

TITLE: ANTIMICROBIAL AND ANTIOXIDANT ACTIVITIES OF AN ENDOPHYTIC FUNGUS EXTRACT OBTAINED FROM AN AMAZON PLANT

AUTHORS: FERREIRA, R. S.; CARDOSO, M. V.; FURTADO, K. M. S.; RODRIGUES, C. A.; PESSOA, M.C.A.; ARAÚJO, L. C. M.; BINI, D.; SILVA, C. Y. Y. E MONTEIRO, M. C.

INSTITUTION: FACULTY OF PHARMACY, FEDERAL UNIVERSITY OF PARÁ, BELÉM, PA (STREET AUGUSTO CORRÊA, 1, GUAMÁ, CEP 66075-110, BELÉM – PA, BRAZIL)

ABSTRACT:

Endophytic fungi are microorganisms that live in symbiotic association with plants promoting their defense against predators, pests and making them more resistant to stress. These endophytes are excellent sources of biomolecules such as enzymes, antibiotics, hormones, becoming the target of the industry and researchers in the field of natural products. Thus, the objective of this work was to evaluate the antimicrobial and antioxidant activity of the crude extract obtained from an endophytic fungus of a plant species of the Amazon. Several fungi were isolated and purified, and fungus 119 was selected to obtain the crude extract. To obtain the mycelial extract, the fungus was placed in Sabouraud broth with yeast extract and incubated for 14 days, then the supernatant of the fermentation broth was collected and lyophilized. The evaluation of the antimicrobial activity of the fungal extract was performed through the microdilution technique to obtain minimum inhibitory concentration (MIC) and minimal bactericidal concentration (MBC), from the concentrations of 2,5, 2, 1,5 and 1mg /mL against strains of *Staphylococcus aureus* ATCC 6538, *Pseudomonas aeruginosa* ATCC 25853, *Escherichia coli* ATCC 8739 and *Candida albicans* ATCC 10231. The antioxidant activity was performed at 5, 3, 2 and 1 mg/mL concentrations through trolox equivalent (TEAC), Trolox (6-hydroxy-2,5,7,8-tetramethylchromono-2-carboxylic acid), a potent antioxidant, by the colorimetric technique based on the reaction between ABTS and potassium persulfate. The results indicated that fungal extract 119 showed antimicrobial activity against (MIC = 1mg / ml and MBC > 2.5mg / ml), *C. albicans* (MIC 1.5mg /ml and CBM > 2, 5 mg/ml), however, was not effective against the other strains tested at the concentrations used. In relation to the antioxidant capacity, extract 119 showed good antioxidant activity in all the concentrations used, mainly in the concentration of 5mg/mL that presented strong antioxidant activity similar to trolox (positive control). In view of the above, the continuation of these studies with this extract is of great importance the industrial and medical area, with the purpose of improving these activities and the discovery of new biomolecules with antimicrobial and antioxidant action *in vitro* and *in vivo*.

Key words: endophytic fungi, antimicrobial activity, antioxidant activity.

Development agency: CAPES CNPq, UFPA, FAPESPA