Cytotoxicity and Antioxidant Activity of a Steroidal Saponin Isolated from Dracaena Umbratica

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Dracaena umbratica is a medicinal plant which belongs to Dracaenaceae family. It is found plentifully in Malaysia peninsular. This shrub is locally known as Senjuang. The decoction of the roots was reported as Malaysian folk medicine for treating rheumatism1. As the result of our research on Dracaena umbratica, a spirostenol type of steroidal saponin was successfully isolated from methanol extract of the leaves of this shrub via normal phase vacuum liquid chromatography eluted with methanol. Its structure was confirmed by spectroscopic analysis as 3-O-[α-L-rhamnopyranosyl (1→4)-α-L-rhamnopyranosyl (1→4)-β-D-glucopyranosyl]-25(R)-spirost-5-en-3β-ol. This compound was then tested for cytotoxicity against murine leukemia cell line P-388 followed by antioxidant activity against lipid peroxidation using FTC (Ferric thiocyanate) and TBA (Thiobarbituric acid) assays2. The cytotoxicity test against murine leukemia cell line P-388 was conducted using MTT (Microculture tetrazolium) assay3. The IC50 value calculated was 3.5 ppm which indicated positive activity. (IC50 <4 ppm for pure compound is considered active- US – NCI). Besides, this compound showed moderate antioxidant activity. The percentage of inhibition based on FTC assay was 71.9 % whereas for TBA was 71.0 % as compared to 97.0 % inhibition of BHT (Butylated hydroxytoluene) which was used as the standard. Based on these results, it can be concluded that this compound showed cytotoxicity activity against murine leukemia cell line P-388 as well as antioxidant activity against lipid peroxidation.