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ALKALOIDS AND COUMARINS FROM ROOT-BARK OF *AEGLE MARMELOS*

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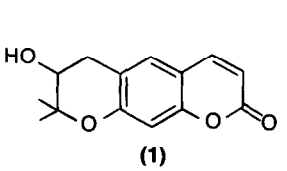
Key Word Index—*Aegle marmelos*; Rutaceae; decursinol; haplopine.

Roots and aerial parts of *Aegle marmelos* Correâ (Rutaceae) are used in Ayurvedic system of medicine for treatment of various ailments. This plant grows wild in the sub-Himalayan tract, Central and Southern India. The root bark of this plant has been used particularly in intermittent fevers and also as a fish poison. Earlier work on the root bark revealed the presence of many coumarins,[1–5] alkaloids,[1–3,6,7] sterols[3,4,8] and essential oils.[9]

Reinvestigation of the root bark of this plant has resulted in the isolation of the coumarin decursinol and an alkaloid, haplopine. Incidentally, this is the first report of the occurrence of these compounds in the genus *Aegle*.

The non-basic portion of the $CHCl_3$ extract of the defatted root bark of *Aegle marmelos* Correâ was chromatographed over silica gel. With light petrol (b.p. 60–80°) and benzene (1:1) a solid migrated out. This is the main component crystallising from benzene in white needles, m.p. 175–7°. The structure of this compound was proved to be identical with decursinol (**1**) (isolated previously from *Angelica decursiva* Miq. by Hata *et al.*[10]) from its IR, UV, NMR and MS data. Final confirmation of the structure was achieved by acid catalysed dehydration of this coumarin to anhydromarmesin (identified by m.m.p., co-TLC and superimposable IR with authentic sample) by refluxing with *p*-toluene sulphonic acid in dry benzene. Moreover, when the tosylate (TsCl/pyridine) of decursinol was heated in collidine, it afforded xanthyletin, identified by the usual procedure.



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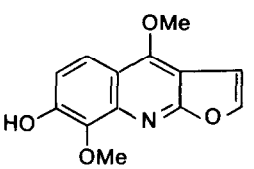

(2)

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The basic portion (citric acid soluble) of the chloroform extract on chromatographic resolution over alumina afforded a yellow solid from benzene–chloroform (1:1) eluate. The solid was crystallized from benzene, m.p. 203° and on analysis was found to contain nitrogen. This compound was identified as haplopine[11] (**2**) from UV, IR, NMR and MS data. On methylation with diazomethane haplopine yielded skimmianine.

Other constituents of the root-bark isolated and characterised are skimmianine, γ-fagarine, marmesin, marmin, xanthotoxin, umbelliferone and lupeol.

Voucher specimen of the root bark of *Aegle marmelos* Correâ has been preserved in our laboratory. The plant was collected from the Indian Botanic Gardens, Shibpur, Calcutta and identified by botanist Dr. P. C. Dutta, Department of Botany, Calcutta University.

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A NEW CYANOGENIC GLYCOSIDE FROM *CARDIOSPERMUM HIRSUTUM*

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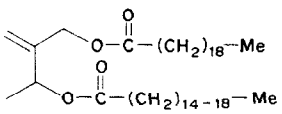
Key Word Index—*Cardiospermum hirsutum*; Sapindaceae; cardiospermin; cyanogenic glucoside.

Cardiospermum, or balloon-vine, is commonly cultivated in warmer areas of the world. The genus consists of about 12 species, two of which are cultivated in the United States, *C. halicacabum* in the southeastern portion of the country and *C. hirsutum* Willd. in California.[1] The plant is a woody vine with inflated capsular fruits, hence the name. The seed oil of both species has been shown to contain cyanolipid of structure **1** below.[2,3]



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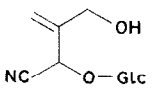

Cardiospermin (**2**)

We have recently isolated and characterized a new glucoside (**2**) from the vegetative portion of *C. hirsutum* for which we propose the name cardiospermin. The compound is similar in structure to the cyanolipid.

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