

Antiproliferative and phytochemical analyses of leaf extracts of ten Apocynaceae species

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ABSTRACT

Background The anticancer properties of Apocynaceae species are well known in barks and roots but less so in leaves. **Materials and Methods** In this study, leaf extracts of 10 Apocynaceae species were assessed for antiproliferative (APF) activities using the sulforhodamine B assay. Their extracts were also analyzed for total alkaloid content (TAC), total phenolic content (TPC), and radical scavenging activity (RSA) using the Dragendorff precipitation, Folin-Ciocalteu, and 1,1-diphenyl-2-picrylhydrazyl (DPPH) assays, respectively. **Results** Leaf extracts of *Alstonia angustiloba*, *Calotropis gigantea*, *Catharanthus roseus*, *Nerium oleander*, *Plumeria obtusa*, and *Vallisneria spiralis* displayed positive APF activities. Extracts of *Allamanda cathartica*, *Cerbera odollam*, *Dyera costulata*, and *Kopsia fruticosa* did not show any APF activity. Dichloromethane (DCM) extract of *C. gigantea*, and DCM and DCM:MeOH extracts of *V. glabra* showed strong APF activities against all six human cancer cell lines. Against breast cancer cells of MCF-7 and MDA-MB-231, DCM extracts of *C. gigantea* and *N. oleander* were stronger than or comparable to standard drugs of xanthorrhizol, curcumin, and tamoxifen. All four extracts of *N. oleander* were effective against MCF-7 cells. Extracts of *Kopsia fruticosa* had the highest TAC while those of *Dyera costulata* had the highest TPC and RSA. Extracts of *C. gigantea* and *V. glabra* inhibited the growth of all six cancer cell lines while all extracts of *N. oleander* were effective against MCF-7 cells. **Conclusion** Extracts of *C. gigantea*, *V. glabra*, and *N. oleander* therefore showed great promise as potential candidates for anticancer drugs. The wide-spectrum APF activities of these three species are reported for the first time and their bioactive compounds warrant further investigation.

KEYWORDS

Antiproliferative . Apocynaceae . radical scavenging . total alkaloid content . total phenolic content

REFERENCES