Research Article:

NEW MATERIAL OPTIONS FOR WOODEN WINDOWS - A COMPARATIVE STUDY ON WATER ABSORPTION / ADSORPTION AND SWELLING

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Abstract:
This paper presents part of a research aiming at determining and comparing the water behaviour of some indigene and exotic wood species currently used at a larger or more reduced scale in the production of wooden windows. Acetylated wood, namely the commercial Accoya, a novel wooden material improved by chemical modification, was included in this study for comparison, as a possible future ecological alternative to the current employed wooden materials and treating technologies. The total swelling coefficients on the radial and tangential direction and the water absorption / adsorption in immersion and hygroscopicity laboratory tests for 4 indigene wood species: fir (Abies alba), pine (Pinus sylvestris), larch (Larix decidua), oak (Quercus robur) and 3 exotic Amazonian wood species newly promoted in the European market: Ochoo (Hura crepitans L.), Cambara (Erisma uncinatum W.), Yesquero (Cariniana estrellensis), wood were determined comparatively to Accoya. The results prove the reduced hygroscopicity and better dimensional stability of Accoya wood compared to the all the tested indigene and exotic wood species.

Key words: wood, water absorption / adsorption; swelling, acetylation; Accoya; exotic and indigene species.

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