

## Study on Phytochemical of Extract from Thai Tropical Fruit and Its Byproduct

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## **Study on Phytochemical of Extract from Thai Tropical Fruit and Its Byproduct**

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Xanthone compounds in mangosteen (*Garcinia mangostana* Linn.) fruit have been reported to have biological activities such as antioxidant, anti-inflammatory and anticancer activities. The objectives of this research were to investigate qualitative and quantitative evaluation of xanthenes in each part of mangosteen fruit and find effective method to prepare useful extract as food material which guarantees high concentration of xanthenes from mangosteen. Purification of the hexane extract of dried mangosteen peel was led to the isolation of two main xanthone compounds,  $\alpha$ -mangostin and  $\gamma$ -mangostin which were separated by using silica gel column chromatography, and their structures were determined using NMR techniques. Quantitative evaluation of  $\alpha$ -mangostin and  $\gamma$ -mangostin by using HPLC showed that extract from all parts of mangosteen fruit contained  $\alpha$ -mangostin range from 2.05 to 382.24 and  $\gamma$ -mangostin range from 0.27 to 144.87 mg/g in solid base, respectively. The antioxidant activities were evaluated for ethanol extract of all parts in term of both DPPH and FRAP bioassay. Ethanol extract of yellow gum and dried peel of mangosteen showed high activity in these assays. The results from DPPH and FRAP assays showed that  $\gamma$ -mangostin was a major contributor to antioxidant capacities. The effective method to extract xanthone compounds from dried mangosteen peel in large scale was soaking and grinding method with 100 % ethanol, which gave 64 and 44 % recovery rate of  $\alpha$ -mangostin and  $\gamma$ -mangostin, respectively. It was suggested that ethanol extract of mangosteen peel can be used for supplement or valuable material of processed foods.