

CHEMICAL INVESTIGATION OF SOME SRI LANKAN *Diospyros* SPECIES

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ABSTRACT

This thesis describes the chemical investigation and preliminary studies on certain biological activities of seven *Diospyros* species namely; *D. malabarica* (Desr.) Kostel, *D. walkeri* Wight, *D. insignis* Thw., *D. insignis* var *parvifolia* Kosterm, *D. montana* Roxb., *D. racemosa* Roxb. and *D. ferrea* (Willd.) Bakh. This thesis also describes a comprehensive review on compounds isolated from *Diospyros* species covering literature published up to 1998.

The chemical studies of these species have led to the isolation of several triterpenoids belonging to lupane series, naphthoquinones and their dimers and coumarins apart from isoshinanolone and β -sitosterol.

The root bark of *D. malabarica* (Desr.) Kostel yielded lupeol, betulin, and betulinic acid. Plumbagin, elliptinone, isoshinanolone, lupeol, betulin, lupenone, scopoletin and umckalin were isolated from the stem bark of *D. walkeri* Wight. The stem bark of *D. insignis* Thw. yielded plumbagin, elliptinone, isoshinanolone, lupeol, betulin, betulinic acid, scopoletin and umckalin while the stem bark of *D. insignis* var *parvifolia* Kosterm yielded diospyrin, lupeol, betulinic acid and scopoletin. The stem bark of *D. montana* Roxb. yielded plumbagin, diospyrin, lupeol, betulinic acid and β -sitosterol and the stem bark of *D. racemosa* Roxb. yielded lupeol, betulin, betulinic acid and β -sitosterol. The stem bark of *D. ferrea* (Willd.) Bakh yielded lupeol, betulin and scopoletin:

The triterpenoids, lupeol, betulin and betulinic acid which were considered as good taxonomic markers are present in all the species those were investigated in this study. Lupenone which was isolated from *D. walkeri* Wight was the 4th report of isolation, where it was previously isolated from *D. maritima* Blume, *D. ferrea* (Willd) Bakh and *D. rhodoclyx*.

Isolation of Umckaliin, a rare trioxxygenated coumarin from *D. walkeri* Wight and *D. insignis* Thw. was the first report from a *Diospyros* species. Furthermore, thses two species shown to contain similar constituents and shown to be taxonomically similar.

In the preliminary antibacterial tests, plumbagin, diospyrin and elliptinoe showed activity against *Staphylococcus aureus*, *Proteus* species and methicillin resistance *Staphylococcus aureus*.