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Structural formulas of compounds (I) and (II)

Figure 1: Structural formulas of compounds (I) and (II)

Abstract

Full Text

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A NEW TRITERPENE–MYRICOLAL

(Presented by Academician B. A. Arbuzov, 28 IX 1959)

From the bark of *Myrica gale* L. we isolated the triterpene myricadiol and showed that it has the structure taraxer-14-ene-3β,28-diol (I).

In the present communication we set forth the results of an investigation of another triterpene, extracted from the same plant material and named myricolal. This triterpene has the molecular formula $C_{30}H_{48}O_2$, forms an acetate and a 2,4-dinitrophenylhydrazone; in the absorption spectrum of myricolal there is a band at 3553 cm^{-1}, indicating the presence of a hydroxyl group. On oxidation with chromic anhydride, myricolal is converted into taraxer-14-en-3-on-28-al (myriconal), a substance previously obtained by us by oxidation of myricadiol under analogous conditions. Therefore myricolal must have

the structure of taraxer-14-en-3-ol-28-al or taraxer-14-en-28-ol-3-one. In the spectrum of myriconal we found two absorption bands—at 1709 cm^{-1} (ketone group) and at 1726 cm^{-1} (aldehyde group); in the spectrum of myricolal there is only one of these bands—at 1726 cm^{-1}, corresponding to an aldehyde group. Thus, myricolal is taraxer-14-en-3-ol-28-al. The spatial configuration of the hydroxyl at the third carbon atom remained unknown. To resolve this question we reduced myricolal with lithium aluminum hydride. Myricadiol was thereby obtained, the diacetate of which we identified with the diacetate of natural myricadiol. Consequently, the configuration of the secondary hydroxyls in myricadiol and myricolal is the same.

The foregoing proves the structure of myricolal as taraxer-14-en-3β-ol-28-al (II).

Experimental Part

Isolation of myricolal. The acetone mother liquors remaining after the isolation of myricadiol were evaporated, and the resinous mass was dissolved in benzene. An equal volume of a 20% solution of KOH in methanol was added and the mixture was boiled for 3 hours. It was diluted with water, the benzene layer was separated and evaporated to dryness. The residue was extracted

several times with small portions of boiling acetone. The insoluble portion was trans-

crystallized from alcohol with dioxane. 350 mg of crystals were obtained, m.p. 288° (corr.).

Found, %:	C 81.55;	H 10.90
$C_{30}H_{48}O_2$. Calculated, %:	C 81.76;	H 10.98.

By the usual methods an acetate was obtained, which after recrystallization from alcohol with dioxane melted at 304-305°, and a 2,4-dinitrophenylhydrazone, m.p. 250°.

Reduction of myricolal. 100 mg of myricolal were dissolved in a mixture of 3 ml of ether and 3 ml of benzene; 3 ml of a 2 N solution of lithium aluminum hydride in ether were added, and the mixture was boiled for 3 h. It was then worked up in the usual way. An attempt to recrystallize the substance from dioxane led to the formation of a gel characteristic of myricadiol; therefore the substance was acetylated. The acetate, recrystallized twice from a mixture of alcohol and chloroform, melted at 252-254°. Its mixture with myricadiol diacetate melted at 254-255°.

The microanalyses were carried out by E. A. Sokolova, and the spectral investigations by L. D. Shishkina. Student V. Tikhonov took part in the work.

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CITED LITERATURE

1. A. A. Ryabinin, L. G. Matyukhina, DAN, **129**, 1 (1959).

Note: Figure translations are in progress. See original paper for figures.