Ethyl acetate partition obtained from the methanol extract of Muntingia calabura leaf exerts effective in vitro antiproliferative activity against the HT-29 colon cancer

ABSTRACT

Methanol extract of Muntingia calabura L. leaf (MEMCL) has been shown to exert the antiproliferative activity against the HT-29 (human colon adenocarcinoma) cell line. To further investigate on the medicinal potential of this plant, MEMCL was sequentially partitioned to obtain the petroleum ether, ethyl acetate and aqueous partitions, which was then tested against the HT-29 cell line and also subjected to the in vitro anti-inflammatory study. The most effective partition was also subjected to the phytoconstituents analysis using the UHPLC-ESI-MS. Findings showed that the ethyl acetate partition (EAP) exerts the most effective antiproliferative activity (IC50 = 58.0 ± 12.9 µg/mL) without affecting the 3T3 normal fibroblast cells, exhibits the highest anti-inflammatory effect when assessed using the lipoxygenase (> 95%) and xanthine oxidase (> 70%) assays, and contained various types of polyphenolics. In conclusion, M. calabura exerts apoptotic-mediated antiproliferative activity, partly via the anti-inflammatory action and synergistic action between the polyphenolics.