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SIMARUBACEAE

CHEMICAL CONSTITUENTS OF *AILANTHUS EXCELSA*

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Abstract—β-sitosterol and vitexin were isolated from *Ailanthus excelsa.*

Plant. Ailanthus excelsa. Source. Dehradun. *Uses.* Medicinal.[1] *Previous work.*[2]

Present work. Air dried leaves extracted with light petroleum, extract concentrated and chromatographed over alumina. Benzene–petroleum eluate afforded β-sitosterol m.p. and mixed m.p.

EtOH extraction of the defatted plant afforded on evaporation to dryness, a brownish mass which was taken up in H_2O, extracted continuously with EtOAc. This extract afforded vitexin $C_{21}H_{20}O_{10}$, m.p. 260–63°. λ_{max}^{EtOH} 225, 268 and 335 nm. ν_{mxa}^{KBr} 3390, 1650, 1625, 1380 and 840 cm^{-1}. NMR (DMSO) 3·06 and 2·01 τ (2H each, d, $J = 9{\cdot}6$ c/s; aromatic protons of ring B); 3·31 and 3·65 τ (1H each, s, aromatic protons at C_3 and C_6); 4·9–6·6 τ (broad envelope of protons of the sugar moiety). Acetate. M.p. 250–51° and mixed m.p.

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[2] M. K. JAIN, *Indian J. Chem.* **2**, 40 (1964).

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UMBELLIFERAE

COUMARINS AND TERPENOIDS OF THE FRUITS OF *LIGUSTICUM SEGUIERI**

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Plant. Ligusticum seguieri Koch; grown near Copenhagen.

Previous work. Roots.[1] On sister species *L. pyrenaicum.*[2]

The dried fruits were extracted with ether, and the extract chromatographed on silica gel. In addition to (+)-1,1,5-trimethyl-2-formyl-4-(3-methyl-2-butenoyloxy)-cyclohexadiene-(2,5) ($[\alpha]_D^{20}$ +173° (*c* 1·0, CCl_4)), which was also obtained from the roots,[1] the

* Part XIX of the series "Constituents of Umbelliferous Plants". For part XVIII see Ref. 1.

[1] J. LEMMICH, P. A. PEDERSEN and B. E. NIELSEN, *Acta Chem. Scand.* **25**, 344 (1971).
[2] F. BOHLMANN and M. GRENZ, *Chem. Ber.* **102**, 1673 (1969).

furanocoumarins isoimperatorin, bergapten and isooxypeucedanin were isolated and identified by m.p., IR and NMR spectra.

Furthermore, a crystalline mixture of isomers of oxypeucedanin, ($[\alpha]_D^{20}$ −10·1° ($CHCl_3$)), was obtained (*ca.* 1% yield). Recrystallizations from $CHCl_3$–ether afforded the pure compounds (*R,S*)-oxypeucedanin, m.p. 140·5–142° and (*S*)-(−)-oxypeucedanin, m.p. 103-104°, $[\alpha]_D^{20}$ −14·0° (*c* 0·9, $CHCl_3$), which was identical with synthetic material (m.p. 101·5–102·5°, $[\alpha]_D^{24·0}$ −13·5°[3]). For (*R*)-(+)-oxypeucedanin Ghoshal *et al.*[4] reported m.p. 104–105° and $[\alpha]_D^{30}$ +20·1°.

(*R,S*)-Oxypeucedanin has been isolated from some 20 umbellifer species (see Nielsen[5]), (*R*)-(+)-oxypeucedanin (prangolarin) from 3.[5] To our knowledge (*S*)-(−)-oxypeucedanin has not previously been obtained from natural sources. In one case, the isolation of both (*R*)-(+)- and (*R,S*)-oxypeucedanin was reported.[4]

Acknowledgements—Thanks are due to the Danish Natural Science Research Council for placing an NMR spectrometer at the disposal of this laboratory, and to the Botanic Garden, University of Copenhagen, for supplying the plant material

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VALERIANACEAE

ISOLATION OF ACTINIDINE FROM *VALERIANA OFFICINALIS*

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Plant. Valeriana officinalis.

Source. Dried roots obtained from the Laboratorium voor Plantenbiochemie, Rijks Universiteit, Gent, Belgium.

Uses. Possesses cat-attractant properties,[1,2] which may, in part, be due to actinidine.[2]

Previous work. In an earlier paper on *Valeriana officinalis* alkaloids by Torssell and Wahlberg,[1] two new actinidine-like alkaloids were isolated and their structures determined. Franck[3] identified 8-methoxy-actinidine from *Valeriana officinalis*, and Gross *et al.*,[4] identified actinidine as well as confirmed the presence of the major alkaloid discovered by Torssell and Wahlberg in *Valeriana officinalis*. This communication confirms the presence of actinidine in *Valeriana officinalis*.

Isolation of alkaloids. The alkaloids were isolated from dried roots of *Valeriana officinalis* by $CHCl_3$–MeOH preceded by an Et_2O extraction, and followed by a 10% HCl extraction,

[1] K. TORSSELL and K. WAHLBERG, *Acta Chem. Scand.* **21**, 53 (1967).
[2] T. SAKAN, A. FUYINO, F. MURAI, Y. BUTSUGAN and A. SUZUI, *Bull. Chem. Soc. Japan* **32**, 315 (1959).
[3] B. FRANCK, *Abh. Dtsch. Akad. Wiss. Berlin.* In press.
[4] D. GROSS, G. EDNER and H. R. SCHUTTE, *Arch. Pharmaz.* **304**, 20 (1971).