

**Isolation and cytotoxicity of triterpenes from the roots of *Phyllanthus pulcher* Wall. ex Müll. Arg. (Euphorbiaceae).**

ABSTRACT

The dried powdered roots of *Phyllanthus pulcher* Wall. ex Müll. Arg. (Euphorbiaceae), were sequentially extracted with dichloromethane (DCM), ethyl acetate (EtOAc) and methanol (MeOH). The extracts were tested for cytotoxic activity against three human cancer cell lines: MCF-7 (breast), NCI-H460 (lung) and DU-145 (prostate). The DCM extract exhibited the strongest cytotoxic activity compared with EtOAc and MeOH extracts. Hence from the DCM extract, five pentacyclic triterpenes, 3 $\alpha$ -acetoxyl-25-hydroxyolean-12-en-28-oic acid (1), glochidone (2), 12(13)-dehydro-3 $\alpha$ -acetoxylean-28-oic acid (3), lupanyl acetate (4) and glochidonol (5) were isolated and identified by spectroscopic analyses (<sup>1</sup>H NMR, <sup>13</sup>C NMR, FT-IR, UV, DEPT, HMQC, HMBC and HREIMS). This is the first report on the isolation of 4 from a natural source, whereas 1 and 3 have already been isolated from the families Hamamelidaceae and Compositae (Asteraceae), respectively. However this is the first study reporting the presence of 1 and 3 in the Euphorbiaceae family. The isolated triterpenes 1-5 were tested against the three human tumour cell lines as stated above. Only compounds 1 and 5 exhibited cytotoxic activity, 5 being most potent with IC<sub>50</sub> values ranging 7.5–13.4  $\mu$ g/mL (17.1–30.5  $\mu$ M).

**Keyword:** *Phyllanthus pulcher*; Triterpenoids; Cytotoxic activity; Breast cancer; Lung cancer; Prostate cancer.