

ABSTRACT

Infectious diseases remain to be a global health burden due to the development of antibiotic resistance by pathogenic microorganisms. Antibiotic resistance has led to increased number of deaths among children and adults. This study sought to screen for antimicrobial activity of extracts from fungal endophytes against selected human pathogens, identify, and characterize the fungal endophytes and screen for phytochemicals present in selected medicinal plants' extracts. Sixty-five fungal endophytes were successfully isolated from fresh leaves of twenty-two selected medicinal plants. The DNA of fungal endophytes was extracted using BIO BASIC EZ-10 spin column DNA miniprep kit, and molecular characterization was done using internal transcribed spacer region (ITS). Molecular identification revealed that all the fungal endophytes belonged to the Ascomycota group of fungi distributed in nine genera; Fusarium, Colletotrichum, Trichothecium, Phomopsis, Pestalotiopsis, Cladosporium, Aspergillus, Phoma, and Chaetomium. With endophytes in the genera Colletotrichum and Fusarium having the highest isolation frequency. Antagonistic assays demonstrated that 63.6% of the fungal endophytes showed antibacterial activity against *Staphylococcus aureus* and *Pseudomonas aeruginosa*. Crude extracts of selected fungal endophytes exhibited antibacterial activity against *Bacillus subtilis* (27 mm), *S. aureus* (22 mm), *Escherichia coli* (25 mm), *P. aeruginosa* (12 mm) and *Klebsiella pneumoniae* (12 mm). Extracts from *Aspergillus* sp. demonstrated antimicrobial activity at low concentrations of 2.34µg/ml against *B. subtilis* and 9.38µg/ml against *Candida tenius* in the serial dilution assay. Phytochemical screening of leaf extracts revealed the presence of terpenoids, phlobatannins, flavonoids, tannins, and saponins. These results show that medicinal plants are a reservoir to fungal endophytes, which could be exploited as sources of natural products of pharmaceutical importance.

Keywords

Fungal Endophytes