

**ISOLATION AND CHARACTERIZATION OF ANTIBACTERIAL,  
ANTIFUNGAL AND NEMATICIDAL COMPOUNDS FROM SOME KENYAN  
PLANT SPECIES OF THE GENUS *CROTON***

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## ABSTRACT

In the recent past, cases of anti-microbial resistance have been reported to be on the increase. It is believed that, new antibiotics with activities supplemental and structures widely different from those in current use could be found in medicinal plants. This requires a follow up of promising leads with attempts to isolate and identify the active principles from these plants. In addition, there is need to focus on bioactive metabolites as possible biological controls of agricultural pests.

Three Kenyan *Croton* plants; *C. pseudopulchellus* Pax., *C. sylvaticus* Hochst and *C. menyhartii* Pax. were therefore selected for this study because of their reputation in folklore medicine. Crude extracts of the roots, stem and leaves of these plants were bioassayed for antibacterial, antifungal and nematocidal activities. Based on the preliminary antimicrobial activity results, stem and roots of *C. sylvaticus* were selected for isolation and chemical characterization of compounds from their organic extracts.

Liquid vacuum chromatography (LVC), column chromatography (CC) and thin layer chromatography (TLC) were used for isolation and purification of compounds from the extracts. Spectroscopic techniques were used to elucidate the structures.

Three compounds, 15,16-epoxy-3,13(16),14-clerodatrien-18-oic acid (hardwickiic acid, **19**), ent-(12R)-methyl-15,16-epoxy-9,10-friedolabda-5(10),13(16),14-trien-19-oate-20, 12-lactone(penduliflaworosin, **20**) and Stigmast-5-en-beta-ol ( $\beta$ -sitosterol, **21**) were isolated. Lethality tests showed that compound **20** was the most lethal towards brine shrimp larvae ( $LC_{50}$ : 3.70  $\mu$ g/ml). Compound **19** displayed antibacterial activities against *Bacillus subtilis*.