

Antiproliferative activity of five *garcinia* species collected in Sabah, Malaysian Borneo against estrogen receptor-human breast carcinoma (MCF-7) cell line

ABSTRACT

Garcinia species are well-known for their unique properties of having natural secondary metabolite compounds called xanthone as well as their ethnomedicinal values such as antioxidant, anticancer, anti-inflammatory and antibacterial properties. The study was conducted to investigate the antiproliferative activity of peel, flesh and seed extracts of *G. dulcis*, *G. parvifolia*, *G. nitida*, *G. mangostana* var. *mangostana* and *G. cambogia* collected from Malaysian Borneo (Sabah) against estrogen receptor-positive human breast carcinoma (MCF-7) cells. The antiproliferative activity was assessed using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. The results showed that *G. dulcis* seed induced strongest antiproliferative activity against MCF-7 cancer cell line with the IC₅₀ value of 2.5±0.0 µg/ml, followed by *G. dulcis* flesh, *G. mangostana* var. *mangostana* peel and *G. dulcis* peel with IC₅₀ values of 9.33 ± 3.21, 11.17 ± 1.04 and 17.67 ± 2.08 µg/ml, respectively. Meanwhile, the IC₅₀ value for *G. cambogia* peel was 56.67 ± 10.5 µg/ml. No IC₅₀ value was detected in all parts of *G. parvifolia* and *G. nitida* at concentration tested (<100 µg/ml). Overall, this study clearly showed that the whole fruit of *G. dulcis* displayed potent cytotoxic effect by inducing antiproliferative activity at low concentration. Further studies are needed in the future to develop this fruit as pharmaceutical and nutraceutical product for the treatment and prevention against cancer.