Antifungal activity from *Nectandra* species essential oils against fungic clinical isolates

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Several studies evidence the antimicrobial activity of essential oils, due to synergistic effect between its compounds or to an isolated constituent. In this context, it is growing the investigation that these substances are potential antifungal in order to provide therapeutic alternatives, considering there are limited treatment, associated with high levels of toxicity and mainly the significant increase in the number of resistant isolates to conventional therapy (1,2). Thus, the aim this study was to analyze the chemical composition of the essential oils from *Nectandra megapotamica* and *N. lanceolata*, collected at different stages of plant development and to evaluate their antifungal activity against yeast and filamentous fungi of clinical interest. Leaves of both species were harvested in Barracão – RS, in September (harvest 1 - H1) and November 2013 (H2) and April 2014 (H3). The essential oils were obtained by hydrodistillation in Clevenger apparatus for 4 h, with subsequent identification of the chemical composition by gas chromatography coupled to mass spectrometry (GC/MS). The percentage composition was obtained by normalization and the compounds were identified by comparison of retention indices and mass spectra with literature and spectral library. The antifungal activity was determined by the Minimum Inhibitory Concentration (MIC) test against filamentous fungi and yeast, through of the broth microdilution method standardized by CLSI (M38-A and M27-A3). Relative to yield, there were no significant variation among the harvest of *N. megapotamica*, with 0.34 % for inflorescence (H1), 0.36 % for sterile phase (H2) and 0.37 % to the end of fruiting phase (H3). The chemical composition showed only quantitative variation among harvest, with a predominance of the sesquiterpene fraction. Bicyclogermacrene was the main compound identified in both samples (22.7 %, 22.9 % and 36.7 % for H1, H2 and H3, respectively). However, β-pinene (15.5 %) and germacrene D (15.0 %) were as major compounds for H1, germacrene D (10.9 %) and limonene (8.7 %) for H2 and germacrene D (19.2 %) and spathulenol (9.1 %) for H3. For *N. lanceolata*, in the H1 and H2 (sterile phase), the oils showed an average yield of 0.15 % and 0.2 % for H3 (final stage of fruiting). Although in different stages of plant development, there was no significant variation in the chemical composition. β-caryophyllene (32.5 %), bicyclogermacrene (27.8 %), spathulenol (11.8 %) and germacrene D (5.1 %) were identified as compounds major. Concerning to antifungal activity, both samples exhibited activity against filamentous fungi, but no effect against *Candida* species. *N. megapotamica* oils showed activity against *Trichophyton rubrum*, *T. mentagrophytes*, *Microsporum canis* and *M. gypseum*, with MIC value in the range of 250 - 500 µg mL^{-1} for H1, 125 - 500 µg mL^{-1} for H2 and >500 µg mL^{-1} for H3. Similar results were observed for *N. lanceolata*. These results indicate that the essential oils of both species demonstrate selective antifungal activity, characterized as antidermatophytic.

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