

## Title: ANTIDERMATOPHYTIC POTENTIAL OF *Nectandra* SPECIES ESSENTIAL OILS

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### Abstract:

Dermatophytes are a group of fungi causing dermatomycosis due to its ability to invade keratinized tissues of humans and animals. The antifungal therapy is limited, considering the high levels of toxicity, as the case of amphotericin B, and especially the rapid development of resistance, as occurs with prolonged use of azoles. Therefore, many researches have been performed with the purpose to find substances capable of replacing or supplement the conventional therapy, including natural substances, such as essential oils. Thus, the aim this study was to analyze the chemical composition of *Nectandra* species essential oils and perform preliminary evaluation of their antifungal activity against yeast and filamentous fungi. Leaves of *N. lanceolata* and *N. megapotamica* were collected in Barracão, RS. The essential oils were obtained by hydrodistillation in Clevenger apparatus with subsequent identification of the chemical composition by gas chromatography coupled to mass spectrometry (GC-MS). For the antifungal activity was determined the Minimum Inhibitory Concentration (MIC) against filamentous fungi and yeast, through of the broth microdilution method standardized by CLSI (M38-A and M27-A3). Chemistry analysis of *N. lanceolata* essential oil presented 27 compounds (99.4%), with  $\beta$ -caryophyllene (32.7%), bicyclogermacrene (27.8%) and spathulenol (11.7%) as the main constituents identified. For *N. megapotamica* were identified 31 compounds, totalizing 99.6%, with sesquiterpenes as fraction predominant. Bicyclogermacrene (33.5%) was the major compound, followed by germacrene D (16.8%) and limonene (14.1%). Relative to antifungal activity, both the oils exhibited no effect against *Candida* species. However, the oils presented activity against *Trichophyton rubrum*, *T. mentagrophytes*, *Microsporum canis* and *M. gypseum*, with MIC value in the range of 125 - 500  $\mu$ g/mL for both samples. In general the biological effects of the essential oils are attributed to presence of terpenoids, wherein the biological membranes characterize the main site of action, mainly through accumulation of the active compound, resulting in their rupture. The results observed in this study contribute to the knowledge of these species and suggest that the essential oils of *Nectandra* species presents potential antidermatophytic activity.

**Keywords:** antidermatophytic activity, essential oil, *Nectandra lanceolata*; *Nectandra megapotamica*

**Financial support:** Capes