J Appl Microbiol. 2003;95(4):853-60.

Antifungal activity of the components of Melaleuca alternifolia (tea tree) oil.

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AIMS: To investigate the in vitro antifungal activity of the components of Melaleuca alternifolia (tea tree) oil. METHODS AND RESULTS: Activity was investigated by broth microdilution and macrodilution, and time kill methods. Components showing the most activity, with minimum inhibitory concentrations and minimum fungicidal concentrations of < or =0.25%, were terpinen-4-ol, alpha-terpineol, linalool, alpha-pinene and beta-pinene, followed by 1,8-cineole. The remaining components showed slightly less activity and had values ranging from 0.5 to 2%, with the exception of beta-myrcene which showed no detectable activity. Susceptibility data generated for several of the least water-soluble components were two or more dilutions lower by macrodilution, compared with microdilution. CONCLUSIONS: All tea tree oil components, except beta-myrcene, had antifungal activity. The lack of activity reported for some components by microdilution may be due to these components becoming absorbed into the polystyrene of the microtitre tray. This indicates that plastics are unsuitable as assay vessels for tests with these or similar components. SIGNIFICANCE AND IMPACT OF THE STUDY: This study has identified that most components of tea tree oil have activity against a range of fungi. However, the measurement of antifungal activity may be significantly influenced by the test method.

PMID: 12969301 [PubMed - indexed for MEDLINE]