# FOLIAR AND ROOT CONSTITUENTS OF SOME SRI LANKAN *CALOPHYLLUM* (GUTTIFERAE) SPECIES

A THESIS PRESENTED BY

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## Abstract

This thesis consists of three parts. The first part describes the foliar constituents of eight Calophyllum species of which seven are endemic. In this study several triterpenoids belonging to the lupane and friedelane series, neoflavonoids(Coumarins and chroman acids), phytosterols and amentoflavone, a biflavanoid have been isolated.

Presence of amentoflavone is of chemotaxonomic significance, since it is found in the leaf extracts of almost all the Calophyllum species studied.

Of the five coumarins isolated, three were found to be novel and their structure elucidation have been described in detail. The co-occurrence of cordatolide A and B with oblogulide which contains the $C_5H_7O$ side chain is of biogenetic significance, since this may be the O-methyl derivative of the probable biosynthetic precursor of cordatolide A and B.

Isolation of chroman acids i.e. thwaitesic acid, isothwaitesic acid and calozeylanic acid from the leaves of C. lankaensis, C. thwaitesii, C. trapezifolium , and C. walkeri constitutes the first report of their occurrence in leaf extracts of Calophyllum species. Of these three acids, thwaitesic and isothwaitesic acid were found

to be novel. Neoflavonoids are very common in the bark extractives of Calophyllum species. Presence of calozeylanic acid in leaves as well as in the bark of the above four Calophyllum species is of biogenetic significance.

The root extractives of Calophyllum bracteatum, C. calaba var. calaba and C. thwaitesii have been investigated and two new xanthones, calothwaitesixanthone and 6-deoxy-$\gamma$-mangostin from C. thwaitesii have been reported in the second part of this thesis. The root outer bark extracts of C. calaba var. calaba contained two rare xanthones, calocalabaxanthone and trapezifolixanthone while C. bracteatum contained calocalabaxanthone. Calabaxanthone was found to be common in both these plants.

In the third part of the thesis, a simple and an efficient procedure has been reported for the formation of the pyrano ring based on the Phase Transfer reaction. This method has been utilised to synthesise 5-hydroxy-2,2-dimethyl-2H,6H-pyrano (3,4:b)xanthen-6-one and 2,2-dimethyl-5H-pyrano(3,2:c)-1-benzopyran-5-one. This method could be used to synthesise xanthones containing the pyrano ring.