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AMARILLIDACEAE

STEROIDAL SAPOGENINS FROM *FURCRAEA HUMBOLDTIANA* TRELEASE

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Plant. Furcraea humboldtiana Trelease.[1]

Occurrence. In the surroundings of Barquisimeto.

Uses. Fabrication of drinks and fibers.

Previous work. None.

Present work. The powdered dried leaves (10 kg) were extracted with EtOH. The extract was reduced to a small volume, H_2O added, and filtered. The filtrate was extracted with benzene and then with *n*-BuOH. The butanolic extract was distilled to a small volume under reduced pressure. The residue was hydrolysed with HCl (3N) for 3 hr, left overnight at room temp. and filtered. The insaponitiables were purified over silica gel. Benzene was first used as solvent; then mixtures of C_6H_6–AcOEt. The fractions eluted with C_6H_6 gave only waxes; the fractions eluted with C_6H_6–AcOEt (95:5) yielded a crystalline mass (2 g yield 0·02%).

Several crystallizations from MeOH gave fine needles m.p. 210–211°. $[\alpha]_D^{20}$ −78° (C = 1·04%, $CHCl_3$). IR ν_{max} 3400(OH), 1450, 1380, 1175, 1055, and some bands typical for spyrostanic sapogenins: 980, 960, 920, 900. (Found: C, 77·52; H, 10·10. Calc. for $C_{27}H_{44}O_3$: C, 77·88; H, 10·57%.) The acetate was prepared in the usual manner; m.p. 203–205°. $[\alpha]_D^{20}$ −86° (C = 1·8%, $CHCl_3$). IR ν_{max} 1740 ($OCO-CH_3$), 1450, 1375, 1365, 1250, 1175, 980, 960, 920, 900. (Found: C, 75·43; H, 9·81. Calc. for $C_{29}H_{46}O_4$: C, 75·98; H, 10·04%.) The benzoate was also prepared m.p. 218–220°. $[\alpha]_D^{20}$ −50° (C = 1·68%, $CHCl_3$). IR ν_{max} 3080, 1710, 1600, 1580, 1450, 1380, 1370, 1275, 980, 960, 920, 853. (Found: C, 78·36; H, 9·15. Calc. for $C_{29}H_{48}O_4$: C, 78·46; H, 9·23%.) This compound was shown (m.p., mixed m.p. and IR) to be identical with an authentic sample of tigogenin.

In the mother liquors the existence of hecogenin was confirmed by TLC (Silica gel Merck G, several solvent systems) by comparison with an authentic sample of hecogenin.

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[1] L. H. DEWEY. *Fibras Vegetales y su Producción en América*, Centro Regional de Ayuda Técnica (A I.D.) México, pp. 41–42 (1964).