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Phytochemical screening and antibacterial activity of extracts of *Azadirachta indica* A. Juss (Neem) on some clinical bacterial isolates

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Statement of the Problem: Developing countries, including African and Asian countries are faced with the demanding problem of antibiotic resistance and controlling the spread of these resistant pathogenic microorganisms. With microorganisms' rapid adaptation to antibiotics which causes loss of money and lives, medicinal plants seem to provide a way out due to its low cost and slow rate of adaptation by pathogenic microorganisms. There has been an extensive use of *Azadirachta indica* (Neem plant) by traditional healers based on the claim that this plant treats ailments including gastrointestinal tract disorders, genitourinary tract infections, respiratory tract infections, skin disorders and scarlet fever. This study was therefore carried out to determine the antibacterial activity of the stem bark extracts of *A. indica* on clinical isolates of *Proteus mirabilis, Proteus vulgaris, Staphylococcus aureus* and *Bacillus* spp.

Methodology: Hot continuous method using the Soxhlet apparatus and rotary evaporator was employed for extraction of phytochemicals from *A. indica* using acetone and ethanol as solvents. The antibacterial activity was determined by agar diffusion method. The Minimum Inhibitory Concentration (MIC) and Minimum Bacteriostatic Concentration (MBC) of the extracts were determined by broth dilution assay.

Findings: Preliminary analysis showed that the stem bark of *Azadirachta indica* possesses alkaloids, flavonoids, tannins, cardiac glycosides, phlobotannins and phenols. Statistical analysis revealed that there was no significant difference among the antibacterial activity of ethanol and acetone extracts of *A. indica* against the test organisms. The MIC values for acetone extract ranges from 100-500 mg/ml for the test organisms and for ethanol extract the value was 200 mg/ml for all the test organisms. In case of all test organisms, the MBC (Minimum Bactericidal Concentration) value was 500 mg/ml for both extracts.

Conclusion & Significance: From the obtained results it can be concluded that the use of *Azadirachta indica* for treatment of wound, urinary tract and diarrheal infections may be justified.

Biography

Harriet Ugboko is a Doctoral candidate of Microbiology from Covenant University Ota, Nigeria. She is currently a Member of the Post Graduate Student Council of her institution representing the College of Science and Technology. She is also a Member of the American Society of Microbiology, American Society of Tropical Medicine and Hygiene. She is currently studying the antimicrobial importance of indigenous medicinal plants of Nigeria.

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