VINERININE – A NEW OXINDOLE ALKALOID FROM *Vinca erecta*

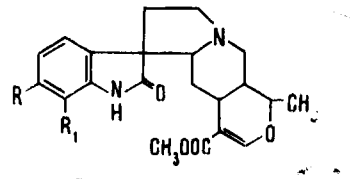
M. M. Khalmirzaev, V. M. Malikov, and S. Yu. Yunusov

UDC 547.944/1

From the phenolic fraction of the combined alkaloids of V. erecta collected in the Tashkent oblast in the flowering period [1], by chromatography on a column filled with alumina and elution with ether, we have isolated a new base which we have valled vinerinine.

Vinerinine $C_{22}H_{26}N_2O_6$, mol. wt. 414 (mass spectrometrically), $[\alpha]_D^{20} -74°$ (methanol), is readily soluble in alkalis, chloroform, and methanol and less readily in ether. Its UV spectrum [λ_{max} (ethanol) 224 nm, log ε 4.44)] is characteristic for oxindole alkaloids. The IR spectrum shows absorption bands of a 1,2,3,4-tetrasubstituted benzene ring (780, 810 cm^{-1}) a $CH_3-COO-C=C-O$ grouping, and an amide carbonyl (1720, 1635 cm^{-1}). A broad band at 3100-3500 cm^{-1} is apparently due to OH and NH groups connected by hydrogen bond. In the mass spectrum (taken on an MKh-1303 instrument fitted with a system for the direct introduction of the substance into the ion source) of vinerinine there is the strong peak of the molecular ion with m/e 414 (100%) and peaks with m/e 222 (11%), 223 (50%), 224 (22%), 208 (21%), 205 (11%), 180 (14%), 69 (46%). The results of a comparison of the mass spectra of majdine [2] and vinerinine showed that in them the peaks of the alicyclic part of the molecule are similar, and the peaks of the fragments of the oxindole part differ by 14 amu. In the NMR spectrum (taken on a JNM-4H-100/100 MHz instrument in $CDCl_3$, HMDS as internal standard, δ scale) of the base there are signals from the protons of $CH-CH_3$ (1.34 ppm, doublet, J = 6 Hz; 4.50 ppm, J = 10 Hz), $Ar-OCH_3$ (3.56 ppm, singlet), and $COOCH_3$ (3.77 ppm, singlet). In the weak-field region there are a one-proton singlet from an olefinic proton (7.47 ppm) and a two-proton quadruplet at 6.50 ppm, J = 8 Hz and 6.70 ppm, J = 8 Hz, corresponding to the ortho protons of an aromatic ring.

The facts given and the phenolic properties of the base permitted the assumption that vinerinine is a monodemethyl derivative of majdine and there are two probable formulas for it – (I) or (Ia)



I R = OCH_3, R_1 = OH Ia R = OH, R_1 = OCH_3

LITERATURE CITED

1. Sh. Z. Kasymov, P. Kh. Yuldashev, and S. Yu. Yunusov, Khim. Prirodn. Soedin., 260 (1966).
2. M. R. Yagudaev, N. Abdurakhimova, and S. Yu. Yunusov, Khim. Prirodn. Soedin., 197 (1968).

Order of the Red Banner of Labor Institute of the Chemistry of Plant Substances of the Academy of Sciences of the Uzbek SSR. Translated from Khimiya Prirodnykh Soedinenii, No. 3, pp. 411-412, May-June, 1974. Original article submitted November 23, 1973.