

Phytochemical compounds and antibacterial activity of *Jatropha curcas* Linn. Extracts

ABSTRACT

The present study was conducted to determine the phytochemical compounds in different solvent extracts of *Jatropha curcas* Linn. plant and antibacterial activity of crude extracts. Aqueous, methanolic and hexane extracts of various plant parts were analysed for phytochemical compounds by spectrophotometry, high performance liquid chromatography (HPLC) and gas chromatography-mass spectrometry analysis (GC-MS). Antibacterial activity was studied by paper disc diffusion assay against Gram positive and Gram negative bacteria. The minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) were determined by micro-broth dilution. The root bark methanolic extract contained high phenolics (11.51 mg gallic acid equivalents/g DW) and flavonoids (0.94 mg rutin equivalents/g DW). Kernel meal aqueous extract contained high saponins (0.65 mg diosgenin equivalents/g DW) and the methanolic extract contained 1.13 mg/g DW phorbol esters. Phytochemicals detected by RP-HPLC were pyrogallol, gallic acid, naringin, rutin and vanillic acid. The main compounds detected by GC-MS were oxalic acid (root bark), acetic acid and oleic acid (stem bark). Inhibition zones ranged from 8.0 to 17.7 mm. Low MIC (1.2 to 2.3 mg/ml) and MBC (0.4 to 6.3 mg/ml) values were observed in methanolic extract of all plant parts. The present study showed that stem bark, root bark and kernel meal of *J. curcas* contained compounds with antibacterial activities. The results indicate the potential of *J. curcas* as a source of antibacterial compounds.

Keyword: *Jatropha curcas* Linn.; Phorbol esters; Phytochemicals; Antibacterial activity