

ABSTRACT

The purpose of this study to identify lead bioactive antimicrobial compounds was achieved in two parts. In first part of the study fruits of *Mallotus philipensis* were extracted in methanol, ethyl acetate and chloroform and were analyzed through Gas Chromatography-Mass spectrometry for the determination of bioactive constituents present in that plant which are known for having invariably pesticidal, anthelmintic, antifungal, antimicrobial, antioxidant, insect repellent, nematicidal and cancer preventive properties, which could be further isolated, purified and confirmed to be utilized in medical and agricultural industries.

Second part of the study (carried out by availing Canadian Commonwealth scholarship in the University of Winnipeg, under the supervision of Dr. Athar Ata) is about isolation and characterization of three steroids (1) 13,14-seco-9(11),14-dien-3 α -ol, (2) Cholest-5-en-3-ol and (3) Ergost-24(28)-en-3-one utilizing column chromatography, preparative thin layer chromatography and one dimensional and two dimensional NMR spectroscopy techniques from South African plant *Sapium. integerrimum*. Ergost-24(28)-en-3-one is first time isolated from that plant in previous literature only its synthesis is reported. The isolated compounds and crude extracts were further subjected to antimicrobial activity. The crude methanolic extract showed significant activity while isolated compounds were inactive against the same microorganism, which indicated synergistic effect of other compounds in the extract. Although *S.integerrimum* is known for its therapeutic uses in South Africa but not any work has been reported related to that plant so for the first time sterols were isolated from that plant and were evaluated against antimicrobial activity.