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Antifungal Activity of Colloidal ZnO Coated Mulberry Paper Against Aspergillus Niger

Zinc oxide is antibiotic material that has been gained considerable interests to be used in antimicrobial cellulosic production. In this work, the antifungal activity of hexagonal ZnO particles coated mulberry paper against *Aspergillus niger* was investigated by standard inhibitory diffusion assay. The different concentrations of 0-12 mg/ml of ultrasonic treated ZnO colloids were prepared and applied to a piece of mulberry paper for the inoculation tested samples. The pathogenic fungal growth on coating paper was monitored by using a direct optical observation at 1, 5, 10 and 15 days after inoculation. The results illustrated that coating contained ZnO particles improved resistance to be moldy when subjected to inoculums containing *Aspergillus niger* fungi. The optimal concentration of ZnO colloids inhibiting the growth of fungus was 12 mg/ml up to 15 days. The results suggest that ZnO particles could be beneficially utilized as an effective fungicide for a household manufacturing of handicraft mulberry paper and promising bulrush-basketry developments.

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