

## PRELIMINARY STUDY OF ALTERNATIVE AGENTS TO PRESERVE THE *Pinus pinaster* WOOD

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### ABSTRACT

*Pinus pinaster* wood is very susceptible to fungal degradation and that could be a great problem for its commercialization causing important economic lost. Usually industrial products used for wood preservation treatments are made by synthetic chemical compounds with boron and chloride added with some antibiotics.

Pine oil can be obtained from  $\alpha$ -pinene and is one of the constituents from gun-turpentine. Is a natural product and is known for its insecticide, bactericide and fungicide proprieties.

In this study dry pinewood samples cut in radial section, were impregnated with pine oil and limonene stabilised at room temperature. Two degradative fungi were tested: *Trametes versicolor* and *Trichoderma citrinoviride*. Sterilized polypropylene vessels filled with glass beads and distilled water were prepared. Wood samples, deposited over the glass beads surface, were inoculated with fungal plugs collected from actively growing colonies and maintained at 25°C in the dark during 29 days. Moisture level was verified regularly. The fungi development was assessed with an image analysis system using a digital camera. Analysis of variance (ANOVA) was use to study the effect of two impregnation treatments (pine oil/distilled water), two wood sterilization treatments (autoclave sterilized wood/unsterilized wood) and three fungal treatments (*T. versicolor* TR 489/*T. citrinoviride* B2/control without fungi) and 5 repetitions. For the study of endophytic fungi present in wood samples three different superficial sterilization methods were applied (hypochlorite, ethanol and sterilised water). Isolation and further identification of contaminants genera was attempted.

Both fungal species tested showed significantly (or totally) reduction of fungal growth area in pine oil impregnation treatments. For the limonene the results are significantly important too, but the reduction of the fungal growth is smaller. The both impregnation could also prevent the development of endophytic contamination with species of genera *Trichoderma*, *Aspergillus*, *Mucorales* and *Penicillium*.

The results showed that the pine oil and limonene impregnation could be a good wood preserver product with an additional advantage of its non toxicity for the human health.