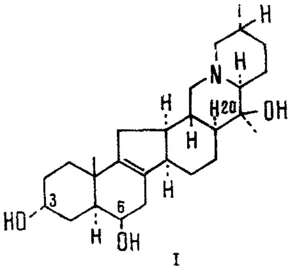

I

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THE STRUCTURE OF ARENINE

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UDC 547.943

From the phenolic fraction of the total alkaloids of *Papaver arenarium* M. B. we have isolated a new amorphous base $[\alpha]_D$ −31° (c 1.03; CH_3OH) which we have called arenine (I) [1]. UV spectrum: λ_{max} 244, 291, 319, 333 nm (log ε 4.49, 3.78, 3.57, 3.57). The IR spectrum shows absorption bands at (cm^{-1}) 930, 1040, (CH_2O_2), 1495, 1510 (aromatic ring), and 3300 (OH). In the mass spectrum there are the peak of the molecular ion with m/e 392 and also the peaks of ions with m/e 377, 363, 349, 135, and 84 (100%). The NMR spectrum of the base taken in deuterochloroform showed the signals of three-proton singlets at 2.19 ppm from a N-methyl group and at 3.94 ppm from a methoxy group, and of two-proton singlets at 5.47 ppm from a methylenedioxy group and at 4.32 ppm from a methylene group. Six aromatic protons are represented by signals at 6.53-6.60 (3H), 7.47 (1H), 7.74 (1H), and 8.30 ppm (1H). Methylene and methine protons appear in the form of multiplets at 1.90-3.50 ppm.

The UV, NMR, and mass spectra of arenine are close to the spectra of macrostomine [2]. On the basis of the facts obtained the following developed formula may be suggested for (I): $C_{20}H_{15}N$ (N—CH_3) (CH_2O_2) (OCH_3) (OH).

A comparison of the developed formulas of macrostomine and arenine shows that the latter contains a hydroxy group in place of a methoxy group in macrostomine. When arenine was methylated with diazomethane, O-methylarenine (II) was obtained, which was identical according to TLC with macrostomine. A mixture of the hydrochlorides of (II) and of macrostomine gave no depression of the melting point. The hydroxy group in arenine may be present in ring A at C_6

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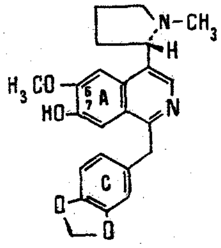
or C_7. In the NMR spectrum of (I) the signal of the C_8 aromatic proton is shifted by 20 Hz (7.47 ppm) downfield as compared with that in the spectrum of macrostomine, and the protons of ring C (6.53, 6.60 ppm) and the methylene protons (4.32 ppm) are shifted upfield by approximately 10 Hz. These displacements are apparently connected with a change in the orientation of the benzyl part of the molecule of (I) relative to macrostomine and are due to the replacement of the methoxy group at C_7 in macrostomine by the hydroxy group in arenine.

The facts given above and the correlation of O-methylarenine with macrostomine show that arenine has the structure (I) with the S configuration of the asymmetric center



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ALKALOIDS OF *Peganum nigellastrum*

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UDC 547.944/945

The main area of *Peganum nigellastrum* Bge. is the desert regions of Mongolia. The alkaloid composition of this plant has been little studied. Peganine and harmine have been found in the epigeal part by chromatography. We have investigated *Peganum nigellastrum* collected in the South Gobi iamak of Mongolia in the flowering phase. Chloroform extraction yielded 1.57% of combined alkaloids. The mixture of bases was separated into three fractions; A, B, and C. Fraction A was obtained by treating an acid extract with chloroform, fraction B consisted of the precipitate that deposited from the acid solution on alkalinization, and fraction C was obtained by treating the filtrate with chloroform. Each fraction was separated further by preparative chromatography. Individual substances were crystallized or converted into salts.

Fraction A yielded a base in the form of a crystalline hydrochloride. From the latter a base was recovered with mp 110-111°C, mol. wt. 186; the R_f value of the substance on TLC [Al_2O_3; chloroform—benzene—methanol (5:4:1)] coincided with that of deoxyvasicinone [2], and a mixture with an authentic sample gave no depression of the melting point. The second base from this fraction was identified by TLC and a mixed melting point with an authentic sample of vasicinone [2].

From a base isolated from fraction B was obtained a nitrate with mp 166-168°C, which was identical with *dl*-peganine nitrate.

A base obtained from fraction C was identified as deoxyvasicinone.

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