NMR ($CDCl_3$–60 MHz) and MS were in agreement with **1**. Hydrogenation of **1** over Adams catalyst in EtOH afforded a tetrahydroderivative (**2**), m.p. 74–75°; no absorption in the UV; ν_{max}^{KBr} 3310 cm^{-1} (NH) and 1640 cm^{-1} (CO); MS M^+ m/e 339 (15%) for $C_{22}H_{45}NO$, 296 (9), 282 (2), 267 (16) and 115 (100) which was identical (UV, IR, NMR, MS, m.p., m.m.p.) to an authentic sample of *N-iso*butyloctadecanamide (**2**) prepared according to Jacobson [9].

EXPERIMENTAL

M.ps are uncorrected. The IR spectra were in KBr and UV spectra in MeOH. The NMR spectra were determined at 60 MHz spectrometer in $CDCl_3$ with TMS as internal standard.

Isolation. The detailed isolation procedure of (**1**) and other constituents of *P. guineense** will be reported in due course. *N-iso*butyloctadeca-*trans*-2-*trans*-4-dienamide, white needles (decomposing on prolonged exposure to air); m.p. 78–80° petrol–EtOAc); $[\alpha]_D$ 0° (c 0·1, EtOAc); ν_{max}^{KBr} 3295 cm^{-1}, 2912, 2842, 1652, 1622, 1610, 1540, 1465, 1390, 1370, 1335, 1320, 1258, 1200, 1185, 1160, 998, 940, 875, 820, 720 and 660; MS M^+ m/e 335 (100%), 320 (30), [$335 \xrightarrow{m^*} 320$, m^* obs 305·5 and m^* calc 305·67], 306 (3), 292 (8), 280 (9), 279 (22), 264 (41), 263 (66), 250 (5), 236 (5), 222 (5), 220 (4), 208 (4), 194 (5), 180 (22), 167 (10), 166 (30), 154 (15), 153 (18), 152 (50), 138 (8), 126 (36), 115 (31), 110 (31), 57 (52) and 43 (52).

Catalytic hydrogenation in EtOH over PtO_2 for 6 hr under H_2 gave *N-iso*butyloctadecanamide (**2**) as white needles, m.p. 74–75°; λ_{max}^{MeOH} no absorption; ν_{max}^{KBr} 3310 cm^{-1}, 2919, 2843, 1640, 1545, 1470, 1383, 1260, 1240, 1222, 1205, 1190, 1160, and 720; $\delta_{60MHz}^{CDCl_3}$ δ0·93 (9H, *m*), 1·22 (30H, *br*, *s*), 1·72–2·27 (3H, *m*), 3·09 (2H; *t*, *J*–6·0 Hz), 5·50–5·55 (1H, *br*, *s*); MS M^+ m/e 339 (15%), 324 (2), 310 (2), 296 (9), 285 (5), 284 (26), 282 (1), 268 (5), 267 (16), 254 (1), 240 (1), 226 (1), 212 (1), 198 (2), 184 (6), 170 (7), 156 (2), 142 (8), 129 (9), 128 (63), 116 (22), 115 (100), 57 (64) and 43 (60).

*Preparation of N-*iso*butyloctadecanamide* [9]. Isobutyl amine (1·5 g) in Et_2O (10 ml) was treated with stearyl chloride (octadecanoyl chloride) from stearic acid (140 mg) with $SOCl_2$ (90 mg) in Et_2O (10 ml) slowly with stirring. After 1 hr the precipitated amine HCl-ide was worked up in the usual way to give white needles of *N-iso*butyloctadecanamide (84 mg), m.p. 74–76°, identical with (**2**) by direct comparison (UV, IR, NMR, MS, m.p., m.m.p.).

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* The plant material used in this study was collected in Ghana. Voucher specimens are on deposit at the Faculty of Pharmacy, University of Science and Technology, Kumasi, Ghana, West Africa.

