

**TITLE:** ACTIVITY OF BRAZILIAN RED PROPOLIS ETHANOLIC EXTRACT ON AZOLE-RESISTENT *Microsporum* spp. ISOLATES

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**ABSTRACT:**

Dermatophytosis is a superficial fungal infection caused by filamentous fungi belonging to three different genera: *Trichophyton*, *Microsporum* and *Epidermophyton*. These fungi invade and digest the keratinized tissue of humans and animals skin, hair, hair follicles and nails. In dogs and cats, the most common microorganisms isolated from fungic dermatophytosis lesions are *Microsporum canis*, *Microsporum gypseum* and *Trichophyton mentagrophytes*. Several treatments have been proposed for this disease, most of them based on systemic and topic formulations. However, the available antifungal agents can be inefficient and are associated with severe side effects. Besides presenting differential susceptibility to drug compounds, the fungal resistance to antimycotic drugs is an increasing problem. For these reasons, there is a need of alternative treatments, and propolis extracts have a high potential as a fungicidal compound. In the present study, the susceptibility of *M. canis* and *M. gypseum* clinical isolates to fluconazole, itraconazole and ethanolic extract of Brazilian red propolis was evaluated *in vitro* using the broth dilution method (CLSI M38-A2 2008). *Microsporum* isolates were obtained from hair samples from dogs with skin lesions. The red propolis extracts were obtained by conventional ethanolic extraction. When *M. canis* isolate was tested, high values of minimum inhibitory concentration (MIC) and minimum fungicidal concentration (MFC) of fluconazole (2 µg/mL; 4 µg/mL) and itraconazole (8 µg/mL; 16 µg/mL), respectively, were found. High MIC/MFC values were also found when fluconazole (> 64 µg/mL; >64 µg/mL) and itraconazole (1 µg/mL; 2 µg/mL) were tested on *M. gypseum* isolate. Ethanolic extract of red propolis was able to fully inhibit the *Microsporum* isolates growth at the concentration 4 mg/mL for *M. canis* and 2 mg/mL for *M. gypseum*. In conclusion, the red propolis ethanolic extract presented a significant antifungal activity against azole-resistant *Microsporum* isolates. This extract can be considered as a promisable compound to be tested in further studies on the control and treatment of canine and feline dermatophytosis.

**Keywords:** antifungal activity, dermatophytosis, *Microsporum canis*, *Microsporum gypseum*