

# Phytochemical of Indonesian *Macaranga* and their Cytotoxic Properties Against P388 Cells

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Plants as a source of bioactive chemicals have been known since very long time, and thus it is a rational strategy to develop phytochemical studies on the Indonesian plants and tested the isolated chemicals on a various biological systems. Since 1999, the author, as a part the Group of Natural Products Chemistry, Institut Teknologi Bandung, has actively work on a number of Indonesian plant families, including Lauraceae, Moraceae, Dipterocarpaceae, Zingiberaceae, and Euphorbiaceae, aiming to find new biologically active chemicals from nature. In this presentation, studies on *Macaranga* species (Euphorbiaceae) will be presented, highlighting the results from six species of the genus, namely *M. gigantea*, *M. lowii*, *M. pruinosa*, *M. recurvata*, *M. rhizoides*, and *M. trichocarpa*. Samples of the plants to be extracted were the leaves, and extraction was done either with acetone or methanol. Fractionation was carried out by vacuum liquid chromatography eluted by a gradient solvent system of *n*-hexane-EtOAc. Purification of the metabolites was done mainly with radial chromatography eluted with various solvent systems. Twenty seven flavonoid and stilbene derivatives were isolated and identified, seventeen of which were new compounds. These compounds are substituted with isoprenyl, geranyl, farnesyl, and an irregular sesquiterpenyl group with a cyclobutane skeleton. In the presentation, several selected NMR spectra of the compounds will be described. On biological evaluation against murine leukemia P-388 cells by MTT assay these compounds showed varying cytotoxicities, with the highest active compounds was an isoprenylated dihydroflavanone isolated from *M. recurvata*. In conclusion, *Macaranga* is a unique source of flavonoid and stilbene derivatives, some of them have potential for biological activities. Keeping that Indonesia is one of the center of *Macaranga*'s diversity, phytochemical and biological research on this plant should be continued.

