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Note

Chemical constituents of *Desmodium sequax*

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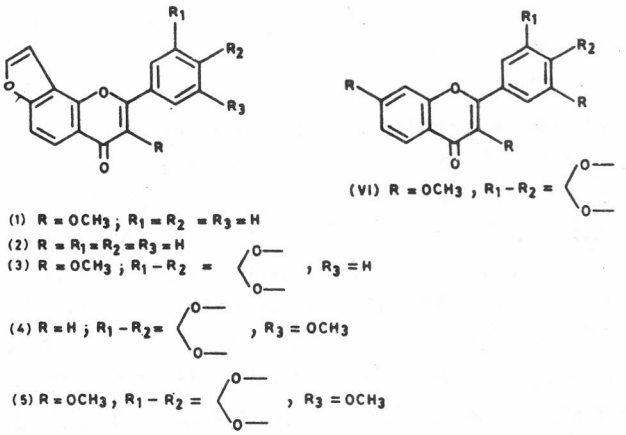
The chloroform extract of the air dried stem-wood of *Desmodium sequax* on column chromatography yields six compounds which have been characterized as karanjin **1**, lanceolatin-B **2**, pongapin **3**, 5′-methoxypongapin **5**, kanujin **6** and glabra-II **4**.



Desmodium sequax (leguminaceae) has been found to be medicinally important[1]. Much work on *Desmodium* species has been reported by Ghosal *et al.*[2] They isolated a number of indole alkaloids from it. Flavonoids and pterocarpanes have also been reported[3,4]. In the present investigation efforts were directed towards separation of a number of phenolic compounds which appeared on TLC plates of the extract as fluorescent spots. The crude extract was subjected to coloumn chromatography and karanjin, lanceolatin-B, pongapin, 5′-methoxypongapin, kanujin and glabra-II were isolated and characterized.

Experimental Section

Extraction and isolation of the compounds. The air dried stem-wood (12 kg) was defatted and extracted with chloroform. The chloroform extract after removal of the solvent under reduced pressure gave a brownish black gummy residue (40 g). The crude material was subjected to the coloumn chromatography using chloroform-petroleum ether mixture as eluent gave the following compounds.

Karanjin 1. It was obtained using chloroform petroleum-ether (50:50, v/v) as eluent, and crystallized from benzene-petroleum ether to yield transparent white rectangular crystals[5] (500 mg), mp 160°C; IR (Nujol): 1635, 1625, 1605, 1570, 1525, 1410, 1340, 1285, 1225, 1160, 1040, 950, 760 cm^{-1}; MS: m/z 292 (M^+, 70%), 291 (100), 273 (10), 263 (12), 176 (5), 160 (52), 145 (17), 132 (20), 105 (16), 89 (15), 77 (30); ^1H NMR ($CDCl_3$): δ 3.9 (3H, s, O–CH_3, 3). 7.14 (1H, d, *J*=2 Hz, –O–CH=C*H*–), 7.75 (1H, d, *J*=2 Hz, –O–C*H*=CH–), 7.4-8.1 (6H, m, Ar-H), 8.2 (1H, d, *J*=8.5 Hz, H-5).

Lanceolatin-B 2. Elution of the column with chloroform petroleum ether (50:50, v/v) gave a fraction which on evaporation yielded an orange yellow mass (4.0 g). The residue was further chromatographed over silica gel using benzene-ethyl acetate (98:2, v/v) as eluent. Appropriate fractions were combined and evaporated to give a solid which on crystallization from benzene yielded cream colored needles[6] (75 mg), mp 138-40°C; IR (KBr): 1655, 1620, 1585, 1540, 1462, 1420, 1375, 1270, 1152, 1080, 862 cm^{-1}; MS: m/z 262 (M^+, 100%), 234 (100), 205 (14), 176 (24), 161 (100), 160 (100), 132 (100), 117 (80), 105 (25), 104 (86), 102 (49), 77 (46); ^1H NMR ($CDCl_3$): δ 6.89 (1H, s, H-3), 7.22 (1H, d, *J*=1.84 Hz, –OCH=C*H*–), 7.78 (1H, d, *J*=1.83 Hz, –OC*H*=CH–), 7.55-7.59 (4H, m, Ar-H), 7.95-7.99 (2H, m, Ar-H), 8.17 (1H, d, *J*=9.16 Hz, H-5).

