

## E2-10 Distribution of coumarins in *Calophyllum cordato-oblongum*

H R W Dharmaratne, J R D M Sajeevani, G P K Marasinghe, E M S Ekanayake  
Natural Products Programme, Institute of Fundamental Studies, Kandy

*C. cordato-oblongum* (local name Kalu Keena) of the Family Clusiaceae (Guttiferae), a rare endemic plant, grows in the lowland, evergreen, wet zone forests in Sri Lanka. 7 xanthenes, 3 coumarins, a bark acid and 3 triterpenoids have been reported from the stem bark, stem wood and the leaves of this plant. The buds and the twigs of *C. cordato-oblongum* were separately shade dried, milled and successively extracted with hot hexane, dichloromethane, ethyl acetate and methanol. The hexane extract of the twigs when separated on a medium-pressure silica gel column yielded 7 compounds, 6 of which were identified as cordatolide A, cordatolide B, oblongulide, friedelin, canaphyol and sitosterol by direct comparison of spectral and physical data. The other compound was shown by UV and IR spectra to be a coumarin of  $m/z$  356. Further investigation of physical and chemical data suggested it to be the 12-methoxy ether of cordatolide B.

The chemical investigation of the buds of the same plant yielded large quantities of coumarin oblongulide. Coumarins such as cordatolide A, cordatolide B and friedelin were also detected in the buds.

Our systematic investigation of various parts of *C. cordato-oblongum*, indicated that buds, twigs, leaves and stem bark of *C. cordato-oblongum* consist of coumarins, the content of which decreases in the series from buds to stem bark. No coumarins but considerable amount of xanthenes were detected only from the stem wood of the above plant. According to the plant anatomy the percentage of living cells gradually decreases from the apex towards the root collar. Our results show that the amount of coumarins present and the percentage of living cells in various plant parts have a significant correlation. This observation indicates that the coumarin synthesising tissues are mainly located at the non-woody young plant parts, while xanthone synthesising tissues were only found in the woody parts of the plant.