

Calophyllum inophyllum and Calophyllum soulattri source of anti-proliferative xanthenes and their structure-activity relationships

ABSTRACT

Extensive chromatographic isolation and purification of the extracts of the stem bark of *Calophyllum inophyllum* and *Calophyllum soulattri* have resulted in 11 xanthenes. *C. inophyllum* gave inophinnin (1), inophinone (2), pyranojacareubin (5), rheedioxanthone A (6), macluraxanthone (7) and 4-hydroxyxanthone (8), while *C. soulattri* afforded soulattrin (3), phylattrin (4), caloxanthone C (9), brasixanthone B (10) and trapezifolixanthone (11). The structures of these compounds were determined on the basis of spectroscopic analyses such as 1D and 2D NMR, GC-MS, IR and UV. Cytotoxicity screening (MTT assay) carried out in vitro on all the xanthenes using five human cancer cell lines indicated good activities for some of these xanthenes. The structure-activity relationship study revealed that the inhibitory activities exhibited by these xanthone derivatives to be closely related to the existence and nature of the pyrano and the prenyl substituent groups on their skeleton.

Keyword: *Calophyllum*; Cytotoxicity; Structure–activity relationship; Xanthone