TITLE: CHEMICAL CHARACTERIZATION AND ANTIFUNGAL ACTIVITY OF *MELALEUCA ANTERNIFOLIA* AND *CASEARIA SYLVESTRIS* ESSENTIAL OIL AGAINST CANDIDA STRAINS

AUTHORS: CRUZ, L. C.; OLIVEIRA, P. J. B.; MAZARO, S.M.; BUSSO, C; LUCHESI, L.A; AUACHE FILHO, A.A.

INSTITUTION: UNIVERSIDADE TECNOLÓGICA FEDERAL DO PARANÁ – UTFPR, (ESTRADA PARA BOA ESPERANÇA, KM 04, CEP 85660-000, DOIS VIZINHOS- PARANÁ, BRAZIL)

ABSTRACT

Essential oils are plant secondary metabolites that have different functional properties, which in several studies have shown to be effective in antifungal and antibacterial activities. The candidiasis is a fungal disease caused by species of *Candida*, which mainly affects women and immunosuppressants. The objective of this study was to evaluate the chemical composition and antifungal activity of Melaleuca (*Melaleuca anternifolia*, Cheel) and Guaçatonga (*Casearia sylvestris* Swartz) essential oils in four species of the genus *Candida*: *C. albicans*, *C. parapsilosis*, *C. krusei* and *C. glabrata*. The essential oils were obtained from leaves of these plants by hydrodistillation process and composition was determined using a gas chromatograph coupled to a mass spectrometer. The antifungal activity was determined by the Minimal Inhibitory Concentration (MIC) and disk diffusion method described according with *Clinical and Laboratory Standards Institute* (CLSI, 2009). Chromatographic analysis identified the presence of high concentrations of 1,8-cineol and γ-muurolene in the essential oils of Melaleuca and Guaçatonga, respectively, which are compounds of recognized antimicrobial activity. There was an excellent activity of Melaleuca oil against *C. krusei* with MIC of 0.70 mg/mL and the other genera presented a MIC of 2.83 mg/mL. The results indicated that Melaleuca oil when compared to the antifungal clotrimazole was more effective for the *C. glabrata* strain with an inhibitory concentration of 2.83 and 3.12 mg/mL respectively. The Guaçatonga essential oil did not have the same antifungal activity when compared to Melaleuca essential oil, presenting a minimum concentration of 22.53 mg/mL to inhibit *C. parapsilosis*, and *C. glabrata* was resistant to all tested concentrations of this oil. In the disk diffusion test using a concentration of 10% of each oil, it was observed that Melaleuca essential oil was also more effective compared to Guacatonga for all tested *Candida* genera.

Keywords: antimicrobials, plant secondary metabolites, candidiasis.