

Antifungal activity of dry extracts of national plants against fungi causing onychomycosis

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Onychomycosis is a fungal infection that affects the nail tissue and the dermatophytes are main agent. The high cost of drug treatment, associated with adverse reactions, prolonged therapy and reduced adherence are responsible for relapses and the prevalence of resistant fungal strains. Given the above, it is important to search for treatment options and medicinal plants are sources of compounds with pharmacological properties, which can be effective and less toxic. Thus, this study aimed to evaluate the antifungal potential of plant dry extracts of the national flora *Hura crepitans*, *Licania macrophylla*, *Caesalpinia ferrea* and *Bauhinia guianensis*. The assays were performed according to the protocol M38-A2 of the Clinical and Laboratory Standards Institute, to establish the minimal inhibitory concentrations (MIC) and minimum fungicide (MFC) of the extracts between 31.25 and 1,000 $\mu\text{g mL}^{-1}$ and the reference drug (ketoconazole) between 0.25 and 640 $\mu\text{g mL}^{-1}$ against the *Trichophyton mentagrophytes* ATCC 11481, *Trichophyton rubrum* CCT 5507 URM 1666, *Epidermophyton floccosum* CCF-IOF-3757 and clinical strain of *Trichophyton mentagrophytes*. There was no antifungal activity of the extracts against the *T. rubrum* and *E. floccosum*. Ketoconazole exhibited MIC and MFC values, respectively, 1 $\mu\text{g mL}^{-1}$ and 4 $\mu\text{g mL}^{-1}$ against the *T. mentagrophytes* ATCC 11481 and exceeding 640 $\mu\text{g mL}^{-1}$ for *E. floccosum*. The extracts of *H. crepitans*, *C. ferrea* and *B. guianensis* inhibited *T. mentagrophytes* ATCC 11481 in concentrations of 62.50 $\mu\text{g mL}^{-1}$; 125 $\mu\text{g mL}^{-1}$ and 62.50 $\mu\text{g mL}^{-1}$ and caused the death of the same fungus to 62.50 $\mu\text{g mL}^{-1}$; 500 $\mu\text{g mL}^{-1}$ and 62.50 $\mu\text{g mL}^{-1}$, respectively. For *L. macrophylla* extract, the MIC value was less than 31.25 $\mu\text{g mL}^{-1}$ as MIC and MFC were 0.25 $\mu\text{g mL}^{-1}$ to ketoconazole against the same species. For the clinical strain of *T. mentagrophytes*, the *H. crepitans* and *L. macrophylla* extracts were not active in the experimental conditions. Already *C. ferrea* extract exhibited MIC of 125 $\mu\text{g mL}^{-1}$ and MFC of 125 $\mu\text{g mL}^{-1}$ and *B. guianensis* extract was characterized as fungistatic 500 $\mu\text{g mL}^{-1}$. For the reference drug, these values were 0.50 $\mu\text{g mL}^{-1}$. So, the dry extracts of *H. crepitans*, *C. ferrea*, *B. guianensis* and *L. macrophylla* were active against *T. mentagrophytes* ATCC 11481. In addition, *C. ferrea* and *B. guianensis* extracts were also active against clinical strain of *T. mentagrophytes*. Thus, these extracts may be a possible option for the treatment of onychomycosis.

Keywords: Onychomycosis, dermatophytes, biodiversity, antifungal agents

Capes, CNPQ, UFJF and FAPEMIG