Desulfuration of the Hydrolysis Product of Diptocarpilidine. A mixture of 0.05 g of (I) and 1 g of Raney nickel in 5 ml of methanol was shaken on a mechanical shaker for 3 h. Then the catalyst was filtered off with suction and the solvent was distilled off. As a result of the hydrogenation, a colorless oily substance with R_f 0.90 (system 1) was isolated, and this was identified as enanthic acid.

SUMMARY

From the epigeal part and seeds of *Diptychocarpus strictus* has been isolated a new base — diptocarpilidine — which possesses antihypoxic activity and for which, on the basis of spectral characteristics and chemical transformations the structure of 1-cyano-6-methylsulfinylhexane has been established.

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NEW SPECIES OF LECTIN-CONTAINING PLANTS

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151 species of plants of the flora of Central Asia have been studied. Lectins have been found in 23 of them. The immunochemical specificities of the extracts have been determined, and for some types of plants also the carbohydrate-binding specificities.

Lectins, or carbohydrate-containing proteins, are widely represented in the animal and vegetable kingdoms. The presence of this class of proteins was known about a century ago [1], but their all-sided study began only in the sixties. The achievements in the field of lectin chemistry leave something better to be desired. At the present time, the industries of foreign countries are marketing a number of lectin preparations that are used in medicine and biology. In our country, the Biokhimreaktiv Amalgamation (Olaine) is producing a single lectin preparation.

In the USSR, investigations to find new plant lectins were first begun by M. I. Potov [2] and were continued by M. D. Lutsik [3]. We have begun a search for lectin-containing plants of the flora of Central Asia. The great diversity of the flora is opening up broad possibilities for the search for lectins in various vegetative organs and a comparison of their amounts and properties according to the vegetation period and the growth site. A hereditary capacity for synthesizing lectins with a definite specificity in the seeds is characteristic of a number of plants of one and the same genus [4], and therefore we took for the search seeds and other organs of the plants of those families in some of the species of which lectins had been detected previously.

150 species of plants of the families *Cruciferae*, *Leguminosae*, *Labiatae*, and one genus — *Datura* — from the *Solanaceae* family have been tested for the presence of hemagglutinins. The search was carried out on extracts or partially purified fractions with the aid of agglutination reactions of the erythrocytes of various human blood groups. The results are presented in Table 1.

The carbohydrate-bonding specificities of the lectins were studied by the inhibited hemagglutination reaction with the aid of the following sugars: L-fucose, D-galactose, N-

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TABLE 1

Source of the lectin				Type of erythrocytes
family	genus	species	plant organ	
Crucifarae	Goldbachia	verrucosa	Seeds	O, A, B
"	Stubendorffia	lipskyi	"	O, A, B
"	"	orientalis	"	O, A, B
"	Grambe	kotschyana	"	O, A, B
Leguminosae	Lotus	frondosus	"	O
"	Lathyrus	latifolius	"	O, A, B
"	"	mulkak	"	O, A, B
"	Vicia	tenuifolia	"	O, A
"	"	narbonensis	"	O, A, B
"	Caragana	turkestanica	"	O, A
"	Meristotropis	triphylla	"	*t-A
"	Oxytropis	trichocalycina	"	t-A, t-O, t-B
"	Thermopsis	lanceolata	"	t-O
"	Halimodendron	halodendron	"	t-O
"	Sophora	alopecuroides	"	O, A, B
"	"	"	Leaves	A, O, B
Labiatae	Eremostachys	moluccelloides	Seeds	O, A, B
"	"	kaufmanniana	"	O, A, B
"	Salvia	macrosiphon	"	t-O, t-A, t-B
"	Origanum	tytthanthum	"	t-O, t-A, t-B
"	Dracocephalum	nodulosum	"	t-O, t-A, t-B
"	Scutellaria	adenostegia	"	t-O, t-A, t-B
Solanaceae	Datura	arborea	"	O, A, B
"	"	innoxia	"	O, A, B
"	"	metel	"	O, A, B
"	"	stramonium	Roots	O

*t — trypsinized erythrocytes.

acetyl-D-galactosamine, D-galacturonic acid, lactose, D-glucose, D-mannose, methyl α-D-gluco- and -mannopyranosides, N-acetyl-D-glucosamine, maltose, i-inositol, xylose, rhamnose, fructose, and arabinose. A carbohydrate specificity was found for four species of plants of the family *Leguminosae*. Extracts of the seeds of *Lathyrus latifolius*, *Lathyrus mulkak*, and *Vicia tenuifolia* were inhibited by D-glucose and D-mannose and their methyl α-D-pyranosides. They were inhibited to a smaller degree by fructose. An extract of the seeds of *Caragana turkestanica* was specific for N-acetyl-D-galactosamine. A lectin with a similar specificity from the roots of *Caragana arborescens* has been described by Lutsik et al. [5].

