Determination of Antibacterial Activity of Acacia Nilotica Wild. Acetone Extract against Selected Multidrug Resistant Bacteria of Clinical Origin

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ABSTRACT

Antibiotic resistance among bacteria is becoming a major problem in the treatment of many infectious diseases. Hence, there is need to find a potential alternative way by using medicinal plants in overcoming the antibiotic resistance. The present study was aimed at investigating antibacterial activity of Acetone extract of *Acacia nilotica* WILD. leaves against *Staphylococcus aureus* and *Pseudomonas aeruginosa* clinical isolates with multidrug property. Extract was prepared using acetone on the basis of increasing polarity with varying concentrations. Disc diffusion assay was employed to determine antibacterial activity. The acetone extract was found potent against all the selected bacterial pathogens. It portrays higher inhibition zones on *S. aureus* that ranged from 7mm to 11mm and least on *P. aeruginosa* with inhibition zones that ranged from 3mm to 8mm.. The results of the study revealed that, acetone leaf extract of Acacia contains some secondary metabolites that included saponins, alkaloids, tannins, phenols and steroids. Acetone extract was further subjected to column and thin layer chromatography (TLC) for bioassay guided fractionation; thus a total of 77 fractions were obtained. These fractions were combined together based on their TLC profiles into ten (10) combined fractions (CF). The CFs were screened for the antibacterial activity, CF6 showed highest zone of inhibition of 8mm and 4mm against *S. aureus* and *P. aeruginosa* respectively. Therefore this study ascertained the value of *Acacia nilotica* plant as alternative treatment for bacterial infections that can be used to completely or minimize the resistance of bacteria observed in synthetic or commercial antibiotics drugs.

Keywords: *Acacia nilotica,* Acetone, Bioactive compounds, Multidrug resistant, *Psudomonas aeruginosa*, *Staphylococcus aureus.*