

STUDIES ON THE EXTRACTIVES OF ARTOCARPUS NOBILIS THUNBERG AND SOME
SPECIES OF THE PLANT FAMILY DILLENIACEAE.

Submitted by

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Synopsis

In this programme, chemical investigation of the extractives of Artocarpus nobilis Thu. belonging to the family Moraceae and some species of the family Dilleniaceae have been carried out. The bark and timber extractives of A.nobilis Thu. have been studied. As an extension of this study, the light petroleum extractives of the barks of A.heterophyllus Lam., A.altilis (Perk.) Fosb. and A.lakoocha Roxb. have been investigated. In the family Dilleniaceae, the bark, timber and fruit extractives of Morina triquetra Rottb. Dillenia indica L. and Dillenia retusa Thunb. have been studied. In addition, the bark and timber extractives of Morina burbidgei Hook.f. and the extractives of the whole plant Actrostera uniflorus Hook. have been investigated.

The earlier work on the chemical constituents of the families Moraceae and Dilleniaceae, reported in the literature has been reviewed, with reference to the variety of compounds isolated and biogenesis. Chemotaxonomy and biogenetic aspects of family Moraceae have been briefly outlined.

Artocarpus nobilis Thu.

From the bark, the following compounds were isolated and characterized: cycloartenol, cycloartenone, cycloartenyl acetate, artobilochromene, chromene-artobilochromene II, furano-artobilochromene I, furano-artobilochromene IIa, and furano-artobilochromene IIb. In addition, another chromene flavonoid MBS_5 has been isolated and its partial structure given.

Artocarpin, di-cycloartocarpin, d-cycloartocarpin, β -sitosterol,

β -sitosterol ester, cycloartenol, cycloartenone, cycloartenyl acetate, 3-(3-methylbut-1-enyl) epigenin, oxyresveratrol, chlorophenol, resveratrol and three glycosides of dihydroxyresveratrol have been isolated from the timber. Two flavones, NTB₂ and NTB₃, have also been isolated from the timber and shown to be identical with cycloartocarpin and cheplashin respectively. Confirmation of their identity awaits the authentic samples. A series of related flavones NTB₄ - NTB₉ and NTE₁₀ - NTE₁₂ have been isolated from the timber of the same plant and their partial structures have been discussed. Further work on their structures is in progress.

Cycloartenol, cycloartenyl acetate and cycloartenone have been isolated from the barks of A. heterophyllum Lam. and A. altitlis (Perk.) Fosb. The first two terpenes have been isolated and characterised from A. lakoocha Roxb.

Mormia triquetra Roth.

From the bark, betulinic acid, β -sitosterol, kaempferol, quercetin, and gallic acid have been isolated and characterised.

β -sitosterol, betulinic acid, kaempferol and dihydrokaempferol have been isolated from the timber and characterised.

β -sitosterol and betulinic acid have been isolated from the flower centres and, a mixture of β -sitosterol and stigmasterol and a long chain lry alcohol suspected to be I-dotricontanol have been isolated and characterised from the sepals.

From the fruits, betulinic acid, β -sitosterol, kaempferol, malinic acid and the long chain alcohol isolated from the sepals, have been isolated and characterised.