

Conservation of wooden artifacts - evaluation of modern and classical materials

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ABSTRACT

Conservation of wooden artifacts represents a common goal for researchers involved in cultural heritage studies all over the world. Unlike some other types of artifacts, such as natural or man-made stone, the wooden ones are much more exposed to degradation. The present work establishes the potential application for the treatment of wooden artifacts of some commercially consolidants, as well as of a traditional method. By evaluating the effects of the treatment on wooden artifacts models (using optical microscopy, Fourier transform infrared spectroscopy, thermal analyses and dynamic mechanical analysis) as well as their resistance towards staining materials and the overall aesthetic alteration, the best method can be proposed for the treatment of historical wood. The wooden models used for the experiments consisted of wood spatulas with standard dimensions (150x18x1.6 mm), on which six potential treatments were applied by immersion. By corroborating the results obtained and the evaluation of the recorded aesthetic changes, a proper treatment can be proposed.

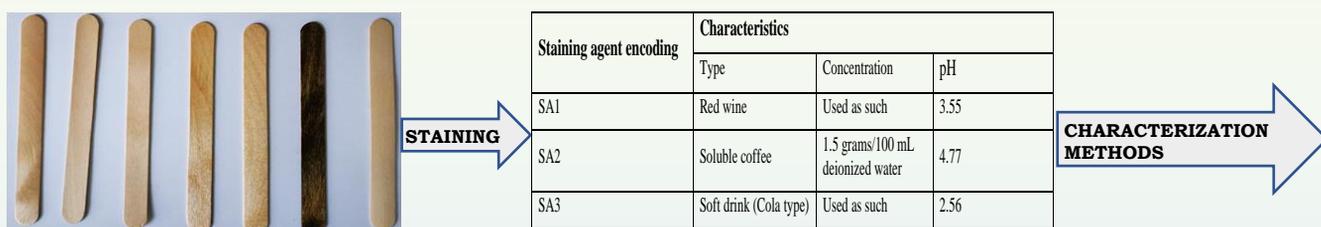
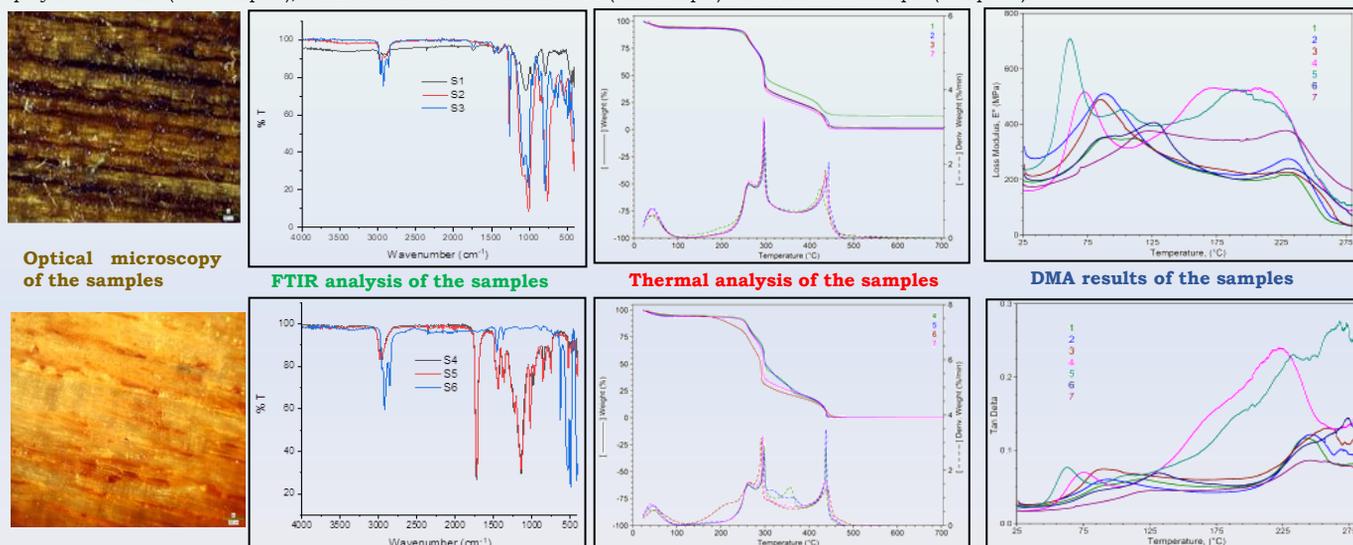


Figure 1. General aspect of the treated wooden models: from left to right – treated with siloxane-based composition (three samples), treated with polymeric resins (two samples), treated with a traditional method (one sample) and untreated sample (sample 7).



CONCLUSIONS

The present work describes the application of commercially available consolidants, from the analytical point of view, as well as from a practical application point of view. The products not only lead to the consolidation of the wood samples (as demonstrated by the DMA analyses) but also, to their protection in the staining tests. Some of the proposed materials were found to affect the esthetic characteristics of the samples: sample 4 and 5 led to a glossy surface, while sample 6 led to a color shift. Depending on the particular characteristics of the wood samples, this influence could represent an exclusion criterion for their application.

Acknowledgements

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