

Cytotoxic activity of coumarins from *Micromelum minutum*

ABSTRACT

The crude petroleum ether and chloroform extracts of *Micromelum minutum* (G. Frost.) Wright & Arn (Rutaceae) showed strong cytotoxic activity when tested against a T-lymphoblastic leukemia cell line. Further fractionation of the extracts resulted in the isolation of five new coumarins 3,4-dihydrocapnolactone, 2,3-epoxyisocapnolactone, 8-hydroxyisocapnolactone-29,39-diol, 8-hydroxy-3,4-dihydrocapnolactone-29,39-diol and 8,4-dihydroxy-3,4-dihydrocapnolactone-29,39-diol, and two triterpenes. Some of these compounds were strongly active against T-lymphoblastic leukemia (CEM-SS), promyelocytic leukemia (HL60), cervical cancer (HeLa) and liver cancer (HepG2) cell lines. 8-Hydroxyisocapnolactone-29,39-diol was found to be the most active with IC₅₀ values of 2.9, 2.5, 6.9, and 5.9 g/ml, respectively. This was followed by 2,3-epoxyisocapnolactone. When evaluated against the normal mouse fibroblast (3T3) cell line, 8-hydroxyisocapnolactone-29,39-diol was found to be inactive, hence it could serve as a valuable lead for further design and synthesis of more active analogues.

Keyword: 2,3-epoxyisocapnolactone; 8-hydroxyisocapnolactone-29,39-diol; Capnolactone; Coumarins; Cytotoxicity; *Micromelum minutum*; Triterpenes