World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Isolation and Biological Activity of Betulinic and Oleanolic Acids from the Aerial Plant Parts of Maesobotrya Barteri (Baill)

Authors : Christiana Ene Ogwuche, Joseph Amupitan, George Ndukwe, Rachael Ayo

Abstract : Maesobotrya barteri (Baill), belonging to the family Euphorbiaceae, is a medicinal plant growing widely in tropical Africa. The Aerial plant parts of Maesobotrya barteri (Baill) were collected fresh from Orokam, Ogbadibo local Government of Benue State, Nigeria in July 2013. Taxonomical identification was done by Mallam Musa Abdullahi at the Herbarium unit of Biological Sciences Department, ABU, Zaria, Nigeria. Pulverized aerial parts of Maesobotrya barteri (960g) was exhaustively extracted successively using petroleum ether, chloroform, ethyl acetate and methanol and concentrated in the rotary evaporator at 40°C. The Petroleum ether extract had the second highest activity against test microbes from preliminary crude microbial screenings. The Petroleum ether extract was subjected to phytochemical studies, antimicrobial analysis and column chromatography (CC). The column chromatography yielded fraction PE, which was further purified using preparative thin layer chromatography to give PE1. The structure of the isolated compound was established using 1-D NMR and 2-D NMR spectroscopic analysis and by direct comparison with data reported in literature was confirmed to be a mixture, an isomer of Betulinic acid and Oleanolic acid, both with the molecular weight ($C_{30}H_{48}O_3$). The bioactivity of this compound was carried out using some clinical pathogens and the activity compared with standard drugs, and this was found to be comparable with the standard drug.

Keywords : Maesobotrya barteri, medicinal plant, bioactivity, petroleum spirit extract, butellinic acid, oleanilic acid
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020