TITLE: ANTIBACTERIAL ACTIVITY OF THE SECONDARY METABOLITE OF THE ENDOFITIC FUNGIC ISOLATE OF *Justicia brandegeana*

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ABSTRACT: The Brazilian flora presents a great diversity, however many species with biotechnological potential remain unexplored. *Justicia brandegeana* is a kind of ornamental plant that presents several medicinal actions. Endophytic microorganisms are those that inhabit plant tissues or organs throughout their life cycle or only at one of their developmental stages, yet without causing any harmful changes to it. There are studies that show its importance in the production of drugs, besides presenting industrial and biotechnological interest. For this reason, the objective of this work was to evaluate the antibacterial activity of the secondary metabolite extracted by ethyl acetate from the endophytic line JBN 40 of *Justicia brandegeana* against two bacterial strains, *Escherichia coli* (ATCC 25922) e *Pseudomonas aeruginosa* (ATCC 15442). The antibacterial activity was performed by serial microdilution in 96-well microplates, in which the Minimum Inhibitory Concentration (MIC) was obtained. Following this assay, the Minimum Bactericidal Concentration (MBC) was performed, where a microculture of 10 µL (in triplicate) of the inoculum present in the microwell was done to obtain cell viability. The lack of growth of bacterial colonies in the MBC assay indicates that the metabolite can be considered as a bactericidal agent. Plates were incubated at 35 °C for 24 hours in both antibacterial assays. The concentrations evaluated ranged from 8,000 µg/mL to 250 µg/mL. For *E. coli* the MIC of the JBN 40 metabolite was 1,000 µg/mL and for *P. aeruginosa* it was 4,000 µg/mL. For both bacteria, MBC was 4,000 µg/mL. Therefore, we can observe that secondary metabolite of *J. brandegena* have biotechnological potential as antibacterial agent. Further research should be conducted in this area to evaluate the applicability of these compounds as pharmaceuticals or food preservatives.

Keywords: antibacterial activity, endophytic fungus, secondary metabolite, *Justicia brandegeana*