Abstract:

Chemically or physically modified wood materials have enhanced resistance to wood decay fungi. In contrast to treatments with traditional wood preservatives, where the resistance is caused mainly by the toxicity of the chemicals added, little is known about the mode of action of nontoxic wood modification methods. This study reviews established theories related to resistance in acetylated, furfurylated, dimethylol dihydroxyethyleneurea-treated, and thermally modified wood. The main conclusion is that only one theory provides a consistent explanation for the initial inhibition of brown rot degradation in modified wood, that is, moisture exclusion via the reduction of cell wall voids. Other proposed mechanisms, such as enzyme nonrecognition, micropore blocking, and reducing the number of free hydroxyl groups, may reduce the degradation rate when cell wall water uptake is no longer impeded.

Stichworte:

acetylated wood, basidiomycetes fungi, DMDHEU-treated wood, furfurylated wood, mode of action, thermally modified wood