EXTRACTION AND IDENTIFICATION OF SOME ANTIOXIDANT AND ANTIMICROBIAL COMPOUNDS FROM *URENA LOBATA* (LINN) LEAVES.

BY

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This study examined the extract of *Urena lobata* L. leaves for its antioxidant, antibacterial and antifungal activities with a view to isolating and characterizing the biologically active components that might be present and thus provide justification for the ethnomedicinal uses of the plant in the treatment of various diseases for which it was used.

Urena lobata L. leaves were collected, identified and air-dried for 3 weeks after which they were ground into coarse powder and extracted at room temperature with 50% aqueous ethanol for 72 hours with occasional agitation. The filtrate was concentrated to dryness *in vacuo* on a rotary evaporator to obtain the crude extracts. The crude extract was dissolved in distilled water and then partitioned successively with four different organic solvents which included n-hexane, dichloromethane, ethyl acetate and n-butanol. The solvent fractions obtained were concentrated *in vacuo* and then evaluated for antibacterial, antifungal activities tests. In another bench-top bioassay antioxidant screening method, all the solvent fractions were screened for antioxidant activity using the rapid thin layer chromatographic method with l,1-diphenyl-2-picrylhydrazyl (DPPH) solution in methanol as detecting reagent. A detailed bioactivity guided fractionation was carried out on the ethyl acetate extract by gradient column chromatography using combination of Accelerated Gradient Chromatographic (AGC) method and Sephadex LH-20 adsorbent.

Preliminary evaluation of the crude extract for antibacterial and antifungal activity using Agar-well diffusion method with streptomycin as standard antibiotic showed that the extract had a broad spectrum of activity against both Gram positive and Gram

negative bacteria isolates. The ethyl acetate and n-butanol fractions had a fast antioxidant reaction with DPPH solution, while the n-hexane and dichloromethane fractions gave no reaction with the test reagent. Three flavonoid compounds were isolated from the ethyl acetate fraction namely: 1 kaempferol, 2 quercetin, and **3** tiliroside (3-O-β-D-(6"-O-*trans*-*p*-coumaroyl)-α-L-glucopyranosyl-kaempferol). The structures of the flavonoid compounds were determined from spectra obtained on them using infra-red, ^{1}H and ^{13}C NMR.

The study concluded that the isolated flavonoid compounds were part of the compounds responsible for the biological activity of *Urena lobata* leaf extract.