

Supplementary

Improving the Protective Properties of Shellac-Based Varnishes by Functionalized Nanoparticles

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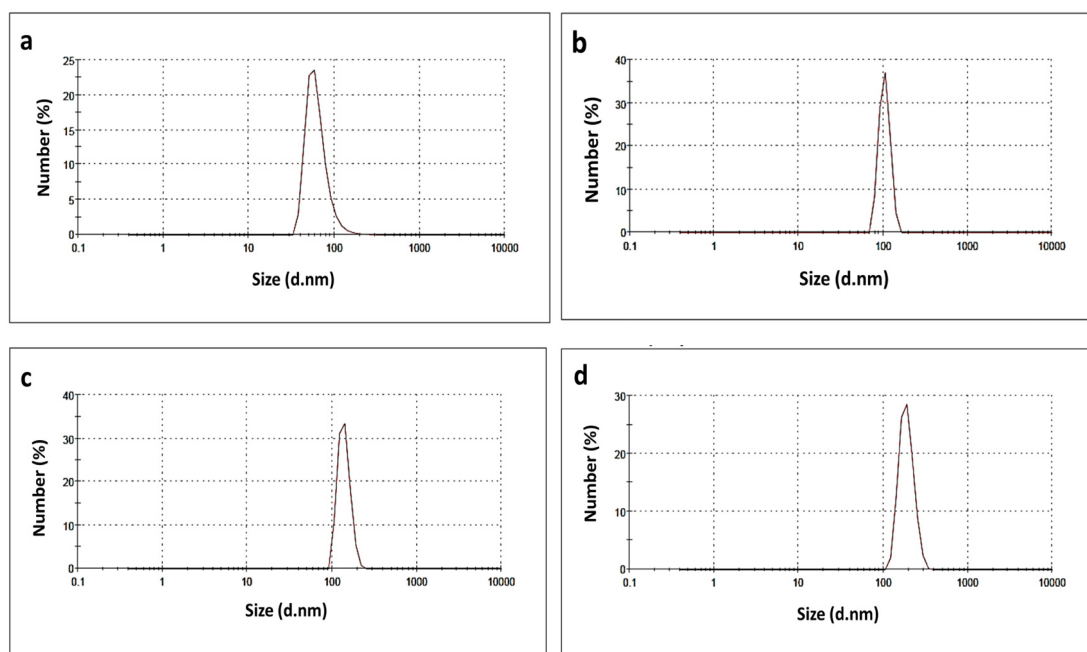


Figure S1. Dynamic light scattering (DLS) analyses of synthesized nanoparticles (NPs) and 3-glycidoxypropyltrimethoxysilane (GPTMS)-capped NPs, respectively: (a) ZnO; (b) ZnO-ES; (c) ZrO₂; and (d) ZrO₂-ES.

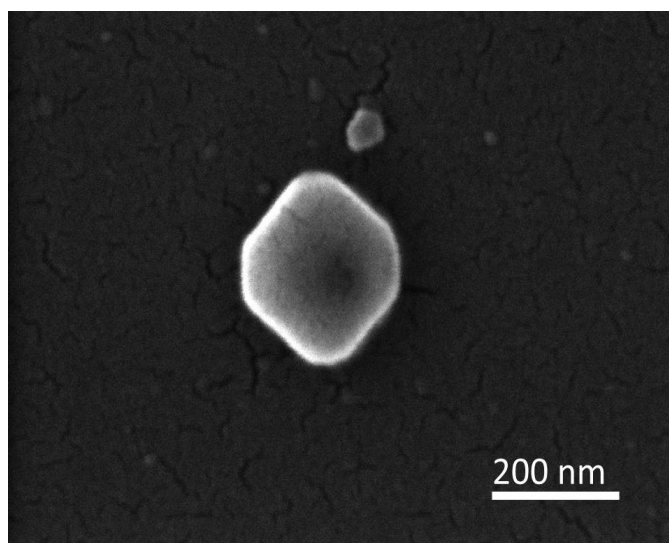


Figure S2. Scanning electron microscope (SEM) image of ZrO₂ NP displaying hexagonal shape.

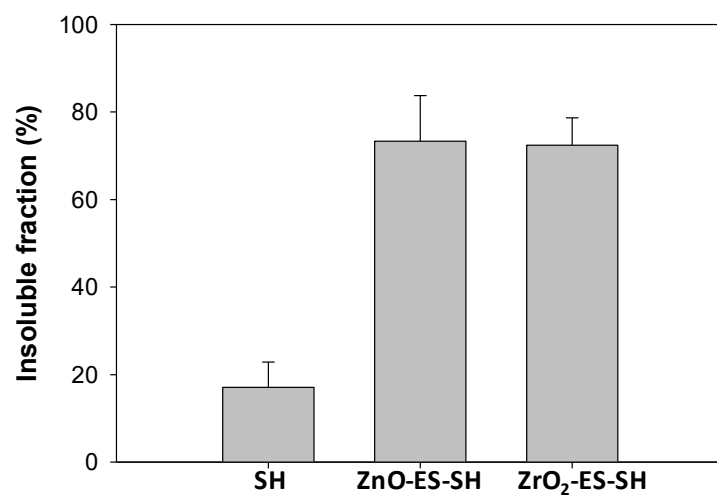


Figure S3. Insoluble fractions (%) of the varnish films in EtOH.

