The Fungi Resistance of Bamboo Materials Treated with Bamboo Vinegar Using Soaking Treatment

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Abstract

Bamboo vinegar, a by-product from bamboo charcoals, contains over 200 kinds of organic compounds, and has been valued highly in Taiwan due to their effective functions. The objective of this study was to evaluate this vinegar obtained from Moso bamboo (*Phyllostachys heterocycla*) as a fungi resistant agent for bamboo-based products. Hopefully, this by-product could increase more value-added to their products, and at the same time substitute those currently used fungicides to reduce the impact of environmental pollution. The specimens used were Moso bamboo after having been processed with either the carbonized or the steamed process. Five strains of tested fungi were used, including *Trichoderma viride*, *Aspergillus flavus*, *Aspergillus niger*, *Rhizopus* sp., *Mucor* sp., which are generally found on microbiological attack of bamboo surface in Taiwan. From the experimental results obtained, the fungi resistance of various molds on the surface of Moso bamboo was increased as the uptake of bamboo vinegar was increased by soaking time and the C/N ratio of fungi inoculated bamboo powder was increased as well. It is concluded that bamboo vinegar is useful to restrain the molds and can decrease microbiological deterioration of bamboo materials, suggesting that application of bamboo vinegar with a longer soaking time can be used to prevent mildew attack on the surface of bamboo materials.

Keywords: Bamboo Vinegar, Moso Bamboo, Fungi Resistance, Soaking Treatment, C/N ratio

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