ABSTRACT

Due to the high bills involved in the importation of modern medicinal drugs, about 80% of the African population use traditional medicine from plants to treat common infectious diseases caused by microorganisms. The main objective of this research was to determine the antimicrobial activity of crude extracts and isolated compounds from Turraea abyssinica, Meyna tetraphylla (Abyssinian coral tree) and Leonotis mollissima (Lion's ear) from Meliaceae, Rubiaceae and Lamiaceae families respectively. They were studied in this research due to their wide use by local communities of Kenya for medicinal remedies. Plant materials were sampled from Kirinyaga East, Narok North, Baringo South, Tharaka Nthi Maua, Laikipia University and Mau Narok in Kenya. They were identified and voucher specimen kept for reference. All the plants crude extracts showed significant antimicrobial activity on all the test microorganism (Bacillus cereus, Staphylococcus aureus, Escherichia coli,Salmonella typhimurium and Candida albicans) at a concentration of 1 mg/ml despite been sampled from different regions of Kenya. They had lower MIC (Minimum Inhibition Concentration) as compared to the Amoxil® and Doxycycline® antibiotics that were used as positive control for comparison. From Turraea abyssinica stem bark dichloromethane crude extract (52.42 g), three compounds 176 (Sitosterol, 4.60 mg), 177 (Scopoletin, 6.00 mg) and 178 [2-(1',2' Dihydroxypropyl) tetradecanoic acid, 5.65 mg] were isolated. Of the three compounds only compound 176 showed significant activity on Bacillus cereus, Staphylococcus aureus, and Candida albicans) at a concentration of 2.5 mg/mL to 4.0 mg/mL. Meyna tetraphylla leaves dichloromethane crude extract (45.24 g) gave compounds 179 (Phaeophytin, 9.40 mg), 180 (Enantiomer, 5.80 mg), 118 (α-Amyrin, 5.65 mg) and 60 (Sitigmasterol, 5.82 mg). The Structures of the compounds were elucidated using 1D-and 2D NMR. Experiments. Compound (179) showed significant activity on Escherichia coli and Salmonella typhimurium at a concentration of 4.0 mg/mL while α-Amyrin (118) had significant activity on Salmonella typhimurium at a concentration of 4.0 mg/mL. Leonotis mollissima leaves dichloromethane crude extract (79.69 g) yielded compounds 181 (Sederin, 7.70 mg), 182 (20-hydroxylucidenic acid D2, 7.10 mg) and 183 [(13R)-19α,13α-epoxylabda 6β(19).16(15)-dioldilactone, 21.20 mg]. Only compound (182) showed significant antimicrobial activity on Escherichia coli at a concentration of 0.4 mg/mL. This was a confirmation that the three plants contain compounds that can be isolated and used as drugs to treat various diseases including microbial infectious diseases.