ABSTRACT

The work reported in this thesis comprises of two parts. A chemical investigation of four plant species , namely, Hypericum mysorense Wight & Arn, Garcinia thwaitesii Pierre, Garcinia spicata Hook.f. and Calophyllum calaba L. belong to the family Guttiferae and the second part, a chemical examination of the methanol extracts of the seeds and pericarp of Horsfieldia iryaghedhi (Myristicaceae).

Chemical studies of the phenolic fraction of the timber of Hypericum mysorense yielded several simple xanthones, 1-Hydroxy-6,7-dimethoxyxanthone (61), 2-hydroxyxanthone (64), 1-hydroxy-7-methoxyxanthone (62), 1,7-dihydroxyxanthone (euxanthone) (65), including a new natural xanthone 2-hydroxy-3-methoxyxanthone (63). The methylated fraction of the phenolic fraction afforded 1,2-dimethoxyxanthone (66), 2-methoxyxanthone(67) and 1-hydroxy-7-methoxyxanthone(62). Neutral fraction of the chloroform extract yielded 2,3-dimethoxyxanthone (60) as the major constituent.

The hot light petroleum extract of Garcinia thwaitesii Pierre and Garcinia spicata Hook.f. yielded friedelin (68) Friedelan-3β-ol(69), β-sitosterol whereas the hot ethyl acetate extract furnished four known biflavanoids GB-1(27),

GB-1a(28), GB-2a(29) and morelloflavone (33). The major constituents of the hot ethyl acetate extract and hot methanol extract were found to be GB-2a and morelloflavone, respectively.

The methanol soluble fraction of the hot light petroleum extract of the leaves of C. calaba afforded two isomeric bark acids, trans chapelieric methyl ester (67b), and its novel isomer cis chapelieric methyl ester (67c). The structures were confirmed by chemical and physical methods. The stereochemistry of these acids were established by using ^{1}H n.m.r. and ^{13}C n.m.r.

The methanol insoluble fraction of the hot light petroleum extract gave Friedelin (68), friedelan-3β-ol (69), canophyllal (70), canophyllol (71), friedelan-3β,28-diol (72) and canophyllic acid (73).

The hot ethyl acetate extract of the leaves of the same species yielded mainly Amentoflavone (25).

The second part consists of the isolation and characterisation of constituents from the hot methanol extract of the seeds and pericarp of Horsfieldia iryaghedhi (Gaertn) Warb.

The chemical examination of the hot methanol extract of the seeds revealed the presence of glycerol trimyristate (4), myristic acid (2), d-asarinin (5), (-)dihydrocubebin (6), and a new natural lignan named d-horsfieldin (86).

The hot methanol extract of the pericarp of the same species also afforded glycerol trimyristate (4), myristic acid (2) and the new lignan d-horsfieldin (86).