

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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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).

Uses. Medicinal.^{2,3}

Previous work. Seeds,² leaves² and bark.^{2,4} On sister species, *P. dulce*.⁵⁻⁸

Leaves. EtOH extr., *n*-hexane soluble fraction, chromatography: *Hentriacontane*, C₃₁H₆₄, m.p., mixed m.p., ν_{\max}^{KBr} 722 cm⁻¹ (alkane chain⁹), superposable. *Octacosanol*, C₂₈H₅₈O, m.p. 83–84°, mol. wt. 410 (M⁺), acetate, C₃₀H₆₀O₂, m.p. 66–67°, superposable IR.¹⁰

Seed kernel. EtOH extr., *n*-hexane soluble fraction, chromatography: α -*Spinasterol*, mol. wt. 412 (M⁺), m.p. 164–165°, mixed⁹ m.p., $[\alpha]_D^{29}$ –4.5°, acetate, C₃₁H₅₀O₂, m.p. 174–176°, mixed⁹ m.p., superposable IR, MS fragmentation similar to that reported.¹¹ β -D-*Glucoside of α -spinasterol*, C₃₅H₅₈O₆, mol. wt. 574 (M⁺), m.p. 272–274°, acid hydrolysis to glucose (paper co-chromatography) and α -spinasterol, m.p., mixed m.p., co-TLC and IR. *Alkali salt of fatty acid*, m.p. 250–253°, ν_{\max}^{KBr} 1550 (alkali salt of carboxylic acid),¹² 720 (—(CH₂)₄— or more)¹³ cm⁻¹, acid hydrolysis to palmitic and stearic acid mixture.

n-Hexane extr.: Fat (7%), purified and refined, colour 1.5Y, 0.2R; n_D^{28} 1.4675; sp. gr. (38°) 0.9149; acid val. 0.3; sap. val. 191; i.v. 86.5 and non-sap 0.2% → α -*spinasterol*, identified as above.

Seed coat. EtOH extr., Et₂O soluble fraction: Mixture of 3 flavonoids including *kaempferol* (paper co-chromatography).⁸

Heartwood. EtOH extr., *n*-hexane soluble fraction, chromatography: α -*Spinasterol*, m.p., mixed⁹ m.p., IR, acetate, m.p. *Octacosanoic acid*, m.p. 88–89°, mixed m.p., superposable IR. Et₂O soluble fraction: flavonoid mixture cf. seed coat.

In comparison to the leaves of its sister species, *Pithecolobium dulce*, *Samania saman* leaves show absence of glucosides of sterol as well as flavonoid, whereas the former yields α -spinasterol, its glucoside, kaempferol and its 3-rhamnoside along with other similar constituents. *Samania saman* seed does neither contain any saponin nor lecithin, while both are present in that of *P. dulce*, apart from the constituents common to both. In the heartwood, *Samania saman* shows, besides the common constituents, presence of only one sterol, while that of *P. dulce* yields β -sitosterol, stigmasterol, campesterol, α -spinasterol and their glucosides except that of the last one. *P. dulce* and *S. saman* bark yields similar constituents except α -spinasterone which is present only in the latter. Different parts of *Samania saman* have an alkaloid, pithecolobine² which is absent in *P. dulce*.

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