

**CHEMISTRY AND ANTIMICROBIAL
ACTIVITY OF SOME SRILANKAN
CALOPHYLLUM SPECIES**

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ABSTRACT

Calophyllum moonii Planch and Triana is an endemic tree which grows in the lowland, evergreen wet zone forests of Sri Lanka. Cold hexane extract of the root bark of *Calophyllum moonii* on chromatography gave apetalic acid, isoapetalic acid, friedelin, taraxeron, taraxerol, sitosterol, dombakinaxanthone, calozeyloxanthone and zeyloxanthone. Dombakinaxanthone (5, 8-dihydroxy-2, 2-dimethyl-7, 12-di (3-methylbut-2-enyl)-pyrano- (3, 2-b) xanthen-6-one) is a new natural product. This is the second report of the isolation of calozeyloxanthone from a plant source. Dombakinaxanthone and calozeyloxanthone are 1, 3, 7- trioxygenated xanthenes and zeyloxanthone also can be considered to have originated from 1, 3, 7- trioxygenated xanthone. This is the first report of the isolation of 1, 3, 7-trioxygenated xanthenes from *C. moonii*. The above three xanthenes are rare in nature. All the compounds from *C. moonii* were isolated with the help of various chromatographic techniques such as MPLC, HPLC and PTLC. Structure elucidation of the isolates were carried out by spectroscopic methods such as IR, UV, EIMS, ¹H NMR, ¹³C NMR, DEPT, HOMOCOSY, HETEROCOSY etc.

The antibacterial activity of seven xanthenes from *Calophyllum* species were tested against *Staphylococcus aureus*, *Escherichia coli* and *Pseudomonas aeruginosa*. Antibacterial activity was shown by calozeyloxanthone and 6-deoxy- γ mangostin only. As the amount of 6-deoxy- γ -mangostin was inadequate, only calozeyloxanthone was tested against *Staphylococcus aureus*.

Further studies on the antibacterial activity of calozeyloxanthone was conducted against 17 strains of methicillin resistant *Staphylococcus aureus* (MRSA) and 25 strains of methicillin sensitive *Staphylococcus aureus* (MSSA). The minimum inhibitory concentration (MIC) of the calozeloxanthone ranged from 8.1 - 4.1 µg/ml with both MRSA and MSSA. The test compound calozeloxanthone had MIC value which appeared comparable to the MIC of currently used antibiotic vncomycin, an antibiotic often used as a last resort, when other drugs fail. Six xanthenes from *Calophyllum* species were subjected to antifungal bioassays against the *Cladosporium cladosporioides*, and none of them showed anti fungal activity.