L-(+)-codamine (4), L-(+)-laudanosine (2), (−)-cheilanthifoline (0·1), corypalmine (trace), sanguinarine (trace, 0·5 in root alkaloids), chelerythine (trace).

(−)-*Cheilanthifoline*. *m/e* 325·1320 (M^+, calc. for $C_{19}H_{19}NO_4$ 325·1314) (41), 324 (25), 176 (12), 148 (100); τ($CDCl_3$) 6·13(3H,s, OCH_3) 6·50 and 5·87 (2H,AB q, J = 16 Hz, H-8), 4·06(2H,s, OCH_2O), 3·40, 3·34 and 3·17 (4H, m, aromatic H).

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Key Word Index—Papareraceae; isoquinoline alkaloids; protopine; allocryptopine; berberine.

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PEDALIACEAE

FLAVONOIDS OF THE LEAVES OF *PEDALIUM MUREX*

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Plant. Pedalium murex L. *Uses.* Medicinal.[1] *Previous work.* Alkaloid and fatty oil from fruits.[1]

Present work. Fresh leaves extracted with 80% alcohol by hot refluxing. The aq. concentrate fractioned into petrol (40–60°), ether, ethyl acetate solubles and the aqueous mother-liquor.

Ether ext. Pedalitin (6-methoxy-5,7,3′,4′-tetrahydroxyflavone) (m.p. and mixed m.p., acetyl, m.p. and mixed m.p., R_f and co-chromatography with authentic sample from *Sesamum indicum*[2]), diosmetin and dinatin (6-methoxy-5,7,4′-trihydroxyflavone) (co-chromatography and direct comparison with authentic samples) (Table 1).

TABLE 1. R_f OF THE FLAVONOIDS OF *Pedalium murex*

Compound	R_f (Whatman No. 1, ascending, 28 ± 2°)					
	H_2O	15% HOAc	30% HOAc	BAW	Forestal	H_2O satd. phenol
Pedalitin	0·00	0·06	0·24	0·67	0·45	0·83
Dinatin	0·02	0·12	0·36	0·95	0·85	0·93
Diosmetin	0·00	0·07	0·22	0·90	0·76	0·85
Pedaliin	0·07	0·24	0·52	0·43	0·76	0·75
Dinatin-7-glucuronide	0·45	0·30	0·53	0·63	0·80	0·60
Diosmetin-7-glucuronide	0·60	0·21	0·42	0·46	0·65	0·46

[1] *Wealth of India, Raw Materials*, Vol. VII, p. 284. C.S.I.R., New Delhi (1966).

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Ethyl acetate ext Pedalin (m p and mixed m p , acid hydrolysis to yield pedalitin and glucose, R_f and co-chromatography with authentic samples).

Aqueous mother-liquor Added equal volume of 14% H_2SO_4, kept in a boiling water bath for 2 hr, cooled and extracted with ether and EtOAc EtOAc concentrate on dilution with acetone yielded a yellow solid, m p 185°, found to be a mixture of two glycosides (PC, R_f 0·45 and 0 60, H_2O) The pigments were separated by column chromatography on cellulose.

Dinatin-7-glucuronide. (R_f 0·45, eluted with water-saturated EtOAc containing 5–25% MeOH), decomposing at 221–223°, λ_{max} MeOH 270, 337 nm (no shift of Band II with NaOAc), hydrolysis with 10% H_2SO_4 in HOAc medium for 5 hr yielded dinatin and glucuronic acid

Diosmetin 7 glucuronide. (R_f 0·60, eluted with MeOH), decomposing at 210–212°, λ_{max} 268, 340 nm (no shift of Band II with NaOAc), hydrolysis as above yielded diosmetin and glucuronic acid

Comment. This is the first record of isolation of a dinatin glycoside and diosmetin glucuronide. Considerable difficulty was experienced in separating the glucuronides of the two isomers by fractional crystallization The occurrence of dinatin and pedalitin in the Pedaliacea is significant from the point of view of chemotaxonomy in view of the frequent records of 6-hydroxy or 6-methoxyflavones in families of the Tubiflorae [2,3] Dinatin glucuronide was also detected in the leaves of *Sesamum indicum* (Pedaliaceae) in addition to pedalitin and pedalin recorded earlier.[2]

[3] J B HARBORNE and C A WILLIAMS, *Phytochem* **10**, 367 (1971)

Key Word Index—Pedalium murex, Pedaliaceae, flavonoids, pedalitin, dinatin; diosmetin.

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SAPOTACEAE

CONSTITUENTS OF *MADHUCA LONGIFOLIA* LEAVES

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Plant. Madhuca longifolia syn. *Bassia longifolia. Uses* Medicinal,[1] seed fat a commercial commodity,[2] flowers rich in sugar—for fermentation (country liquor) [3,4] For all practical purposes identified with *Madhuca indica.*[5] *Previous work. Madhuca latifolia.* Seed fat,[6] seed saponin,[7,8] blossoms,[3,4] bark [9]

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