

Antileukemic activity of extracts and constituents of *Aegle marmelos*

ABSTRACT

Phytochemicals study of various parts of *Aegle marmelos* (leaves, stem bark and roots) have afforded eleven compounds; hopane and lupane triterpenes including zeorin (1), dustanin (2) also epilupeol (3) and lupenone (4); alkaloids aegeline (5) and skimmianine (6); coumarin derivatives; auraptene (7), epoxyauraptene (8) and marmin (9) together with β -sitosterol and stigmasterol. All crude extracts and isolated compounds were examined for their antileukemic activity against CEM-SS (human T-lymphoblastic leukemia) cancer cells using MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay. Roots extracts exhibited significant cytotoxicity while leaves and stem bark extracts were inactive. Hopane triterpenes; zeorin (1) and dustanin (2) as well as alkaloid aegeline (5) isolated from leaves exhibited moderate to strong cytotoxicity with dustanin (2) as the most active constituent ($IC_{50} : 5.3 \pm 0.24 \mu\text{g/mL}$). Lupane triterpenes; epilupeol (3) and lupenone (4), in addition of coumarin derivative; marmin (9) isolated from stem bark also demonstrated moderate to strong cytotoxicity with epilupeol (3) showed significant activity ($IC_{50} : 6.1 \pm 0.20 \mu\text{g/mL}$). The chemical constituents isolated from roots were inactive except for epilupeol (3) and marmin (9) which have also been isolated from stem bark.

Keyword: *Aegle marmelos*; Dustanin; Epilupeol; Cytotoxic; CEM-SS.