

Biodiversity and Antimicrobial Activity of Endophytic Fungi of *Duguetia flagellaris* Huber

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INTRODUCTION: Endophytic microorganisms are microorganisms able to inhabit inside of plants. Moreover, they can produce substances with potential biotechnological applications as a fundamental strategy to the survival and development of its host. Among the vegetal biodiversity of the Amazon forest there is the specie *Duguetia flagellaris* with a lack of knowledge about its endophytic microorganisms and biotechnologic applications. **OBJECTIVES:** To investigate the biodiversity and antimicrobial activity of the endophytic fungi *Duguetia flagellaris*. **MATERIAL AND METHODS:** After the plant disinfection, leaf, branch and flagellum fragments were inoculated in Potato Agar, Oatmeal Agar and ISP2 Agar also they were incubated to 18°C, 26°C and 40 °C during 7 days. The isolated fungi were inoculated in Potato Broth 0.2% Yeast Extract, incubated to 30°C, 120 rpm by 8-25 days. The metabolic broth was filtered and the mycelium was subjected to extraction with cold and room temperature ethanol. The extracts were tested by agar diffusion, against *Candida albicans*, *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Enterococcus faecalis*. **DISCUSSION AND RESULTS:** *Duguetia flagellaris* has a fungal colonization rate of 108.3% being *Phomopsis* (45.4%), *Fusarium* (14.8%) and *Colletotrichum* (25.5%) the most common genres. However, the higher frequency rate of fungal colonization was observed on flagellum (45.4%) followed by the branch (38.4%) and leaf (24.5%), therefore, the greatest diversity was found in the branch (14 fungal groups). Therefore, five fungi were active against *P. aeruginosa*, ten to *C. albicans* and nine against *S. aureus* also all samples showed some activity against *E. faecalis*. *Paecilomyces lilacinus* showed the main activity against Gram-positive bacteria and *C. albicans*. Further, *E. faecalis* and *C. albicans* were inhibited in most extracellular metabolites and *S. aureus* by intracellular metabolites. **CONCLUSION:** Thus, *D. flagellaris* has a high fungal colonization rate and the statements of its fungi showed a potential antimicrobial activity against important clinical pathogens.

KEYWORDS: Antibacterial Activity, Endophytic Fungi, Secondary Metabolites.
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