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SHORT COMMUNICATION

TRITERPENES AND STEROLS OF THE LEAVES OF *ARUNDO DONAX*

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Plant. Arundo donax L. (Family—Gramineae.)

Occurrence. Lower Himalayas from Kashmir to Nepal, ascending to 3500 ft, from Punjab to Sylhet, Naga Hills, up to 5000–8000 ft, the Nilgiris.[1]

Uses. Decoction of rhizomes—emollient, diuretic, said to stimulate menstrual discharge and diminish the secretion of milk.[1]

Previous work. Chemistry and pharmacology of the alkaloidal constituents were reported.[2,3]

Leaves. Extracted with petroleum (60–80°) and repeatedly chromatographed on Brockmann alumina.

New cpd. C_{30}–C_{32} *n*-Alkanes (M^+, *m/e* 450, 436, 422), major component being triacontane.

Triacontane. $C_{30}H_{62}$ (m.p., mixed m.p., i.r. and M^+): from earlier petroleum fractions and crystallizations (acetone).

α-Amyrin acetate. $C_{32}H_{52}O_2$ (m.p., mixed m.p. $[\alpha]_D$, i.r., *m/e* 468 (M^+), significant peaks at *m/e* 453, 408, 393, 218, 203, 199. Found: C, 82·42; H, 11·31. $C_{32}H_{52}O_2$ required: C, 82·05 H, 11·11): from middle petroleum fractions and crystallizations (MeOH–$CHCl_3$); alkali hydrolysis to α-amyrin, $C_{30}H_{50}O$ (m.p., mixed m.p. $[\alpha]_D$, i.r.).

β-Amyrin acetate. $C_{32}H_{52}O_2$ (m.p., mixed m.p. $[\alpha]_D$, i.r., *m/e* 468 (M^+), significant peaks at *m/e* 453, 408, 393, 218, 203, 199): from later petroleum fractions and crystallizations (MeOH–$CHCl_3$); alkali hydrolysis to β-amyrin, $C_{30}H_{50}O$ (m.p., mixed m.p., i.r.). C_{28}-, C_{30}-, C_{32}-*n*-Alkanols (M-18 peaks at *m/e* 392, 420, 448) major component being triacontanol.

Triacontanol. $C_{30}H_{62}O$ (m.p. mixed m.p., i.r., *m/e* 420 (M-18), 392. Found: C, 81·22; H, 14·08; $D_{30}H_{62}O$ required: C, 82·19; H, 14·15): from earlier benzene fractions and crystallizations (acetone).

Friedelin. $C_{30}H_{50}O$ (m.p., mixed m.p. $[\alpha]_D$, i.r., *m/e* 426 (M^+), significant peaks at *m/e* 341, 302, 273. Found: C, 84·27; H, 11·79. $C_{30}H_{50}O$ required: C, 84·44; H, 11·81): from middle benzene fractions and crystallization (Me_2CO–MeOH).

Stigmasterol. (M.p., mixed m.p. $[\alpha]_D$, *m/e* 412 (M^+), co-TLC of sterol, its acetate): from $CHCl_3$ fractions and crystallization (ethanol).

β-Sitosterol. (M.p., mixed m.p., *m/e* 414 (M^+), co-TLC of sterol, its acetate): from $CHCl_3$ fractions and crystallization (MeOH–$CHCl_3$).

[1] R. N. CHOPRA, S. L. NAYAR and I. C. CHOPRA, *Glossary of Indian Medicinal Plants*, p. 27, C.S.I.R., New Delhi (1956).

[2] S. K. DUTTA and S. GHOSAL, *Chem. & Ind.* 2046 (1967).

[3] S. GHOSAL, S. K. DUTTA, A. K. SANYAL and S. K. BHATTACHARYA, *J. Med. Chem.* **12**, 480 (1969).

Campesterol. (M.p., *m/e* 400 (M^+) plus two weak peaks at *m/e* 414 due to β-sitosterol and 412, stigmasterol; GLC).

Although triterpene methyl ethers are of relatively common occurrence[4] in plants of the Gramineae, no such compound has been found in *Arundo donax* so far. Triterpene ketones, on the other hand, are rare and have only been found in two other species,[5] while this is the first report of occurrence of acetoxy triterpenes in a member of the grass family.

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[4] T. A. BRYCE, M. MARTIN-SMITH, G. OSSKE, K. SCHREIBER and G. SUBRAMANIAN, *Tetrahedron* **23**, 1283 (1967).
[5] T. OHMOTO, *J. Pharm. Soc. Japan* **89**, 814 (1969).