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Molecular Profiling and Potential Bioactive Characteristics of Endophytic Fungi Isolated from Leptadenia Pyrotechnica

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Abstract : Endophytes are organisms that colonize internal plant tissues without causing apparent harm to their host. Almost all groups of microorganisms have been found in endophytic association with plants may be fungi. They stimulate the production of secondary metabolites with a diverse range of biological activities. Leptadenia pyrotechnica is a more or less leafless, erect shrub with straight stems which is highly distributed in Saudi Arabia. Four endophytes fungi were isolated from Leptadenia pyrotechnica and identified using 18S ribosomal RNA sequences, which revealed four fungi genuses, namely Aspergillus terreus; Aspergillus welwitschiae; Aspergillus fumigatus and Aspergillus flavus. In this present study, four endophytic fungi from Leptadenia pyrotechnica were used for obtaining crude aqueous and ethyl acetate extracts for antimicrobial screening against 6 human pathogens, the antibacterial tests presented satisfactory results, where the pathogenic bacteria were inhibited by the four extracts tested, except for Escherichia coli that was inhibited by all extracts except ethyl acetate extract of Aspergillus terreus. Analysis of variance showed that the extract produced by endophyte Leptadenia pyrotechnica was the most effective against all bacteria, either gram-negative or positive. However, the extract was not efficient against pathogenic fungi. Therefore, this study indicates that endophytes from medicinal plant Leptadenia pyrotechnica could be potential sources of antibacterial substances.

Keywords : antimicrobial activity, Aspergillus sp, endophytes, Leptadenia pyrotechnica
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