



Bioactivity Evaluation of Citrus Essential Oils Against Dermatophytes

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Citrus are the most produced and consumed fruits around the world, and their peels produce several classes of metabolites (1). Among these classes, the essential oils are of great interest due to their antimicrobial and antiviral activities. Antimicrobials from natural sources are economical alternatives to combat pathogenic microorganism (2). In this context, the objective of the work was to evaluate, *in vitro*, the antifungal activity of essential oils from *Citrus limonia*, *Citrus latifolia*, *Citrus limon* and *Citrus aurantifolia* against *Trichophyton tonsurans*, *Epidermophyton floccosum*, *Microsporum canis*, *Microsporum gypseum*, *Trichophyton mentagrophytes*. Essential oil components were characterized by GC/FID and GC-MS analyzes. Minimum Inhibitory Concentration (MIC) was determined by serial dilution of the essential oils in RPMI medium and inoculation with fungus, incubated for 48h at 37°C. Resazurin, a cellular viability indicator, was used and the results revealed *C. aurantifolia* as the most active among the essential oils tested, inhibiting all dermatophytes of the study. The most sensitive fungus was *E. floccosum*, with MIC values of 78 µg/ml, 312 µg/ml, 312 µg/ml and 625 µg/ml, to essential oils of *C. aurantifolia*, *C. limonia*, *C. latifolia* and *C. limon* respectively. MIC values ranging from 625 µg/ml to 1250 µg/ml were detected against *M. canis* and *T. tonsurans*. The fungi *M. gypseum* and *T. mentagrophytes* were the most resistant among the dermatophytes tested, with MIC values higher than 1250 µg/ml. Chemical composition analyzes of these essential oils showed limonene as the major substance, in different concentrations. Nevertheless, essential oils are complex mixtures including other antimicrobial compounds such as β-pinene, γ-terpinene, neral and geranial. On this sense, future assays will be necessary to identify the components responsible for the biggest antifungal activity of *C. aurantifolia* when compared with the other essential oils studied.

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