A THESIS

entitled

STUDIES ON THE EXTRACTIVES FROM FIVE CALOPHYLLUM SPECIES (GUTTIFERAE)

presented by

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in part fulfilment of the requirements for admittance to the degree of

MASTER OF SCIENCE

in the

UNIVERSITY OF CEYLON

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SYNOPSIS

1) Introduction:

Naturally occurring xanthones have been isolated from angiosperms and lower plant organisms like the fungi and lichens. In the angiosperms xanthones have been found to occur in the families Guttiferae, Moraceae, Gentianaceae, Hypericoidaceae and Polygalaceae. Xanthones isolated from the lower plants are totally acetate derived while those from the higher plants are acetate-shikimate derived. Xanthones are derived from benzophenone molecules which ring close by one of the following mechanisms.

(a) direct phenol oxidative coupling

(b) quinone addition mechanism

(c) spirodienone formation followed by rearrangement to form xanthone

and (d) dehydration between hydroxy groups on the acetate and shikimate derived rings

2) Calophyllum calaba L. - From the timber the following compounds were isolated and characterised, β-sitosterol, stigmasterol, guanandin, 1-8-dimethoxy-2-hydroxyxanthone, 2-8-dihydroxy-1-methoxyxanthone, scriblitifolic acid, 6-desoxyjacareubin, jacareubin, 1,5,6-trihydroxyxanthone, 1,6-dihydroxy-5-methoxy-xanthone and euxanthone.

From the bark the following compounds were isolated and characterised; taraxerol, taraxerone and calabaxanthone.

3) C. bracteatum Thw. - From the timber the following compounds were isolated and characterised; 6-desoxyjacareubin, euxanthone, jacareubin, 1,3,5-trihydroxy-2-methoxyxanthone, 1,8-dihydroxy-2,3,7-trimethoxyxanthone, 1,5-dihydroxyxanthone, betulinic acid, β-sitosterol and stigmasterol. From the bark the following compounds were isolated and characterised; calabaxanthone, taraxerol, taraxerone and calophyllolide.

4) C. Walkeri Wight - From the timber the following compounds were isolated and characterised; euxanthone, 1,5-dihydroxyxanthone and β-sitosterol. From the bark taraxerol, taraxerone and calabaxanthone were isolated and characterised.

5) C. thwaitesii Planch & Triana - From the timber the following compounds were isolated and characterised; 1,5-dihydroxyxanthone, euxanthone and β-sitosterol. From the bark thwaitesixanthone, friedelin and taraxerol were isolated and characterised.

6) C. trapezifolium Thw. - From the timber the following compounds were isolated and characterised; 1,5-dihydroxyxanthone, euxanthone, β-sitosterol. From the bark trapezifolixanthone, calabaxanthone, taraxerol and taraxerone were isolated and characterised.

The following compounds, calabaxanthone, trapezifolixanthone, thwaitesixanthone, 1,8-dimethoxy-2-hydroxyxanthone, 1,3,5-trihydroxy 2-methoxyxanthone and 1,8-dihydroxy-2,3,7-trimethoxyxanthone are reported for the first time.