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5-ALKOXY-FURANOCOUMARINS FROM *PEUCEDANUM OSTRUTHIUM**

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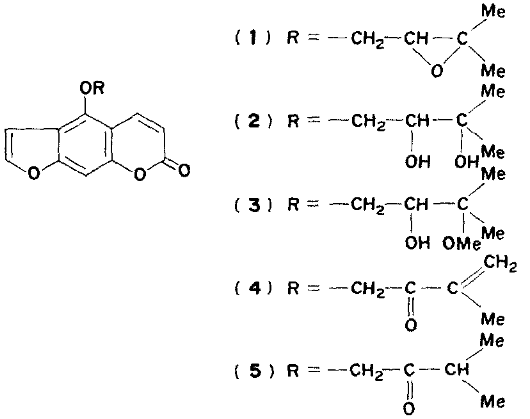
Key Word Index—*Peucedanum ostruthium*; Umbelliferae; furanocoumarins; oxypeucedanin; oxypeucedanin hydrate; tert-*O*-methyl-oxypeucedanin hydrate; isooxypeucedanin; pabulenone.

Plant. Peucedanum ostruthium (L.) Koch (syn. *Imperatoria ostruthium* L.) roots collected in South Tyrol (Italy). *Uses.* Medicinal—Radix Imperatoriae. *Previous work.* From the roots, several coumarins, furanocoumarins, a chromone derivative (peucenin) and hesperidin have been isolated [1, 2].

Present work. Dried roots (440 g) were extracted with C_6H_6 followed by MeOH. The residue from the methanolic extract afforded by separation on polyamide coumarin glycosides [1] and five non-glycosidic furanocoumarins: oxypeucedanin (**1**), oxypeucedanin hydrate (**2**) and three further 5-alkoxyfuranocoumarins to which structures 3 (mp 129–131°), **4** (mp 119–121°) and **5** (mp 143–147°) were assigned on the basis of TLC and spectral data. The UV spectra of the latter compounds are of 5-alkoxy-furanocoumarin type (λ_{max}^{MeOH} 240 sh, 249, 257, 265, 308 nm). The IR spectrum of compound **3** shows the presence of OH groups (band at 3420 cm^{-1}) spectra of **4** and **5** indicate a second C=O group (band at 1730 and 1740 cm^{-1} resp.) in addition to the typical band of the furanocoumarinic nucleus. Molecular weights (from MS): **3** 318 ($C_{17}H_{18}O_6$), **4** 284 ($C_{16}H_{12}O_5$), **5** 286 ($C_{16}H_{14}O_5$). The NMR spectra show all the characteristic signals for a 5-alkoxy-furanocoumarin nucleus: ($CDCl_3$, TMS as internal reference δ ppm) H3 6·24–6·28 *d*; H4 8·16–8·30 *d* ($J_{3,4}$ 9 cps); H8 7·24–7·22 *s*; H2′ 7·56–7·58 *d*; H3′ 6·82–6·98 *d* ($J_{2,3}$ 2 cps).

A compound having the same spectral properties as **3** has already been isolated by Kapoor *et al.* [3] from the roots of *Angelica glauca*. It was designated as tert-*O*-methyl-oxypeucedanin hydrate. The characteristics of compound **5** are consistent with those of isooxypeucedanin isolated earlier from other *Peucedanum* species (*P. cervaria, P. palustre*) [4] and *Prangos pabularia* [5]. Compound **4** is a new natural furocoumarin derivative and can be designated as pabulenon. (NMR: Me–C = 1·9 (3Hs); H_2C = 5·05 resp. 5·25 (each 1H *m*)).



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BOEHMENAN, A NEW LIGNAN FROM THE ROOTS OF *BOEHMERIA TRICUSPIS*

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Key Word Index—*Boehmeria tricuspis*; Urticaceae; boehmenan.

Plant. Boehmeria tricuspis. Uses. None. *Source.* Miyagi Prefecture, Japan. *Previous work.* Flavonoids [1,2] and catechins [3].

Present work. The roots (102 kg) were extracted with hot MeOH. After removal of the solvent, the residue was suspended in warm H_2O and extracted with EtOAc and *n*-BuOH successively. Repeated chromatography of the EtOAc extract on Si gel gave boehmenan (**1**) as colorless powder (0·001% yield; UV(MeOH)λ_{max} nm (log ϵ): 234