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ANGIOSPERMAE DICOTYLEDONAE

BIGNONIACEAE

CONSTITUENTS OF *HETEROPHRAGMA QUADRILOCULARE*

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Key Word Index—*Heterophragma quadriloculare* Bignoniaceae; allantoin; sitosterol; ursolic acid.

Plant. Heterophragma quadriloculare (Roxb.) K. Schum. (syn. *H. roxburghii D.C.*). *Uses.* Medicinal, a thick fluid-like tar extracted from the plant is said to be used for skin diseases.[1] *Previous work.* None.

Present work. Flowers, fruit capsules and leaves of the plant have been examined. *Flowers.* (i) Extd. with hot benzene for 48 hr. The solvent was concentrated to give a waxy solid, *compound A.* The mother liquor chromatographed over active acidic alumina to give a hydrocarbon, *hentriacontane* $C_{31}H_{64}$, m.p. 62–63° (from light petroleum), IR (KBr) ν 2933, 2877, 1471, 737, 720 cm^{-1}. (ii) Extd. with hot EtOH for 48 hr. The solvent was concentrated to give white crystalline substance, *allantoin* (yield 0·01%). Recrystallization from warm EtOH, m.p. 232°. (Found: C, 30·22; H, 3·66; N, 35·2. Calc. for $C_4H_6N_4O_3$: C, 30·40; H, 3·80; N, 35·44%.) Identified by m.m.p., IR, NMR and positive furfuraldehyde–HCl colour test.[2]

Fruit capsules. Allantoin (yield 0·05%). Isolated and identified as in the flowers. The medicinal value of the plant in skin diseases could be due to its high content of allantoin, which is a known dermatological agent.[2]

Leaves. Extd. with hot EtOH for 72 hr. The solvent was concentrated to give a yellowish solid. The mother liquor chromatographed over active neutral alumina to give *sitosterol*, m.p. 137°, $C_{29}H_{50}O$ (m.m.p., acetate, m.p. and m.m.p. 129°) and an amorphous powder, *compound B.* The yellowish solid dissolved in hot benzene. Benzene insoluble material recrystallized from MeOH to give fine needles, *ursolic acid*, m.p. 280°, $C_{30}H_{48}O_3$ (m.p., m.m.p., IR, TLC of alcohol and acetate). The benzene solution concentrated and chromatographed over acidic alumina to give a white powdery material, *compound C.*

Unidentified compounds. A: Recrystallization from EtOH, m.p. 235°, IR (KBr) ν 2900, 1685, 1460, 1260, 720 cm^{-1}. (Found: C, 80·48; H, 11·20; $C_{26}H_{44}O_2$ requires C, 80·41; H, 11·34%), positive L–B test. *B*: Recrystallization from EtOAc, m.p. 285°, IR (KBr) ν 3390, 2900, 1445, 1025 cm^{-1}, positive L–B test. *C*: Recrystallization from EtOH, m.p. 260°, IR (KBr) ν 3300, 2900, 1690, 1280, 730 cm^{-1}, NMR 9·22, 9·16, 9·04, 8·54, 8·29, 7·95 τ, (Found: C, 77·53; H, 10·59; $C_{27}H_{44}O_3$ requires C, 77·88; H, 10·57%), positive L–B test.

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[1] B. N. SASTRI, *The Wealth of India*, Vol. V, p. 42, Council of Scientific & Industrial Research, New Delhi (1959).
[2] E. G. C. CLARKE, *Isolation and Identification of Drugs*, p. 178, The Pharmaceutical Press, London (1969).