

METABOLIC PROFILING AND IN VITRO TOXICITY ASSAY OF *Sauropus androgynus* (KATUK), FOR SAFETY ASSESSMENT OF HERBAL SUPPLEMENT .

ABSTRACT

The important effect of *Sauropus androgynus* / SA (katuk), as a lactagogum for increasing human breast-milk production in Indonesia, must face the reality that there are also many investigations revealing its side effect, associated with Bronchiolitis obliterans, in Taiwan and Japan. The occurrence of side effects from SA makes toxicological controlled studies necessary to assess its safety.

Concerning about the complicated causes which can influence the result of toxicity assay on herbal supplements, initial step for safety assessment will begin with authentication of plant raw material by metabolic profiling of SA from several areas on East Java, Indonesia, namely Surabaya, Trenggalek, Bojonegoro, Purwodadi, Purwosari and Batu, by Gas Chromatography-Mass Spectrometry Detector (GC-MSD).

The result of this study showed that GC-MSD analysis of SA samples could show different metabolic profiles among samples from different geographical areas. Statistical analysis could classify all SA samples into five clusters that each SA sample from areas with similar geographical conditions could be grouped in the same cluster, except SA sample from Purwosari (PWS).

Toxicity assay of SA on mesenchymal stem cells derived from human bone marrow could show that SA methanolic crude extract could inhibit cell viability via apoptosis pathway.

The metabolic profiles of SA from several areas on East Java had a good correlation with toxic effect of SA samples, while the SA compound that was highly correlated with SA toxicity is phytol.

Keywords : *Sauropus androgynus*, metabolic profiling, in vitro toxicity assay, mesenchymal stem cells-derived from human bone marrow