ALKALOIDS OF Buxus hyrcana

I. ISOLATION AND IDENTIFICATION OF BUXTAUINE

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The alkaloids of Buxus hyrcana Pojark. are being studied for the first time. The raw material was collected at sites of natural growth in the Hyrcanian woods (Lenkoran' region, Azerbaidzhan SSR) in October, 1972. Chloroform extraction gave the combined alkaloids of the leaves (0.95% on the air-dry weight).

A concentrated chloroform solution of the combined alkaloids (80 g) was treated with 10% sulfuric acid, and the acid extract was made alkaline and the bases were extracted first with ether (yield 50 g) and then with chloroform (yield 25 g).

The ether-soluble fraction of the combined alkaloids was passed through a column of alumina (here and below, Al_2O_3 of activity grade II) and was eluted with benzene (fractions 41-78). The residue after the elimination of the benzene was treated with ether, giving 0.6 g of a crystalline base with the composition $C_{24}H_{37}NO_2$, mp 177-178°C (acetone), $[\alpha]_D^{20}+155.5°$ (c 0.239; ethanol), R_f 0.66 [TLC; system 1: chloroform–benzene–ethanol (10:8:2)]; R_f 0.22 [TLC; system 2: benzene–ethanol (19:1)].

The IR spectrum of the substance (UR-20, paraffin oil) showed absorption bands at (cm^{-1}) 896, 1630, 3095 (exomethylene bond), 1040, 3595 (hydroxy group), 1455 (cyclopropane ring), 1695 (carbonyl group), and 3290 (secondary amine group).

With acetic anhydride in pyridine, the isolated base formed a diacetyl derivative with the composition $C_{28}H_{41}NO_4$, mp 193-197°C (ether), R_f 0.64 (TLC; system 2).

The IR spectrum of the diacetyl derivative had absorption bands at (cm^{-1}) 1730 (ester group), 1697 (carbonyl group), and 1643 (amide group). The bands characteristic of free secondary amine and hydroxy groups were absent.

The results of a direct comparison of the IR spectra and the physicochemical constants of the base that we had isolated and those of buxtamine [1, 2] showed that they were completely identical.

This is the first time that buxtamine has been isolated from plants of the flora of the USSR [3-6].

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