Pongapin 3. It was obtained from a mixture of chloroform-petroleum ether (50:50, v/v), and crystallized from benzene-petroleum ether to yield off-white granules[7] (100 mg), mp 192-200°C; IR (KBr): 1640, 1625, 1600, 1570, 1500, 1450, 1415, 1375, 1330, 1290, 1260, 1215, 1045, 760 cm^{-1}; MS: m/z 336 (M^+, 84%), 335 (100), 321 (12), 318

(14), 307 (21), 293 (27), 161 (25), 160 (44), 146 (48), 77 (32); ^{1}H NMR ($CDCl_3$): δ 3.90 (3H, s, OCH_3, 3), 6.1 (2H, s, –O–CH_2–O–), 7.20 (1H, d, *J*=2 Hz, –OCH–C*H*–), 7.75 (1H, s, *J*=2 Hz, –OC*H*=CH–), 7.0 (1H, d, *J*=8.5 Hz, H-5′), 7.67-7.85 (2H, m, H-2′, H-6′), 7.5 (1H, d, *J*=8.5 Hz, H-6), 8.2 (1H, d, *J*=8.5 Hz, H-5).

5′-Methoxypongapin 5. It was also eluted with chloroform-petroleum ether (50:50, v/v), and crystallized from benzene-petroleum ether to afford white granules[8] (150 mg), mp 178-80°C; IR (KBr): 1625, 1600, 1570, 1525, 1505, 1495, 1445, 1415, 1380, 1315, 1285, 1040, 1020, 765 cm^{-1}; MS: m/z 366 ($M^{+\cdot}$, 100%), 365 (58), 351 (33), 326 (57), 325 (58), 175 (16), 160 (17), 77 (5); ^{1}H NMR ($CDCl_3$): δ 3.90 (3H, s, OCH_3, 3), 4.0 (3H, s, OCH_3, 5′), 6.10 (2H, s, –OCH_2–O), 7.18 (1H, d, *J*=2 Hz, –OCH=C*H*–), 7.78 (1H, d, *J*=2 Hz, –OC*H*=CH–), 7.38 (1H, d, H-2′), 7.54 (1H, d, H-6′), 7.50 (1H, d, *J*=8 Hz, H-6), 8.2 (1H, d, *J*=8 Hz, H-5).

Kanujin 6. It was obtained from chloroform-petroleum ether (60:40, v/v) eluates, and crystallized from benzene-petroleum ether as white featery solid[9] (100 mg), mp 204-206°C; IR (KBr): 1640, 1620, 1505, 1450, 1395, 1260, 1210, 1130, 1055, 1015, 830 cm^{-1}; MS: m/z 356 ($M^{+\cdot}$, 67%), 341 (37), 325 (24), 311 (15), 176 (5), 162 (7), 150 (20), 63 (30); ^{1}H NMR ($CDCl_3$): δ 3.88-3.98 (9H, broad, s, OCH_3), 6.07 (2H, s, –OCH_2–O–), 8.16 (1H, d, H-5), 6.95 (1H, dd, H-6), 6.88 (1H, d, H-8), 7.30 (1H, d, H-2′), 7.44 (1H, d, H-6′).

Glabra-II 4. It was obtained from a mixture of chloroform-petroleum ether (75:25, v/v), and crystallized from benzene to yield brownish yellow flakes[10] (62 mg), mp 256-60°C; IR (KBr): 1630, 1585, 1505, 1452, 1435, 1400, 1380, 1352, 1325, 1215, 1172, 1100, 1045 cm^{-1}; MS: m/z 336 ($M^{+\cdot}$, 100%), 176 (80), 160 (24), 131 (13), 77 (14); ^{1}H NMR ($CDCl_3$): δ 4.0 (3H, s, OCH_3), 6.10 (2H, s, –OCH_2–O–), 6.76 (1H, s, H-3), 7.18 (1H, d, –OCH=C*H*), 7.75 (1H, d, –O–*CH*=CH), 7.15 (2H, m, H-2′, H-6′), 7.54 (1H, d, *J*=9.16 Hz, H-6), 8.2 (1H, d, *J*=8.54 Hz, H-5).

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