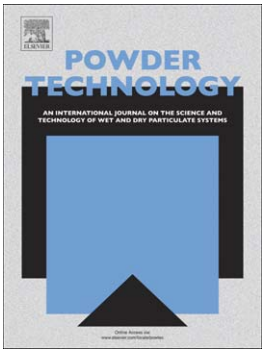

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Antimycotic activity of zinc oxide decorated with silver nanoparticles against *Trichophyton mentagrophytes*

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Abstract

Antimycotic behavior of zinc oxide decorated with silver nanoparticles (ZnO-AgNPs) against *Trichophyton mentagrophytes* (*T. mentagrophytes*) was investigated on this work. Silver decoration size was modulated during Ag_2O and Ag^0 synthesis in aqueous solution at pH 11, 12 and 14, obtaining the smallest size at pH 12 and the largest at pH 14. In *ex-situ* tests, ZnO-AgNPs prevents successfully the growth of *T. mentagrophytes*, the percent mycelial inhibition (PMI) of formula F12 was 91.76% while formulas F12 and F14 was 100%, they also not present toxicity in cell viability , even the formula F12 promoted cell growth. Additionally, once *T. mentagrophytes* has grown it turns in a hydrophobic biofilm, whose water contact angle (WCA) was $127 \pm 3°$, showing that no aqueous solution will have antimycotic activity against *T. mentagrophytes* biofilm. It has been propose a ZnO-AgNPs suspension in a hydrophobic fluid (polydimethylsiloxane, PDMS) that allowed to the particles permeate and permitted a direct contact with the biofilm, which was eliminated successfully. These results suggest that ZnO-AgNPs in a hydrophobic fluid emerge as a viable alternative for fungal infections treatment.