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LEGUMINOSAE

CHRYSOERIOL-7-RUTINOSIDE FROM THE SEEDS OF *CROTALARIA SALTIANA*

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Abstract—Chrysoeriol-7-rutinoside has been isolated from the seeds of *Crotalaria saltiana.*

Plant. Crotalaria saltiana Andr. (Leguminosae—subfamily—Lotoideae).

Source. Calcutta (West Bengal).

Previous work. On sister species.[1]

Present work. Dry powdered seeds of *C. saltiana* extracted with hot 80% alcohol and the alcoholic extract fractionated with *n*-hexane, ether, EtOAc and MeCOEt. Ether fraction contained no free flavone.

Chrysoeriol-7-rutinoside (from EtOAc and MeCOEt fractions), 0·1% yield, m.p. 260–265°, not soluble in usual organic solvents, soluble in pyridine, not hydrolysable by 7% H_2SO_4 but on boiling with 10% H_2SO_4 in glacial HOAc medium for 5 hr hydrolysed to chrysoeriol (R_f, co-chromatography with authentic sample from *Rungia repens*,[2] λ_{max} (EtOH) 270, 345 nm, acetate, m.p. 218–220°) and glucose and rhamnose (R_f and co-chromatography) in equal proportion.

Aq. portion, after MeCOEt extn., contained a glycoside with R_f: 0·69 (15% HOAc), 0·83 (60% HOAc), 0·50 (BAW 4:1.5), 0·64 (water sat. phenol), 0·58 (*t*-BuOH–HOAc–H_2O, 3:1:1) (Whatman No. 1, temp. 30°) which when hydrolysed with 7% H_2SO_4 gave luteolin (R_f and co-chromatography) and glucose. It appears to be a luteolin-triglucoside.

This is the first record of the occurrence of a chrysoeriol glycoside in the genus *Crotalaria.*

[1] S. S. SUBRAMANIAN and S. NAGARAJAN, *Phytochem.* **9**, 2581 (1970).
[2] S. S. SUBRAMANIAN and A. G. R. NAIR, *Indian J. Chem.* **4**, 461 (1966).

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ALKALOIDS OF *DESMODIUM TRIFLORUM*

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Plant. Desmodium triflorum DC. *Occurrence.* Common throughout the plains of India and in the Himalayas up to 7000 ft.[1] *Uses.* Leaves—galactagogue, remedy for diarrhoea, dysentery, and convulsion; roots—remedy for coughs, asthma, and applied to wounds and abscesses.

Previous work. No previous phytochemical work on this species was reported. In some of

[1] R. N. CHOPRA, S. L. NAYAR and I. C. CHOPRA, *Glossary of Indian Medicinal Plants*, p. 94, C.S.I.R., New Delhi (1956).

the related species, viz. *D. pulchellum* Benth ex Baker, occurrence of several simple indolic bases and in *D. gangeticum* DC both indole-3-alkylamines and β-phenethylamines were reported.[2,3]

Leaves. Plant material continuously extracted with benzene, benzene extract triturated with aqueous citric acid, liberated bases from the clarified acidic solution purified by preparative chromatography (TLC and column). Defatted plant material continuously extracted with EtOH, crude alkaloid mixture (chloroform-solubles) purified by gradient pH extraction, preparative chromatography, and sublimation. Water-soluble bases isolated through reineckate salts.[4] Total alkaloid, 0·01–0·015%.

β-Phenethylamine. (Major alkaloid), $C_8H_{11}N$ (co-TLC, UV, IR), yellow picrate, $C_8H_{11}N,C_6H_3N_3O_7$ (m.p., mixed m.p.). *Indole-3-acetic acid* (co-TLC, UV). *Tyramine.* (co-TLC, UV). Base hydrochloride, $C_8H_{11}NO,HCl$ (m.p., mixed m.p., sympathomimetic action). *Trigonelline.* $C_7H_7NO_2$ (co-TLC, UV). Base-hydrochloride (co-TLC, m.p., mixed m.p.). *Hypaphorine.* $C_{14}H_{18}N_2O_2$ (co-TLC, m.p., mixed m.p., UV, IR). Base-hydrochloride (m.p., mixed m.p.). *Choline.* (co-TLC, cholinergic action), picrate (m.p., mixed m.p.). *Betaine.* (co-TLC, m.p., mixed m.p.), picrate (m.p., mixed m.p.).

New compounds (in the genus). Hypaphorine methyl ester, isolated as the iodide,[5] $C_{15}H_{21}N_2O_2I$ (m.p., mixed m.p., IR), hydrolysis over IRA 400 (OH^-) gave hypaphorine (m.p., mixed m.p.). *N,N-Dimethyltryptophan methyl ester.* (co-TLC, UV, *m/e*), yellow picrate (m.p., mixed m.p.), hydrolysis with 1% NaOH afforded N,N-dimethyltryptophan (co-TLC, UV).

Roots. Total alkaloid, 0·01–0·018%. *Hypaphorine* (major alkaloid). *N,N-Dimethyltryptophan.* (co-TLC, m.p., mixed m.p., UV, M^+, *m/e*). *Betaine. Choline.* β-Phenethylamine (minor base). *N,N-Dimethyltryptamine oxide* (co-TLC, UV). *New compound.* Readily oxidizable quaternary β-phenethylamine alkaloid (unidentified), R_f 0·11 (*n*-BuOH–AcOH–H_2O 4:1:5), Dragendorff, orange, Ehrlich, negative, α-nitroso-β-naphthol-nitrous acid reagent,[3] purple, Millon's reagent, red; UV λ_{max} (EtOH) 282 nm. Heating with alkali gave trimethylamine. Base hydrochloride, m.p. 201–203°, displayed nicotine-line activity on pharmacological testing.

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[2] S. GHOSAL and B. MUKHERJEE, *J. Org. Chem.* **31**, 2284 (1966).
[3] S. GHOSAL and P. K. BANERJEE, *Austral. J. Chem.* **21**, 2029 (1969).
[4] S. GHOSAL, P. K. BANERJEE and S. K. BANERJEE, *Phytochem.* **9**, 429 (1970).
[5] S. GHOSAL and S. K. DUTTA, *Phytochem.* **10**, 195 (1971).

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CONSTITUENTS OF *SAMANIA SAMAN* LEAVES, SEEDS AND HEARTWOOD

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Plant. Samania saman[1] (syn. *Pithecolobium saman, Inga saman*, sub-order Mimosae).

[1] G. WATT, *The Economic Products of India*, Vol. VI, p. 283, Superintendent Government Printing, India, 8 Hastings Street, Calcutta, India (1892).