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Melaleuca alternifolia (tea tree) oil inhibits germ tube formation by Candida albicans.

Hammer KA, Carson CF, Riley TV.

Department of Microbiology, The University of Western Australia, Queen Elizabeth II Medical Centre, Nedlands. khammer@cyllene.uwa.edu.au

The effect of tea tree oil (TTO) on the formation of germ tubes by Candida albicans was examined. Two isolates were tested for germ tube formation (GTF) in the presence of TTO concentrations (% v/v) ranging from 0.25% (1/2 minimum inhibitory concentration [MIC]) to 0.004% (1/128 MIC). GTF at 4 h in the presence of 0.004 and 0.008% (both isolates) and 0.016% (one isolate) TTO did not differ significantly (P > 0.05) from controls. At all other concentrations at 4 h, GTF differed significantly from controls (P < 0.01). A further eight isolates were tested for GTF in the presence of 0.031% TTO, and at 4h the mean GTF for all 10 isolates ranged 10.0-68.5%. Two isolates were examined for their ability to form germ tubes after 1 h of pre-exposure to several concentrations of TTO, prior to induction of germ tubes in horse serum. Cells pre-exposed to 0.125 and 0.25% TTO formed significantly fewer germ tubes than control cells at 1 h (P < 0.05), but only those cells pre-exposed to 0.25% differed significantly from control cells at later time points (P < 0.01). GTF by C. albicans is affected by the presence of, or pre-exposure to, sub-inhibitory concentrations of TTO. This may have therapeutic implications.

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