We have detected highly specific anti-O lectins in the seeds of *Lotus frondosus* and the roots of *Daturus stramonium*. In our case, in contrast to what is stated by Lutsik et al. [3], an extract of the seeds of *Daturus stramonium* showed no immunochemical specificity for the A, B, O system. Extracts of the seeds of *Thermopsis lanceolata* and *Halimodendron halodendron* showed anti-O activity on trypsinized erythrocytes. Trypsinized erythrocytes of group A were agglutinated by an extract of the seeds of *Meristotropis triphylla*, family *Leguminosae*.

In addition to those shown in Table 1, extracts of the seeds of *Lathyrus sylvestris* and *Sophora japonica*, which grow in the territory of Central Asia, possessed hemagglutinating activity. In their properties — immunochemical specificity, hemagglutination titer, and affinity for carbohydrates — the extracts obtained were identical with those known for other growth regions [5, 6]. No lectins were found in Central Asian species of plants of the genus *Sophora* apart from those mentioned above.

EXPERIMENTAL

The plant raw material was obtained from the seeds department of the Botanical Garden of the Academy of Sciences of the Uzbek SSR or was collected among the wild-growing flora of Central Asia.

To obtain an extract, a flour of the seeds of the epigeal part or of the roots was treated with a 0.9% solution of sodium chloride in a ratio of 1:20. Extraction was carried out at 60°C in a shaking machine for 60 h followed by centrifugation at 3000 rpm for 15 min. The supernatant was filtered. In a number of cases, the flour was first defatted.

The preparation of the erythrocytes, the hemagglutination reaction in 50-μl micro test-tubes, and the deterination of the carbohydrate specificities were carried out by the proce-

dure proposed by Lutsik et al. [5]. The hemagglutinating activity was expressed by the titer. As the titer we took the maximum dilution of an extract at which agglutination of erythrocytes was still observed visually.

SUMMARY

151 species of plants of the Central Asian flora have been investigated. The presence of lectins has been established in 23 of them. The immunochemical specificities of the extracts and, for some species of plant, carbohydrate-binding specificities, as well, have been determined.

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PRIMARY STRUCTURE OF SUBUNIT B OF THE 11S GLOBULIN OF SEEDS OF COTTON PLANT VARIETY 108-F. I. ACID-SOLUBLE PEPTIDES FROM COMPLETE TRYPTIC HYDROLYSIS OF SUBUNIT B

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The 11S globulin of cotton seeds consists of three types of subunits: A, B, and C. The complete tryptic hydrolysis of subunit B has given acid-soluble and acid-insoluble peptides. The amino acid compositions and amino acid sequences of the acid-soluble peptides have been determined.

The $His_{2\alpha}$ globulin (11S globulin) is the main component of the reserve proteins of cotton seeds. It possesses a complex quaternary structure and consists of three types of subunits, A, B, and C [1]. Subunit C has been studied [2].

We have continued an investigation of the $His_{2\alpha}$ globulin. Subunit B consists of 180-190 amino acid residues. We have used classical approaches to determine its primary structure and investigate its characteristics. Several types of cleavage have been performed with the aim of obtaining overlapping peptides: complete tryptic and limited tryptic hydrolyses at argine and lysine residues.

In the present communication we make an analysis of the acid-soluble peptides obtained in the complete tryptic hydrolysis of subunit B. The dependence of the degree of digestion of the protein by trypsin on the time of digestion has been studied. The degree of cleavage was checked by TLC and by the peptide-map method. It is interesting to note that the degree of cleavage of the protein by trypsin was practically independent of the time in the interval from 0.5 to 16 h (Fig. 1), i.e., the number and positions of the main spots did not change. Preparative hydrolysis was carried out for 4 h. On the basis of the nature of the peptide maps, it was assumed that trypsin cleavage took place with strict specificity and to completion. However, as will be shown below, in addition to low-molecular-weight peptides, high-molecular-weight peptides including both arginine and lysine residues were also obtained.

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