TITLE: ANTIBACTERIAL ACTIVITY OF ENDOPHYTIC FUNGI ASSOCIATED WITH *Aspidosperma subincanum*

AUTHORS: SCOARIS, D.O.[1]; ANDRADE, A.D.[1]; VIEIRA, A.P.G.C.[2]; BATISTA, I.S.[1]; SILVA, C.G[1]; ALMEIDA, V.L[1].

INSTITUTION: 1. SERVIÇO DE FITOQUÍMICA E PROSPECÇÃO FARMACÊUTICA, FUNDAÇÃO EZEQUIEL DIAS, BELO HORIZONTE, MG, BRASIL; 2. INSTITUTO DE ENSINO E PESQUISA DA SANTA CASA DE BELO HORIZONTE, BELO HORIZONTE, MG, BRASIL. denise.scoaris@funed.mg.gov.br

ABSTRACT:

Endophytic fungi are microorganisms that inhabit plant tissues, without causing damage to the host. When in association with medicinal plants, they are able to prompt the production of secondary metabolites with important biological activities. The aim of this study was to evaluate the antibacterial activity of endophytic fungi associated with *Aspidosperma subincanum* against bacteria of clinical relevance. Endophytic fungi isolated from healthy leaves of *A. subincanum* were submitted to ethanolic extraction. The antibacterial activity of the extracts was evaluated against *Staphylococcus aureus* ATCC 25923, *Bacillus cereus* ATCC 11778, *Escherichia coli* ATCC 11775, *E. coli* enterohemorrhagic (EHEC) ATCC 43895, *Salmonella choleraesuis* Typhi BM/PANAMA – TY2 and *Pseudomonas aeruginosa* ATCC 10145, by microdilution method, at the concentration of 250 μg/well. Extracts with inhibition higher than 50% were considered positive. The extract with highest antibacterial activity was selected for chemical characterization, by TLC and HPLC-DAD. From the total of 116 extracts, only 4 (3.44%) were considered positive against Gram positive bacteria, and 21 (18,1 %) against Gram negative bacteria. The ethanolic endophytic extract AM59.1-98 was able to completely inhibit the growth of the Gram-positive bacteria (100,04 %I), and its chemical characterization indicated the presence of saponins and tannins. Concerning the Gram negative bacterial species, highlight to the endophytic extract AM59.1-51, active against *E. coli, E. coli* EHEC and *S*. *choleraesuis* Typhi, with percentage of inhibition ranging from 67,5 ± 3,6 to 74,8±43,0 %I, still waiting further chemical characterization. No extract was active against *P. aeruginosa*. Studies has been conducted to clarify the chemical composition of the active extracts, and if the substances detected are those responsible for the antibacterial activity observed. The current research provides, for the first time, substantial results on the antibacterial activity of endophytes associated with *A. subincanum,* as an alternative path in the search for new drugs.

Keywords: antibacterial acitivity, *Aspidosperma subincanum,* endophytic fungi, secondary metabolites.

Development Agency: FUNED and FAPEMIG.