

traditional medicine. This preliminary study aims to determine the amount of vitamin C (ascorbic acid) and antioxidant (phenol) in local *Paederia foetida*. Parts used are the plant leaves, young leaves and mature leaves. The dried leaves were soaked in ethanol for 1 day at room temperature before being evaporated to obtain the extract. Then, high performance liquid chromatography analysis has been used to analyze the samples. Results obtained show amount of vitamin C in mature leaves is higher than young leaves with 66 ppm and 64 ppm respectively but amount of antioxidant (phenol) are not detected. This shows that, *Paederia foetida* consist considerable high amount of vitamin C and more study should be done on this local species to investigate chemical active compounds with biological function potential.

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### Xanthenes from *Garcinia malaccensis* Improve GLUT4 as Well as Decreased PPAR $\gamma$ Activation on Adipocytes

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In this study, we used  $\alpha$ -mangostin, the major xanthone compounds and  $\beta$ -mangostin from *Garcinia malaccensis* Hk.f (locally known as "manggis burung") and evaluate its *in vitro* activities on adipocyte differentiation, glucose uptake and related gene expression (ppary and glut4) mechanism. Firstly, we elucidated the inhibitory effect of the compounds on lipid accumulation of 3T3-L1 preadipocytes by using Oil red O staining. Cell treated with  $\alpha$ -mangostin and  $\beta$ -mangostin dose-dependently was found to inhibit the cytoplasmic lipid accumulation as well as adipogenic differentiation of preadipocyte. All compounds showed high lipid inhibition activity at 50  $\mu$ g/mL concentration ( $P < 0.05$ ) compared to MDI treated cells. Besides, glucose uptake activity was investigated in differentiated adipocytes using a radioactive-labelled glucose by Liquid Scintillation Counter. The insulin-induced 2-deoxy-D-[3H] glucose uptake activities were significantly improved with increasing the concentration of the test compounds. Further evaluation with the quantitative real time polymerase chain reaction (qRT-PCR) shows that  $\alpha$ -mangostin and  $\beta$ -mangostin reduced the expression of ppary genes during adipocyte differentiation. At the same time, induction of glucose uptake by  $\alpha$ -mangostin and  $\beta$ -mangostin was accompanied by the increased mRNA expression of glut4 genes. Since downregulation of ppary has been reported to be activated during inhibition of adipogenesis and enhance expression of glut4 has been shown to be increased during glucose uptake we demonstrated that both compounds follow the antiobesity pathways. Taken together, these results indicate that xanthenes derived from *Garcinia malaccensis* may be a candidate for preventing metabolic disorders such as obesity.

Keywords: Antiobesity, mangostin compounds, adipogenesis, glucose uptake, gene expression.

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### Flavonoids from Malaysian *Uncaria lanosa* var. *farrea*

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*Uncaria* species are generally used as spasmolytics, analgesics and sedatives for symptoms associated with nervous disorders but their primary uses derived from traditional medicine is for the treatment of hypertension. In Malaysia, *Uncaria* species is also known as "Gambir"/akar kait-kait or akar hitam and "gegambir paya" or "gegambir hitam" are recorded for *Uncaria lanosa*. Continuing our interest in the genus, phytochemistry of the stems of *U. lanosa* var. *farrea* has afforded three flavones, 3-methyl-3',4',5,7-tetrahydroxyflavone, quercetin, rutin and two coumarins, 4,7,8-trihydroxycoumarin and scopoletin along with two major alkaloids, pteropodine and isopteropodine. This is the first report of the isolation of 3-methyl-3',4',5,7-tetrahydroxyflavone from a natural source. The structures of compounds were elucidated by various spectroscopic techniques including <sup>1</sup>H, <sup>13</sup>C and 2D NMR as well as by UV, IR and LC-MS methods and comparison with literature.