ANTIBACTERIAL ASSAY AND PHYTOCHEMICAL ANALYSES OF *TERMINALIA SCHIMPERIANA* ROOT BARK ETHANOLIC EXTRACT AND FRACTIONS

NMEMA, E.E.1*, OKAFOR, J.I.2 AND EZEONU, M.I.2

1Department of Biological Sciences, Ondo State University of Science and Technology, Okitipupa, Ondo State, Nigeria
2Department of Microbiology, University of Nigeria, Nsukka, Enugu State, Nigeria

ABSTRACT

*Terminalia schimperiana* root bark, used locally as a topical remedy in the treatment of burns, and its five soluble fractions, were evaluated for their antimicrobial effects against multiple antibiotic-resistant (MAR) pathogens, and for their phytochemical composition. The research was aimed at verifying the potential of this plant in the development of a drug for antibiotic-resistant infections of burns, and other resistant infections. The antibiotic susceptibilities of the test organisms were tested using disk diffusion method. *T. schimperiana* root bark was extracted using ethanol (Analar). Five soluble fractions of the crude ethanolic extract were obtained using n-hexane, chloroform, ethyl acetate, acetone and ethanol. The extract and five fractions were screened against twenty bacterial isolates including *Pseudomonas aeruginosa* (n=14), *Escherichia coli* (n=2), *Staphylococcus aureus* (n=2), *S. typhi* (n=1), and a reference culture of *P. aeruginosa* ATCC 10145, using the agar-well diffusion method. Phytochemical analyses were performed on the extract and soluble fractions according to established standards. Statistical analyses were done using Analysis of Variance. *P* = .5 was chosen for significance. The test organisms showed multiple antibiotic-resistances (MAR) ranging from 40% to 100%. Minimum inhibitory concentration (MIC) values of the crude extract ranged from 0.282 mg/ml to 2.512 mg/ml. MIC values of ethyl acetate-soluble fraction (EaCt) and acetone-soluble fraction (AcCt) ranged from 0.263mg/ml to 1.660mg/ml. Results of phytochemical analyses revealed the presence of alkaloids, glycosides, flavonoids, steroids, terpenoids, tannins, saponins, carbohydrates and resins. The findings highlight the potentials of the extract and fractions in the development of novel drugs for antibiotic-resistant infections. The findings also confirm the authenticity of the root bark in the folkloric treatment of burn wounds.

**Keywords:** *Terminalia schimperiana*, root bark, multiple antibiotic resistance, phytochemical composition.

*Correspondence:* ukaria2003@yahoo.com

How to cite this article: