

**Biological and Phytochemical Studies of Medicinal Plants, *Antidesma venosum*
(Euphorbiaceae) and *Kotschya africana* (Fabaceae) used in Traditional
Medicine in Kenya**

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ABSTRACT

Kotschy africana and *Antidesma venosum* plants are widely used in traditional medicine to treat bacterial, fungal and viral infections. As a result there is need to investigate extracts of these plants and to provide scientific proof for their wide application in traditional medicine system. Extraction of leaves, stem and roots of *K. africana* and *A. venosum* using solvents of increasing polarity, namely, hexane, dichloromethane, ethyl acetate and methanol respectively afforded dry extracts. The extracts were tested for anti-fungal and anti-bacterial activities, for brine shrimp toxicity test and anti-oxidant activities. Using the disc diffusion method, it was demonstrated that extracts of the leaves, stem and roots of these plants have moderate anti-bacterial activities against *Escherichia coli* and *Staphylococcus aureus* and low anti-fungal activity against *Candida albicans*. The root extracts were the most active followed by the stem and the leaf extracts. Extracts from these plants also exhibited mild cytotoxicity to brine shrimp larvae with LD₅₀ values ranging from 89.21 to 3876.69 for *K. africana* and 32.61 to 2515.39 for *A. venosum*. The results support the traditional uses of extracts of these plants for the management of bacterial and fungal infections.

Five compounds were also isolated and identified. From the roots of *A. venosum*, 3,5,7,3',4'-pentahydroxyflavanol commonly known as epicatechin, 5,7,8,2',3',4-hexahydrodihydroflavanol-4-O- β -D-glucoside, and 5,7,4'-trihydroxyl-isoflavone (genistein) were isolated. Lupeol and compound **25** were isolated from *K. africana* leaves. Compound **25** was a diterpenoid with the labdan skeleton.

Anti-oxidant screening of semi-pure compounds and fractions and a pure compound from *K. africana* and *A. venosum*, showed that the semi-pure compounds, KAL11 and KAL227302 had the lowest radical scavenging characteristics at a loading of 50 μ g. β -sistosterol, lupeol and

AVLHB36 had moderate scavenging characteristics while the fraction AVR8286 had the highest radical scavenging activity at a loading of 0.5 μg . Ascorbic acid (standard) showed activity at the lowest loading of 0.05 μg .