

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 jatrophone) 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 liquid chromatography (VLC) technique with silica gel as an adsorbent and some solvents as eluents. The compound structures were determined by spectroscopic methods i.e. UV-vis, FTIR, NMR (1-D, 2-D) and were then compared based on their spectroscopic data with similar data from literatures. The biological properties of these compounds were evaluated against four strains of bacteria (*Acetobacter* sp., *Escherichia coli*, *Staphylococcus aureus*, and *Streptococcus* sp.), 4 strains of fungi (*Aspergillus 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 $IC_{50} = 0.57 \text{ g/mL}$ (1.93M) for curcusone B and $IC_{50} > 100 \text{ g/mL}$ for jatrophone and stigmasterol. Meanwhile, activities against bacteria, jatrophone 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*.