

## ABSTRACT

Many disease-causing organisms have become resistant to conventional antibiotics. The toxicity and side effects of conventional drugs have also become increasingly unmanageable, while their costs are prohibitive. It has therefore become necessary to continue searching for alternative medicines to treat such diseases. The possibility of developing pharmaceutical industries using local raw materials should be looked into critically so that the cost of drugs can be affordable to the local people. This study involved screening of various medicinal plants commonly used by herbal medicine practitioners for bioactive compounds against bacteria. Standard bioassay methods were employed throughout this study. They included preliminary screening bioassay against human pathogenic bacteria strains using Agar Disc Diffusion method, Minimum Inhibitory Concentration (MICs), Minimum Bactericidal Concentration (MBCs), Time kill kinetics, phytochemical determination methods and one dose in vivo toxicity tests using mice. Hexane, dichloromethane, acetone and methanol extracts of ten (10) medicinal plants: *Dichrostachyus cinerea*, *Combretum molle*, *Euclea divinorum*, *Ficus sur*, and other five plants were screened by preliminary bioassay against nine (9) human pathogenic bacteria strains (*E. coli*, ATCC 25922, *S. aureus* ATCC 85923, *Pseudomonas aeruginosa* NCTC 10662, *Escherichia coli*, *Shigella flexinery*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Shigella dysenteriae* and *Klebsiella hospital* isolates) using agar disc diffusion method. Acetone, methanol extracts of *D. cinerea* and *C. molle* showed remarkable inhibitory activity against all nine human pathogenic bacteria. Acetone and dichloromethane of *E. divinorum* and *F. sur* showed activity against all human pathogenic bacteria except *P. aeruginosa* and *klebsiella*. All extracts of six (6) plants were inactive against the test human pathogenic bacteria. MICs of acetone and methanol extracts of the four (4) plants *D. cinerea*, *C. molle*, and dichloromethane and acetone extracts of *E. divinorum* and *F. sur* were active against the test bacteria. MIC results showed that acetone and methanol extracts of *D. cinerea*, and *C. molle* gave very good low MICs ranges (0.3-2.5mg/ml), dichloromethane and acetone extracts of *E. divinorum* and *F. sur* gave MICs ranging between 7.5-100mg/ml. MBCs of acetone and methanol extracts of *D. cinerea*, and *C. molle* were as low as 0.3mg/ml while the highest being 5mg/ml. Phytochemical determination showed that both methanolic and acetone extracts of *D. cinerea* and *C. molle* contained alkaloids, tannins, steroids and triterpenoids, flavone glycones, anthocyanins and reducing sugar. Kill kinetics studies of the bioactive organic extracts on the tested bacteria indicated that acetone extracts of *D. cinerea*, acetone extracts of *C. molle*, methanol extracts of *C. molle*, methanol extracts of *D. cinerea* at 4, 6 and 8mg/ml against *Staphylococcus aureus* ATCC 85923, *Escherichia coli* ATCC 25922 and *Pseudomonas aeruginosa* NCTC 10662, displayed dose and time dependent rapid kinetics of the bacterial killing. Because the toxicity of a drug to the bystander host cells could render it unsuitable for therapeutic purposes, the toxicity of the active plant extracts against the tested bacteria was assessed. The reduced growth rate, organ weights, white and red blood cells counts, plus increased levels of biochemicals in the serum in plant extract treated animals relative to that of the controls, indicate that these extracts contained constituents with toxic effects on them. Such constituents include some of the phytochemicals present in these extracts. The mineral content may also cause toxicity but this was not the case with the measured minerals since their levels were below the recommended daily allowance except for potassium which was 67 to 141 times the recommended daily allowance.