A NEW SOURCE OF TARAXEROL*

By W. J. DUNSTAN,† G. K. HUGHES,‡ and N. L. SMITHSON‡

In the course of an examination of *Litsea dealbata* Nees (a member of the family Lauraceae) the dried, milled bark was extracted with ethanol in a Wester extraction apparatus. Small crystals separated from the concentrated alcohol, purification of which gave 0·17 per cent. of colourless needles (I) giving an intense red-violet Liebermann-Burchard test suggesting it may be a triterpene. The molecular weight and analysis of I were consistent with this conclusion and comparison of its physical properties and derivatives showed it to be identical with taraxerol, previously obtained by Burrows and Simpson (1938) from the roots of *Taraxacum officinale* Weber (dandelion). A preliminary note of this finding was made by Dunstan, Smithson, and Hughes (1947). Subsequently, Koller *et al.* (1950) carried out structural investigations on taraxerol and showed that alnulin and tiliadin are identical with it. Skimmiol isolated by Takeda (1941) from *Skimmia japonica* Thunb. was noted by Takeda and Yoshiki (1941) as showing much similarity to taraxerol. The preparation of the ketone, taraxerone, by Koller *et al.* (loc. cit.) and comparison with skimmione (described by Takeda loc. cit.) shows their similar identity is beyond doubt.

Experimental

(*a*) *Isolation.*—The dried, milled bark of *L. dealbata* (5·5 kg) was extracted with 95% ethanol by continuous percolation. Concentration of the extract to small volume caused the separation of small colourless crystals with a small quantity of tarry matter. The crystals were washed with light petroleum, which removed much of the tar, and then recrystallized from light petroleum (chloroform-ethanol mixture 1 : 1 was also suitable) yielding colourless needles of I; (9 g, 0·17%); m.p. 269–270 °C, $[\alpha]_D^{15}$ +4·0° (*c*, 0·85 in chloroform) (Found: C, 84·3; H, 11·5%; M (camphor), 422. Calc. for $C_{30}H_{50}O$: C, 84·4; H, 11·8%; M, 426). Taraxerol has m.p. 269–271 °C, $[\alpha]_D$ 0° (*c*, 1·30 in chloroform) (Koller *et al.* loc. cit.).

(*b*) *Acetylation.*—The acetyl derivative of I was prepared in the usual way from I (0·3 g); acetic anhydride (6 ml); glacial acetic acid (1 ml) and fused sodium acetate (0·5 g) with 2 hr refluxing. Recrystallization from ethanol-benzene mixture (3 : 1) gave colourless needles, m.p. 294–296 °C, $[\alpha]_D^{18}$ +9·1° (*c*, 1·04 in chloroform) (Found: C, 81·8; H, 11·1%. Calc. for $C_{32}H_{52}O_2$: C, 82·0; H, 11·2%). Taraxeryl acetate has m.p. 296–297 °C, $[\alpha]_D^{18}$ +8·4° (*c*, 1·56 in chloroform).

(*c*) *Benzoylation.*—I (0·2 g) was dissolved in dry pyridine (3 ml) and benzoyl chloride (0·5 g) added and the mixture warmed 1 hr on the water-bath. Recrystallization from chloroform-ethanol mixture (1 : 1) gave colourless needles, m.p. 281 °C, $[\alpha]_D^{18}$ +33° (*c*, 0·21 in chloroform) (Found: C, 83·5; H, 10·2%. Calc. for $C_{37}H_{54}O_2$: C, 83·8; H, 10·3%). Taraxeryl benzoate has m.p. 282–284 °C, $[\alpha]_D^{11}$ +35° (*c*, 2·0 in chloroform). The melting points are uncorrected and the data for taraxerol and derivatives are from Burrows and Simpson (loc. cit.) except where noted.

* Manuscript received September 15, 1952.

† School of Applied Chemistry, N.S.W. University of Technology, Broadway, Sydney.
‡ School of Chemistry, University of Sydney.

Thanks are due to Miss J. Fildes and Dr. E. Challen for the semi-micro-analyses and to Mr. L. J. Webb, Division of Plant Industry, C.S.I.R.O., for the supply of plant material.

References

BURROWS, S., and SIMPSON, J. C. E. (1938).—*J. Chem. Soc.* **1938** : 2042.
DUNSTAN, W. J., HUGHES, G. K., and SMITHSON, N. L. (1947).—*Nature* **160** : 577.
KOLLER, E., HIESTAND, A., DIETRICH, P., and JEGER, O. (1950).—*Helv. Chim. Acta* **33** : 1050.
TAKEDA, K. (1941).—*J. Pharm. Soc. Japan* **61** : 117.
TAKEDA, K., and YOSHIKI, S. (1941).—*J. Pharm. Soc. Japan* **61** : 506.

AUSTRALASIAN MEDICAL PUBLISHING CO. LTD.
SEAMER AND ARUNDEL STS., GLEBE, SYDNEY