

## Chemical constituents and toxicity screening of three aromatic plant species from Peninsular Malaysia

### ABSTRACT

Medicinal and aromatic plants (MAPs) are widely valued for their aromas, tastes, and treatments for various human illnesses. The chemical constituents and toxicity content of three aromatic plant species, *Syzygium polyanthum* Wight (Walp.), *Monocarpia marginalis* (Scheff.) J. Sinclair, and *Chromolaena odorata* (L.) R.M. King & H. Rob, were determined, via gas chromatography (GC) with mass spectrometry (MS), and flame ionization detector (FID). Altogether, 116 compounds were identified in the essential oils and hexane and methanol extracts. Toxicity evaluations were carried out on human peripheral blood mononuclear cells (PBMCs). Three plant samples were found toxic to human PBMCs. The essential oils of *M. marginalis* and *C. odorata*, and the hexane extract of *C. odorata* yielded IC<sub>50</sub> and LD<sub>50</sub> values of 76 mg/mL and 6,913 mg/kg, 14 mg/mL and 3,684 mg/kg, and 2.45 mg/mL and 1,927 mg/kg, respectively. Based on the LD<sub>50</sub> values, *M. marginalis* and *C. odorata* can be classified as slightly and moderately hazardous, respectively. A detailed toxicity evaluation via comet assay showed that *M. marginalis* and *C. odorata* induced significant DNA damage ( $p < 0.05$ ). As for *S. polyanthum*, the species did not give any cytotoxic or genotoxic evidences.

**Keyword:** *Syzygium polyanthum*; *Monocarpia marginalis*; *Chromolaena odorata*; Cytotoxicity; Genotoxicity