

According to the results of preliminary investigations, substance (V) with mp 261-263°C and substance (VI) with mp 222-223°C are C-glycosides. On acid hydrolysis, each substance formed an equilibrium mixture of two compounds, which is characteristic for C-glycosides. The study of the structures of these substances is continuing.

Rutin was found in the complex of polyphenolic compounds of hairy St. John's wort by two-dimensional paper chromatography and comparison with an authentic sample. Rutin is a minor component for this species.

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ALKALOIDS OF *Papaver lisae*

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By methanolic extraction of *Papaver lisae* raw material collected in the flowering period in May, 1976 in the Khulamo-Bezengiiskii gorge, Kabardino-Balkarsk ASSR we have obtained the combined alkaloids: 0.09% from the epigeal part and 1.28% from the roots, calculated on the weight of the dry raw material. By separating the total alkaloids of the epigeal part and the roots of the plant into fractions of phenolic and nonphenolic bases [1] and by column chromatography we have isolated five alkaloids in the pure form. Thin-layer chromatography (alumina of activity grade II; chloroform-ethanol (30:1) system) showed the identity of the qualitative compositions of the combined alkaloids of the epigeal part and of the fruits and that it consisted of at least nine components.

We have isolated two bases from the fraction of nonphenolic bases.

Base I, with the composition $C_{22}H_{25}NO_6$, mp 177-178°C (ether-ethanol); R_f 0.39; $[\alpha]_D^{20} -239 \pm 4^\circ$ (c 0.35; chloroform). IR spectrum: λ_{max} 3605 cm^{-1} (OH). NMR spectrum (δ , ppm): 1H singlet at 6.58; 1H singlet at 6.33 (isolated ArH protons); 2H singlet at 5.85 (CH_2O_2); 2H singlet at 4.65 ($ArCH_2-OH$); 3H singlet at 3.98 (OCH_3); 6H singlet at 3.84 (2 OCH_3); one OH multiplet group in the interval from 3.80 to 2.10.

Mass spectrum: fragments with m/e 399 (M^+), 368 ($M - 31$), 206, 204, 195, 194, 179. According to literature characteristics, the base (I) isolated was identical with (-)-mecambridine [2, 3] oreophiline [4].

Base (II), isolated from the same fraction, had mp 207-208°C (chloroform-ethanol-acetone), and on the basis of thin-layer chromatography a mixed melting point, and a comparison of spectra, it was identified as protopine [5].

From the phenolic fraction of the combined alkaloids we isolated another three bases.

Base (III) with mp 185-186°C (ethyl acetate), $[\alpha]_D^{20} 200 \pm 5^\circ$ (c 0.5; chloroform); R_f 0.72; mixed melting point at mp 185-186°C. The IR, NMR, and mass spectra of this alkaloid were identical with those of a sample of (+)-isocorydine.

Base (IV), the one present in greatest amount, had the composition $C_{17}H_{23}NO_3$, mp 234-235°C (acetone); $[\alpha]_D^{20} -83 \pm 1^\circ$ (c 1.0; ethanol) R_f 0.13. Mass spectrum of the base, m/e (% intensity): 289 (50), 228 (100), 270 (5), 260 (70), 242 (10), 191 (10), 185 (10). Accord-

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ing to its mass spectrum, melting point, and $[\alpha]_D$, the base was identical with (-)-oridine (oreoline) [4, 6].

Base (V) had mp 190-192°C (acetone); $[\alpha]_D -61 \pm 3^\circ$ (c 0.52; chloroform). Mass spectrum: m/e 303 (45), 302 (100), 260 (70). On the basis of its mass spectrum and melting point, base (V) was identified as N-methyloridine [6] (N-methyloreoline) [4].

The other bases, which formed a minor fraction of the total alkaloids, could not be identified.

We are the first to have isolated these alkaloids from *P. lisae*.

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A STUDY OF THE STRUCTURE OF THE 11S GLOBULIN FROM COTTON SEEDS

XIII. CHYMOTRYPTIC PEPTIDES OF SUBUNIT C

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In order to establish the sequence of amino acids in subunit C of the 11S globulin [1], we have performed its cleavage with chymotrypsin (Worthington). The enzyme was added to a suspension of 0.5 g of the reduced and carboxymethylated protein in a small volume of 0.2 M ammonia-acetate buffer, pH 8.8 (enzyme:substrate ratio 1:50). The mixture was incubated at 37°C for 16 h. A small aliquot of the solution was deposited on a plate (20 × 20 cm) coated with cellulose to obtain peptide maps. Chromatography was performed in the butan-1-ol-pyridine-acetic acid-water (15:10:3:12) system. Electrophoresis was performed in pyridine-acetate buffer, pH 6.5; 800 V, 40 min (Fig. 1).

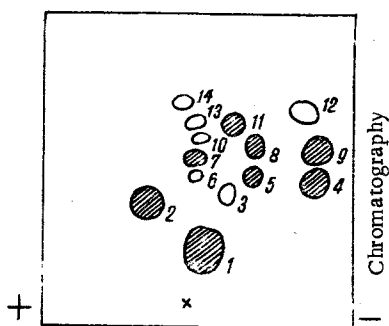


Fig. 1. Peptide map of a chymotryptic hydrolyzate of subunit C. The tryptophan-containing peptide 11 was detected after spraying the plate with Ehrlich's reagent.

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