RESEACH ARTICLE

EVALUATION OF HIGH PERFORMANCE LIQUID CHROMATOGRAPHY, GAS CHROMTOGRAPHY MASS SPECTROMETRY OF FRACTIONS OF *Viburnum opulus* (L) AND TOXICOLOGICAL STUDIES ON MALE ALBINO WISTAR RATS

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Abstract

This study was conducted to evaluate the phytochemical constituent of *Vibrunum opulus* (L) with the aid of qualitative screening, high performance liquid chromatography (HPLC) and gas chromatography mass spectrometry (GC-MS), the study also evaluated the effect of *V. opulus* on different strains of micro-organism and the safety potential of the leaf on albino wistar rat (AWR) using biochemical and histological indices of toxicity. Ethanol, n-hexane, ethyl acetate, butanol and water fractions were prepared for both phytochemical and anti-microbial activity. Five groups of seven male AWR per group were used for the study. Group A was administered distilled water and was used as the control group, while groups B, C, D, E were respectively administered with 250, 500, 1000 and 1500mg/kg body weight of the ethanolic leaf extract of *V.opulus* by gastric intubation for 28 days. Phytochemical screening revealed the presence of Carbohydrate, tannins, saponin, alkaloids, terpenoids, coumarines, phenols, caryophyllene, germacrene D, naphthalene, diethyl phthalate, neophytadiene, butane,1,1-dibutoxy-, pentadecane, 2,6,10,14-tetramethl, octadecane, and tridecane screened with the aid of HPLC as obtained from GCMS. Animal were subsequently anaestized, blood sample were collected for biochemical assays; organs were isolated and weighed, while the liver tissues were processed for histopathological studies. Alkaline phosphatase (ALP), high density lipoprotein, low density

lipoprotein, cholesterol and total protein were significantly ($p < 0.05$) elevated in animals administered 500, 1000 and 1500mg/kg body weight of the extract. Ethanol, butanol and aqueous fraction of the leaf of *V.opulus* showed significant effect on *Klebsiella pneumoniae pneumonia* and *Klebsiella pneumoniae ozaenae* strain of micro-organism. Histopathological studies conducted revealed that there was no significant damage on the liver tissues. The result suggests that extract of the leaf of *V. opulus* contains a wild range of fatty acids, heterocyclic compound which have antimicrobial properties, so that it can be recommended as a plant of phytopharmaceutical importance and the extract of the leaf of *V. opulus* could alter some biochemical parameters and may not cause any adverse effect on the liver tissue.

Key words: GC-MS, HPLC, Antimicrobial analyses, biochemical assay and *Vibrunum opulus*