

Antimicrobial Activity of Endophytes on some Selected Clinical Isolates (Escherichia coli, Staphylococcus aureus, Salmonella Typhi, Bacillus subtilis, Klebsiella pneumoniae, Aspergillus fumigatus, Pseudomonas aeruginosa and Penicillium chrysogenum)

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Abstract : Endophyte means “in the plant” are referred to all microorganisms that live in the internal tissues of stems, petioles, roots and leaves of plants causing no apparent symptoms of disease. Secondary metabolites from fungal endophytes have an enormous potential applications as antioxidant, antimicrobial, anticancer and antidiabetics. Thus, this study aimed to determine the antimicrobial activity of these metabolites against some clinical isolates. The fungi were subjected to fermentation medium and the metabolites were extracted using ethyl acetate. The fungal extracts showed both antibacterial and antifungal activities with maximum zone of inhibition diameter of 10.5mm against Aspergillus fumigatus. Staphylococcus aureus was inhibited by all the five crude extracts with inhibition zone diameter of 4mm. Endophytic fungal crude extract2 (EDF2) exhibited antimicrobial effect against all the test organisms used, EDF4 was active against all test organisms except on Penicillium chrysogenum and Klebsiella pneumoniae. Antibacterial standard of ciprofloxacin which is 15mm is comparable to the effect of endophytic extract of EDF1 and EDF2. Klebsiella pneumoniae was resistant to EDF4 and EDF5. EDF3 showed a wide range of antimicrobial activity against all the test organisms used. The highest inhibition zone diameter of 10.50mm recorded against Aspergillus fumigatus is comparable to antifungal standard of fluconazole (15.5mm). The result of this study suggests that endophytic fungi associated with the roots of Irish potato could be a promising source of novel bioactive compounds of pharmaceutical and industrial importance.

Keywords : endophyte, fungal extract, antimicrobial, potato

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