammad Hassan MAZAHERIFAR

in order to be accepted for public defence in the field of **Forestry Engineering**

The undersigned **Prof. Dr. Camelia COŞEREANU**, as scientific supervisor for the doctoral thesis entitled "**Research on the Use of Recycled Paper and Cardboard for the Manufacture of Indoor Panels**", elaborated by the PhD student **Mohammad Hassan MAZAHERIFAR**, I have carefully analyzed the thesis with the above mentioned topic and I further present the conclusions and assessments regarding the results obtained in the research undertaken by the PhD student, in order to publicly defend the thesis and be admitted to the **PhD** degree in the field of **Forestry Engineering**.

The doctoral thesis focuses on the valorization of recycled paper and cardboard by transforming them into lightweight, binder-free composite panels with good thermal and acoustic performance for indoor applications. These environmentally friendly materials are designed in accordance with circular economy principles, offering a sustainable alternative to conventional wood-based panels. The novelty of this research lies in both the exclusive use of bio-based components and the innovative manufacturing approach. Unlike conventional composite production, which typically relies on pressing to control density and structure, this work employs a baking process to generate and control porosity, yielding sustainable composite panels with tailored properties.

The doctoral thesis written by **Mohammad Hassan MAZAHERIFAR** comprises 185 pages and 6 chapters, of which the experimental research is presented in three chapters totaling 130 pages. This section represents approximately 70% of the thesis and constitutes its original scientific contribution. The content is presented in a clear, coherent, and well-structured manner, supported by numerous figures, tables, and graphical illustrations that facilitate understanding of the research findings.

Chapter 1, "State of the Art Regarding the Valorization of Recycled Paper and Cardboard in New Products", reviews the historical development, industrial significance, and recent scientific advances in the reuse of recycled paper and cardboard.

Chapter 2, "Aim and Objectives of the Research Presented in the Doctoral Thesis", outlines the overall purpose of the study and defines the specific scientific objectives that structure the research program.

Chapter 3, "Research Methodology, Equipment, and Materials", describes the experimental strategy adopted throughout the investigation, together with the materials, equipment, and procedures employed.

Chapter 4, "Results on the Performance of Core Composite Panels", presents the experimental findings concerning the performance of foam-core composite panels produced from recycled paper and cardboard using various foaming systems.

Chapter 5, "Results on the Performance of Sandwich-Type Composite Panels Manufactured from Recycled Paper and Cardboard", investigates the design, fabrication, and characterization of sandwich composite panels incorporating selected foam cores and different face materials, including MDF, oak veneer, and natural fiber sheets.

Chapter 6, "Conclusions, Original Contribution, Future Research Opportunities, Dissemination of the Research", summarizes the principal outcomes of the doctoral research and highlights the originality, sustainability, and practical significance of the developed composite materials.

During the doctoral stage, the PhD student published **10** scientific articles, **9** as first author, of which **8** were WOS-indexed in journals with IF > 2.2 and **1** in a DOAJ- and CABI-indexed journal, and presented his work at **3** international conferences.

PhD thesis entitled "**Research on the Use of Recycled Paper and Cardboard for the Manufacture of Indoor Panels**", elaborated by PhD student **Mohammad Hassan Mazaherifar**, addresses a valuable topic from both scientific and applied perspectives. The results and conclusions are presented in a logical and concise manner. The thesis is well-structured, provides valuable original contributions with practical applications, and enriches the existing scientific knowledge in forest engineering.

In conclusion, I appreciate that the doctoral thesis entitled "**Research on the Use of Recycled Paper and Cardboard for the Manufacture of Indoor Panels**", elaborated by PhD student **Mohammad Hassan MAZAHERIFAR** falls within the standards and requirements imposed by the laws and regulations in force and can be admitted for public defence and for awarding the grade of DOCTOR ENGINEER to **Mr. Mohammad Hassan MAZAHERIFAR** in the field of *Forestry engineering*

Braşov, 20.07.2026

Scientific Supervisor,
Prof. dr. Camelia COȘEREANU