

TITLE: ANTI-STAPHYLOCOCCIC EFFECT OF ENDOPHYTIC FUNGI COMPOUNDS ISOLATED FROM *Handroanthus albus*.

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Endophytic fungi are organisms that live inside of plants, without causing apparent damage. They produce compounds which are a promissive source of antimicrobial substances that could be used in medical practice. This study aims to isolate extracted substances from *Handroanthus albus* (ipê-amarelo) flowers' and to analyze its effects against *Staphylococcus aureus* ATCC25923, a human pathogenic Gram-positive bacteria. The flowers were washed and submitted to a superficial disinfection process using alcohol 70% and sodium hypochlorite 3%, then cutted in 1cm² fragments, allocated in Petri plates with Potato Dextrose Agar (PDA) medium with 1mg.mL⁻¹ terramycin and incubated for seven days at 25°C. To obtain the secondary metabolites, submerged fermentation was performed in a shaker in Potato Dextrose medium for nine days at 25°C, with 160 rpm agitation. Afterwards, the fermented medium was filtered, a part was set aside (aqueous fraction) and another part was separated in a funnel using chloroform. The material obtained was placed in a rotary evaporator and concentrated to 1 mL of compound. The Minimum Inhibitory Concentration (MIC) of the aqueous fraction and the chloroform part of the metabolites of 16 endophytic fungi was determined by microdilution in Mueller-Hinton broth in 96-well plates, at concentrations of 5%, 10%, 25% and 50%, against *S. aureus*, with tests performed in triplicate, including positive and negative controls. Among the 16 metabolites evaluated, the aqueous fraction of two isolates inhibited the growth of *S. aureus* up to a 10% concentration and four inhibited it up to 5%. Of the chloroform fraction, one inhibited growth at a 50% concentration, another inhibited it up to a 25% concentration, and 14 inhibited growth up to a 5% concentration. These results show that the compounds of endophytic fungi from *H. albus* have considerable antimicrobial activity against *S. aureus*. And some of these compounds reached the inhibition of bacterial growth even at the lowest concentration tested. The compounds extracted in chloroform, generally terpenes (also present in the aqueous fraction) and flavonoids, presented a greater antibacterial activity. Terpenes have known antimicrobial activity as well as antitumor activity. The compounds that showed inhibitory activity at a 5% concentration will be evaluated regarding lower concentrations capable of inhibiting the growth of *S. aureus*, and then they will be identified for later use as antimicrobials.

Keywords: Antimicrobial, Gram-positive, *Staphylococcus aureus*, Minimum Inhibitory Concentration (MIC).

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