

TITLE: ANTIMICROBIAL ACTIVITY OF *Eplingiella fruticosa* (LAMIACEAE) ESSENTIAL OIL AGAINST DERMATOPHYTES BELONGING TO THE GENERA *Microsporum* AND *Epidermophyton*

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ABSTRACT:

Dermatophytes are filamentous fungi found in keratinized tissues infections, known as dermatophytoses, prevalent in tropical countries. These microorganisms usually cause relapses in patients using conventional therapy with azoles derivatives. Studies have been carried out aiming at the discovery of plant assets that can compose pharmaceutical formulations showing activity on dermatophytes. *Eplingiella fruticosa* or "alecrim do vaqueiro" is a Brazilian endemic species that has chemical compounds with proven biological activity against certain pathogenic microorganisms. This study aimed to evaluate the antimicrobial activity of *Eplingiella fruticosa* (Lamiaceae) essential oils (EO) against dermatophytes from *Microsporum* and *Epidermophyton* genera. An *in vitro* experimental study was carried out with *Eplingiella fruticosa* EO against *M. canis*, *M. gypseum* e *E. floccosum*. For the mycelial inhibition test, the diffusion method in potato dextrose agar was used, with incorporation of EO, with a completely randomized experimental design, in the concentrations of 105,75 µg/mL to 846 µg/mL, in triplicate, at 28°C and the arithmetic mean of the colony diameters was calculated during seven test days. The antifungal activity was determined using the Sabouraud-Dextrose broth microdilution method to determine the Minimum Inhibitory Concentration (MIC) and the Minimum Fungicidal Concentration (MFC), at concentrations between 4600 µg/mL and 71,87 µg/mL. In the inhibition test, an antifungal action with dose-response relationship was verified, in which *E. floccosum* was the most sensitive fungus with 100% inhibition, followed by *M. gypseum* (42%) both at a concentration of 105,75 µg/mL. The fungus *M. canis* was not sensitive to the EO at the lowest concentrations of 211,5 µg/mL and 105,75 µg/mL. In the microdilution test, *E. floccosum* was also the most sensitive, with MIC and MFC of 239,5 µg/mL, followed by *M. canis* (MIC: 239,5 µg/mL and MFC: 287,5 µg/mL); *M. gypseum* was not sensitive to the test. The study indicates that *E. fruticosa* has fungicidal potential, so further studies of the mechanism of action and incorporation into new pharmaceutical formulations should be conducted.

Keywords: dermatophytoses, essential oils, antimicrobial activity, antifungal, public health

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