EXPERIMENTAL

Plant material. Porella platyphylla was collected on cliffs in Nåsten, Uppsala.

Isolation of flavones. The plant was extracted at room temp. with 60% aq. MeOH (12 hr) and the evaporated residue was washed with Et_2O and $CHCl_3$. Gel filtration on Sephadex G25 with 50% aq. MeOH as eluant gave an enriched flavone fraction, which was resolved into three components by elution with MeOH from a Sephadex LH20 column. The flavones eluted in the order; saponarin, isovitexin, new flavone. Isovitexin could be removed by two more similar operations, giving the third compound in a chromatographically homogeneous state. R_f (TLC on Avicel): 0·26 (TBA), 0·45 (15% HOAc). M.p. > 350°.

Spectral data. IR: 1655, 1650, 1625, 1610, 1580, 835 cm^{-1}. UV (λ_{max}, nm): 276, 337 (MeOH); 285, 334, 403 (NaOMe); 266 (sh), 282, 307, 354, 380 ($AlCl_3$); 265 (sh), 282, 306, 350, 379, ($AlCl_3$–HCl); 285, 305 (sh), 395 (NaOAc); 278, 325, 346, 400 (sh) (NaOAc–H_3BO_3). NMR of TMS–ether (CCl_4, rel. TMS) δ 3·1–5 (14 H, sugar), δ 6·38 (*s*) H-3, δ 6·89 (*d*) H-3′ and H-5′, δ 7·92 (*d*) H-2′ and H-6′.

Acetate. From Ac_2O-pyridine, purified on a silica gel column with C_6H_6–EtOAc (3:1) as solvent and crystallization from CH_2Cl_2–C_6H_{12}. M.p. 163–165°. λ_{max} (MeOH) 256, 301 nm, unchanged with $AlCl_3$. Found: C, 55·9; H, 5·0. Calc. for $C_{49}H_{52}O_{26}$ (dihexosylapigenin-Ac_{11}): C, 55·68; H, 4·96%.

Hydrolysis. Treatment with boiling MeOH–2 M HCl (1:1) for 7 hr gave partial destruction of the flavone. TLC tests revealed no new flavonoid component or free sugar.

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PHENOLIC GLUCOSIDES FROM NEEDLES OF *LARIX LEPTOLEPIS**

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Key Word Index—*Larix leptolepis*; Pinaceae; phenolic glucosides.

Plant. Larix leptolepis (Sieb et Zucc.) Gord.. Voucher specimen No. GN 1, Botanical Museum and Herbarium, University Utrecht. *Source.* State Forest Service, Austerlitz, The Netherlands, August 1970. *Previous work on leaves.* Hydroxy acids;[1] *L. kaempferi* (flavonoids),[2] *L. laricina* (phenolic glucosides,[3] flavonoids[4,5] and aldehydes[5]), *L. sibirica* (phenolic glucosides,[6] flavonoid[7]).

Present work. Freeze-dried needles were extracted with light petrol., $CHCl_3$, $CHCl_3$–MeOH 2%, $CHCl_3$–MeOH 10%. The latter extract was dried and separated by repeated banding on paper and silica TL or by $NaHCO_3$–BuOH partition followed by Sephadex LH20 and polyamide column chromatography and by banding on paper. Four β-glucosides

* Part V in the series "Phenolics from *Larix* Needles". For Part IV see G. J. NIEMANN, *Acta Bot. Neerl.* **21**, 549 (1972).

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were isolated (in solution) and identified as the glucosides of vanillic- (GV), *p*-hydroxybenzoic- (GPH), ferulic- (GF) and *p*-coumaric acid (GPC) by chromatographic and UV spectral data of both the original and the enzymatic and acid degradation products. A trace of a fifth compound was tentatively (R_f and colour reactions only) identified as arbutin.

GPH has previously been isolated from *L. laricina*[3] and designated the α-structure because of its comparatively high stability towards emulsin hydrolysis (GPH could be isolated from a mixture of GPH and GPC by degrading GPC with β-glucosidase, leaving a considerable residue of GPH). Nevertheless, it has to be the β-glucoside since it was not affected by α-glucosidase.

After isolating GF from *L. leptolepis* the previous extracts of *L. laricina* needles[3] were reinvestigated for GF. A trace of the compound could be detected. In *L. leptolepis* similar amounts to the other glucosides were present. Also, in *L. sibirica* needles GV, GPH and GPC have been reported[6] and not GF.

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DIMETHYL-3,4'-KAEMPFEROL DE *CORDIA BOISSIERI*

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Plante étudiée. La *Cordia boissieri* (anacahuite) est connue dans le nord du Mexique où elle abonde, dans le centre du Mexique et au Texas. On l'utilise en médecine populaire contre les affections des bronches, comme diurétique et comme tonifiant général.[1,2] On a étudié les extraits éthanoliques de la fleur, récoltée en particulier pendant les mois de juin et juillet. Le matériel végétal est originaire de l'état du Nuevo León, Mexique. *Etudes antérieures.* Sur des espèces voisines,[3] et sur les carbohydrates de *C. boissieri.*[4]

Oxalate de calcium. Pendant les mois de mars et avril, les extraits éthanoliques de la fleur contiennent 48% de sels, dont le principal a été identifié comme l'oxalate de calcium.

Allantoïne. L'extrait éthanolique concentré à sec et repris par $CHCl_3$ donne l'allantoïne, p.f. 238–240°, $M^+ = 158$, $C_4H_6N_4O_3$. Le produit est identifié par UV, IR, RMN.[5] Cette observation confirme sur le plant chimiotaxonomique les observations antérieures faites sur les Borraginacées.[6]

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