ABSTRACT

Modern drugs currently in use today have been produced from plants and endophytes. Medicinal plants and endophytes appear to be the best bet for sourcing of novel bioactive compounds. Leucas martinicensis was selected based on its traditional uses against infections. This study therefore, was to determine the bioactivity of secondary metabolites from L. martinicensis and its endophytes against Escherichia coli, Proteus vulgaris, Salmonella typhi, Staphylococcus aureus and Klebsiella pneumoniae. Prescreening of the isolated fungal endophytes was done using dual culture assay. Secondary metabolites from endophytes and leaves were extracted using methanol and ethyl acetate, the extracts were then subjected to antibacterial assays against the test bacteria. A total of three fungal endophytes were isolated belonging to the genus Nigrospora, Epicoccum and Diaporthe. Nigrospora isolate had the highest activity against all test bacteria during dual culture assay whereas Epicoccum had the least. Ethyl acetate fractions obtained from Diaporthe and Nigrospora showed activity against test bacteria however, activity was lower than the positive control (chloramphenicol at 30 µg/disc). Furthermore, Minimum Inhibitory Concentration (MIC) assay for Diaporthe and Nigrospora fractions tested showed increased activity against test bacteria with increase in fraction concentration. Chloramphenicol also produced higher activity than all fractions however, its activity was not significantly ($p<0.05$) different from fraction 3 (19 mm) of Nigrospora isolate. Both methanol and ethyl acetate extracts from L. martinicensis leaves showed activity against all test bacteria however, the activity of the positive control was higher and similar trend was obtained with MIC assay. Purification of fractions from endophytes and leaves produced; 4, 7- dihydroxy-9-methoxy-1-methylchromen-6-one (5), 4, 7, 9- trihydroxy-1-methylchromen-6-one (6), 2, 8-dimethyl (2-methlyethenyl) benzo-4- acrylic acid (7). Lack of antibacterial activity in pure compounds could be due to interaction of two or more compounds. The results obtained from this study clearly demonstrate that secondary metabolites from L. martinicensis leaves and its endophytes can further be exploited to develop antibacterial drugs.

Keywords

Secondary Metabolites Extracted from Leucas Martinicensis