CHEMISTRY OF THE ENDEMIC DIPTEROCARP FLORA

Presented by

Y.A.G.P.GUNAWARDANA B.Sc.

being a thesis presented in part fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE

in the

University of Sri Lanka

September 1977.
Department of Chemistry,
Peradeniya Campus,
Peradeniya,
Sri Lanka.

3 Rd

SYNOPSIS

The earlier work on the family Dipterocarpaceae, the compounds isolated and their distribution, is reviewed in the introduction.

Extractives of twelve endemic species were investigated in this programme. Besides twenty species were examined by t.l.c. screening and the chemotaxonomic significance of the compounds identified is discussed.

Shorea stipularis Thw.

From the bark β-sitosterol ester of palmitic acid, β-amyrin, dipterocarpol and β-sitosterol were isolated. Besides these compounds chrysophanol was isolated from the timber. Three unidentified high molecular weight phenolic compounds were isolated from the bark methanol extract and the least polar compound was found to be a glycoside.

Shorea worthingtonii Ashton

From the bark β-amyrin, dipterocarpol, β-sitosterol, ursolic acid, hexamethoxy coeruleo ellagic acid, pentamethoxy flavellagic acid and tetramethoxy ellagic acid were isolated and characterised. From the timber chrysophanol, β-amyrin acetate, β-amyrin, β-sitosterol and ursolic acid were isolated.

Shorea macistophylla Ashton

From the bark the following compounds were isolated; β-sitosterol ester of palmitic acid, β-amyrin acetate, β-amyrin, hexamethoxy coeruleo ellagic acid, pentamethoxy flavellagic acid, dipterocarpol, β-sitosterol ursolic acid and asiatic acid.

Vatica obscura Trimen

From the bark β-amyrin acetate, β-amyrin, hexamethoxy coerulee ellagic acid and β-sitosterol were isolated. In addition to these compounds pentamethoxy flavellagic acid, tetramethoxy ellagic acid and scopoletin were isolated from the timber.

Shorea cordifolia (Thw.)Ashton

From the timber the following compounds were isolated. Octacosanol ester of hexacosanoic acid, β-amyrin acetate, β-amyrin, β-sitosterol, ursolic acid and betulinic acid.

Shorea affinis (Thw.)Ashton

From the timber chrysophanol, β-amyrin acetate, β-amyrin, β-sitosterol, ursolic acid and betulinic acid were isolated.

Shorea dyeri Thw.

From the timber octacosanol ester of hexacosanoic acid, chrysophanol, β-amyrin acetate, β-sitosterol, hexamethoxy coerulee ellagic acid, scopoletin and betulinic acid were isolated.

Hopea cordifolia (Thw.)Trimen

From the bark lupeol, β-amyrin, β-sitosterol, dipterocarpol, betulinic acid and ursolic acid were isolated. Same compounds were isolated from the timber.

Vatica affinis Thw.

From the timber β-amyrin acetate, ursolic acetate, β-amyrin, β-sitosterol, hexamethoxy coerulee ellagic acid, tetramethoxy ellagic acid, scopoletin and betulinic acid were isolated.

Cotylelobium scabriusculum (Thw.)Brandis

Amyrin acetate, ursolic acetate, β-amyrin, ursolic acid, betulinic acid and scopoletin were isolated from the bark.

Vateria copallifera (Retz.)Alston

From the bark β-amyrin acetate, dipterocarpol, β-amyrin, β-sitosterol, and three phenolic compounds were isolated.

A tentative structure is suggested for the least polar compound of the three and it is expected to confirm this structure by x-ray studies.

Chrysophanol is the first quinone to be reported from the family Dipterocarpaceae. Similarly scopoletin, lupeol, tetramethoxy ellagic acid and the β-sitosterol ester of palmitic acid are reported for the first time in the family.

Hexamethoxy coeruleo ellagic acid and tetramethoxy flavellagic acid are reported for the first time. Pentamethoxy ellagic acid and the octacosanol ester of hexacosanoic acid are new natural products.