Anti-inflammatory activity of *Jatropha curcas* extracts

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The *Jatropha curcas* plant or locally known as “pokok jarak” has been widely used as remedies for various conditions including arthritis, gout, jaundice, wound and inflammation. In this study, the seed, leaves, stem and root of *J. curcas* plant were screened for anti-inflammatory (nitric oxide inhibition) and cytotoxic activities (MTT assay) by using RAW 264.7 murine macrophage cells. The highest anti-inflammatory activity was observed in the methanolic extract of root. However, root extract showed high inhibition towards RAW 264.7 cells growth due to it cytotoxicity. Further extraction procedure by using four solvents (hexane, chloroform, ethyl acetate and water) with different polarities was conducted on the root sample. The hexane partition showed high anti-inflammatory activity, at the same time high cytotoxicity towards RAW 264.7 cells at 1 mg/mL. Analysis of this extract by GCMS showed the presence of high levels of terpenes and diterpenes which are known to possess cytotoxic activity. Fractionation process of the hexane partition using column chromatography gave five spots, where two spots (H-4 and H-5) showed anti-inflammatory activity and low cytotoxicity. The two spots showed the presence of hexadecanoic acid and octadecanoic acid by GCMS analysis. This finding suggests that these two compounds are responsible for producing the anti-inflammatory activity of the *J. curcas* root.

Keywords: Plant extracts, RAW 264.7 cells, 3-(4, 5-dimethylthiazol-2-yl)-2, 5-diphenyltetrazolium bromide (MTT) assay, gas chromatography mass spectrophotometer analysis