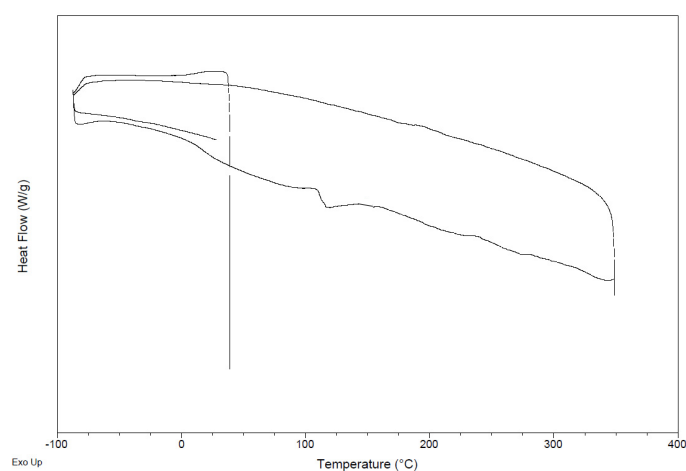


Figure S4. Differential scanning calorimetry (DSC) profile obtained for plain shellac.

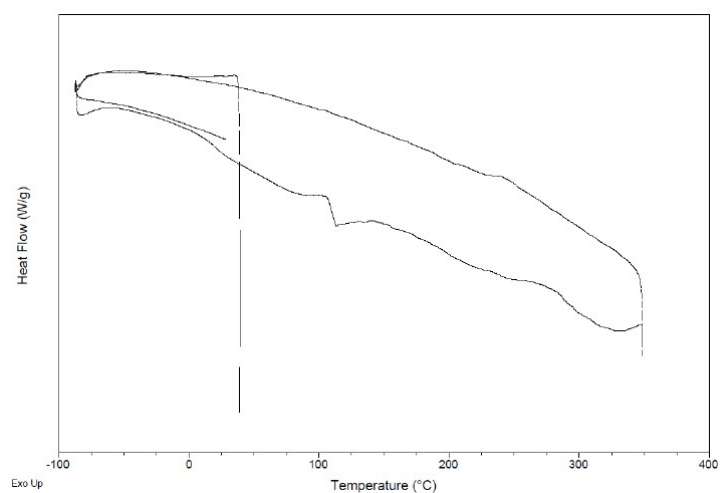


Figure S5. DSC profile obtained for ZnO-ES-SH.

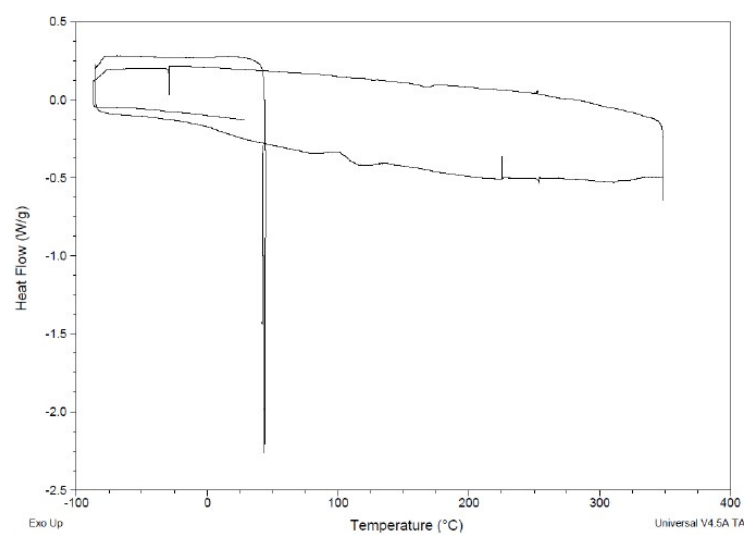


Figure S6. DSC profile obtained for ZrO₂-ES-SH.

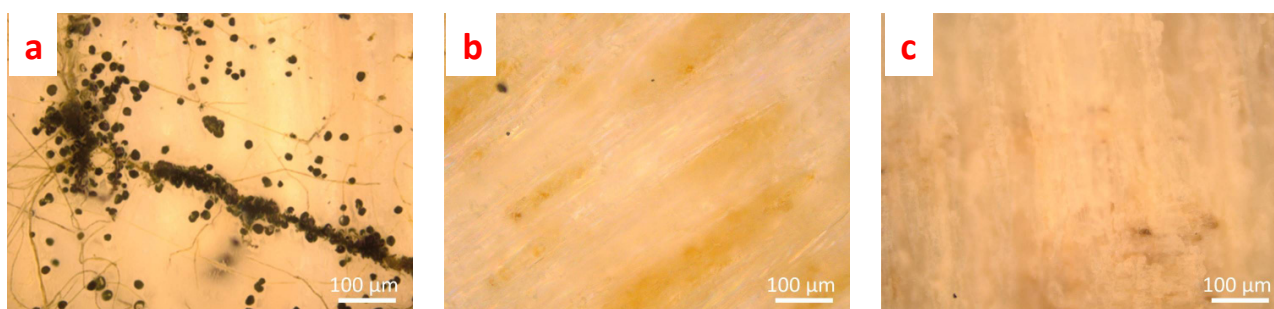


Figure S7. Optical microscope images of treated wood specimens at the end of the fungi test: (a) shellac (SH); (b) ZnO-ES-SH; (c) ZrO₂-ES-SH.