

Preclinical Evaluation of the Antibacterial Effectiveness of Herbal *Cnidoscolumaconitifolius*leaves (*Ogwu-obara*).

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ABSTRACT

Due to some pharmacogenomic and environmental reasons, ethnopharmacological studies are geared toward the provision of safer pharmaceutical alternatives. The present study compared the phytochemical constituents and the antimicrobial effectiveness of aqueous and hydromethanolic extracts of *Cnidoscolumaconitifolius* reported to have antimicrobial activities. The phytochemical constituents of aqueous and 1:4 (v/v) water: methanol Soxhlet extracts of *Cnidoscolumaconitifolius* obtained from Owerri environs were identified with Perkin-Elmer (Clarus 500 system) Gas Chromatograph interfaced to a Mass Spectrometer (GC-MS). The antibacterial activities of each extract at concentrations (0.25, 0.5, 1g/10ml) of *Cnidoscolumaconitifolius* were tested against *Staphylococcus aureus*, *Bacillus subtilis*, *Escherichia coli*, *Salmonella typhi*, *Vibro cholera*, *Pseudomonas aeruginosa*, *Shigella flexneri* and *Klebsiella oxytoca*, using well-in agar diffusion method. Zones of inhibition of extracts were compared with those of a standard antibiotic (Chloramphenicol) to determine the antibacterial activities. Comparing with Chloramphenicol, the zones of inhibition of aqueous extract were 80.76%, 66.67%, 62.50% and 77.20% against *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Vibro cholera* and *Bacillus subtilis*, respectively, whereas hydromethanolic extract had correspondingly, 80.77%, 38.88%, 92.59% and 94.44%. The extracts showed remarkable inhibition of the bacterial growth compared with Chloramphenicol. The percent mean inhibition of hydromethanolic extract for the eight pathogens was 70.66% whereas the aqueous extract was 61.13% of Chloramphenicol. The antimicrobial activity of the *Cnidoscolumaconitifolius* extracts could be due to the presence of alkaloids and flavonoids identified by GC-MS. Hence, these phytochemicals could be screened to discover the bioactive natural compounds that could serve as leads in the development of new pharmaceuticals.

Key words: Preclinical evaluation, *Cnidoscolumaconitifolius*, Antibacterial herbs, Phytochemicals



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ASSESSMENT OF OCCUPATIONAL HEALTH HAZARDS ASSOCIATED WITH TIN MINING IN JOS, PLATEAU STATE, NIGERIA

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ABSTRACT

The vision to diversify Nigerian economy has opened the door for more mining activities in nearly all the states of the Federation without appropriate occupational and safety regulation, policies and laws leading to over exploitation of the environment with attended health and environmental challenges. In 2015, a study was carried out to assess the occupational health hazards in some parts of Plateau State, Nigeria. The objective of the study was to identify common occupational hazards in tin mining activities in Jos. Descriptive cross-sectional design was used in the study. A total of 200 miners that gave their verbal consent were used for the study. The instrument for data collection were guided questionnaire, physical medical examination and walk through inspection. Data were analyzed using descriptive Statistics. The result showed that the common hazards associated with tin mining were noise, extreme temperature, tin dust and heavy lifting. The common health problems spotted were skin rashes, malaria, joint and muscle pains, respiratory diseases and headache. Heavy lifting was more on the female 59 (54.1%) than male 50 (45.9%) and a chi-square test for heavy lifting was 10.99 ($p < 0.001$) indicating high significant difference. Female-adult miners (56.7%) had the highest number of malaria prevalence than female-child miners (43.3%) while adult-male miners (90.0%) had more skin rashes than male-child (10.0%). The variations of temperature were recorded as 19 - 21°C in the morning; 31 - 32°C in the afternoon and evenings. The noise level ranged between 67 and 73 dB in all the sites. The result also showed that land degradation was high with 83 (41.5%). In conclusion there is an urgent need for proper regulation and monitoring of mining activities in Jos and other parts of Nigeria to mitigate the obnoxious health and environmental consequences associated with mining. Finally, there is need to review the main Health and Safety legislation in the country (i.e. the factories Act, Cap. 126 LFN 1990) to include major stakeholders in the industry such as Ministries of Labour and Productivity, Environment, Health, Information, Mineral Resources, Women Affaires etc.

Key Words: Occupation, Health, Hazards, Mining, Plateau, Nigeria.