Terpenoids from the stem bark of jatropha plants and their biological activities

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Abstrak

Three terpenoids, including two diterpenes (curcusone B and atrophone) and a triterpene (stigmasterol) have been isolated from the stem bark of Jatropha plants.Curcusone B and stigmasterol were isolated from J. curcas, meanwhile jatrophone and stigmasterol were from J. gossypifolia. The biological activities of these compounds have been evaluated toward bacteria, fungi and tumour cells. Isolation was carried out in vacuum liqiud cromatography (VLC) technique with silica gel as an adsorben and some solvents as eluents. The compound structures were determined by spectroscopic methodes i.e. UV-vis, FTIR, NMR (1-D, 2-D) and were then compared based on their spectroscopic data with similiar data from literatures. The biological properties of these compounds were evaluated against four strains of bacteria (Acetobacter sp., Eschericia coli, Staphylococcus aureus, and Streptococcus sp.), 4 strains of fungi (Aspergilus niger, Penicillium sp. (grey), Penicillium sp. (white) and Rhizopus sp.) and murine leukemia P-388 cells. The results showed that cytotoxic property of curcusone B towards murine leukemia P-388 cells is better than jatrophone and stigmasterol which are IC50= 0.57 g/mL (1.93M) for curcusone B and IC50> 100g/mL for jatrophone and stigmasterol. Meanwhile, activities against bacteria, jatrophon e is better than curcusone B and stigmasterol. Jatrophone is the most active against S. aureus (bacteria) with growth inhibition zone 36 mm and A.niger (fungi) is 44 mm. Further study indicated that jatrophone was bacteriostatic against S. aureus.