

TETRACYCLIC TRITERPENE COMPOUNDS FROM EUPHORBIA CONDYLOCARPA

Yu. V. Roshchin and N. P. Kir'yalov

Khimiya Prirodnykh Soedinenii, Vol. 6, No. 4, p. 483, 1970

UDC 547.913

A chemical study of a petroleum ether extract from the roots of E. condylocarpa M. B. has shown the presence of substances of a triterpene nature.

From the unsaponifiable fraction, by extraction with diethyl ether and chromatography of the ethereal extract on a column of alumina, we have isolated a substance with the composition $C_{31}H_{52}O$ in the form of colorless needles with mp $90^{\circ}C$ (from chloroform), $[\alpha]_D +1.5^{\circ}$ (chloroform). The compound gives a positive Lieberman-Burchard reaction and a pink coloration in the thionyl chloride reaction for triterpenes. It forms an acetyl derivative with the composition $C_{33}H_{54}O_2$, mp $124^{\circ}C$ (from acetone), $[\alpha]_D 0^{\circ}$ (chloroform); a benzoate with mp $133-134^{\circ}C$ (from acetone), $[\alpha]_D +24^{\circ}$ (chloroform); a ketone with the composition $C_{31}H_{50}O$, mp $95^{\circ}C$ (from acetone), $[\alpha]_D +25^{\circ}$ (chloroform); and a dibromo derivative with mp $186-187^{\circ}C$ (from methanol).

The results of physicochemical studies, a mixed melting point test with an authentic sample, and the identity of their IR spectra show that the isolated substance is β -euphorbol, previously found in Euphorbia [1].

By a subsequent elution from the column with a mixture of petroleum ether and benzene (3:1.5) we obtained crystals in the form of colorless needles, $C_{30}H_{50}O$, mp $116^{\circ}C$ (from methanol), $[\alpha]_D +32^{\circ}$ (chloroform). This substance forms an acetyl derivative with the composition $C_{32}H_{52}O_2$, mp $108^{\circ}C$ (acetone-methanol), $[\alpha]_D +42^{\circ}$ (chloroform), and a benzoate with mp $137^{\circ}C$ (from acetone), $[\alpha]_D +62^{\circ}$ (chloroform). The oxidation of the substance to a ketone with the composition $C_{30}H_{48}O$, mp $119^{\circ}C$ (from acetone), $[\alpha]_D +78^{\circ}$ (chloroform) showed that the alcoholic group is secondary. The compound gives a positive Sal'kovskii reaction for triterpenes, a pink coloration with thionyl chloride, and an intense yellow coloration with tetranitromethane. IR spectrum, cm^{-1} : 3420 ($-OH$), 1030 (equatorial position of the hydroxyl in an alcohol), 1642 (>C=C<), 1385 ($\text{>C<} \begin{matrix} \text{CH}_3 \\ \text{CH}_3 \end{matrix}$), and 1713 (>C=O). There is no absorption maximum in the $240\text{-}\mu$ region of the UV spectrum, which shows the absence of conjugation between the double bonds.

The results of the physicochemical studies indicate that the substance obtained is identical with the euphodiolenol isolated previously from Euphorbia [2].

REFERENCES

1. Bauer and Schenkel, Arch. Pharm., 266, 633, 1928.
2. A. D. McDonald, F. L. Warren, and J. M. Williams, J. Chem. Soc., 155, 1949.

20 March 1970

Pyatigorsk Pharmaceutical Institute