acid hydrolysis contained two monosides, one of which was identified from its melting point and chromatographic characteristics as the intermediate product of the cleavage of substance 2 — herbacetin 4'-xyloside — while the other glycoside gave a negative gossypetin test, which indicated that the second xylose molecule was attached at position 8 of herbacetin.

The investigations performed permitted us to suggest for substance 4 the structure herbacetin 8-O-β-D-xylopyranoside 4'-O-β-D-xylopyranoside.

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CEREBROSIDES AND CEREBROSIDE SULFATES OF THE BRAIN OF THE HARP SEAL

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Galactocerebrosides (GCs) and galactocerebroside sulfates (GCSs) are among the main lipids of the plasmatic membranes of the nerve tissues of mammals, and the bulk of the GCs and GCSs are concentrated in the brain and spinal cord [1]. These lipids are of interest in many aspects and, in particular, from the point of view of their participation in the functioning of biological membranes [1]. Below we describe the results of an analysis of the GCs and GCSs of the brain of the harp seal *Phoca groenlandica* at the age of one month.

The comminuted brain was extracted repeatedly first with acetone and then with a mixture of chloroform and methanol (2:1). The extracts, which, according to TLC, contained GCs and GCSs, were subjected to alkaline methanolysis under mild conditions [2]. The lipophilic substances from the methanolysate were chromatographed on a column of DEAE-cellulose (AcO^- form). The $CHCl_3$—MeOH (9:1) system eluted neutral lipids, and then the column was washed with $CHCl_3$—MeOH (2:1), with acetic acid, and with methanol, after which the $CHCl_3$—MeOH (2:1) + 5% of concentrated aqueous ammonia system eluted a chromatographically homogeneous fraction of GCSs. The above-mentioned neutral lipids were chromatographed on a column of silica gel by a procedure described previously [2], which yielded two homographically homogeneous fractions of GCs — with residues of 2-hydroxy fatty acids (h-GC fraction) and with residues of unsubstituted fatty acids (u-GC fraction). The amount of GCSs and the total amount of GCs in the natural brain were 3.2 and 14.2 mg/g, respectively, which are fairly close to the amounts of the same lipids in the brain of many terrestrial mammals and the dolphin [1]. To determine carbohydrates, fatty acids, and bases in the structures of the h-GCs, the u-GCs, and the GCSs, these lipids were subjected to alkaline methanolysis under severe conditions [3]. The methanolysis products — methyl glycosides, sphingosine bases, and fatty acid methyl esters — were separated by the usual methods [3]. Only galactose was found in the carbohydrate fractions of all three methanolysates. The results of the periodate oxidation of the native glycolipids, the mass spectrometry of their trimethylsilyl derivative (see [4]), and the oxidation of the corresponding per-O-acetates by chromium trioxide [5] showed that the h-GCs, the u-GCs, and the GCSs consisted of β-galactopyranosides and that the sulfate groups in the GCSs were located at $C_{(3)}$ of the carbohydrate residue. The sphingosine bases were converted into N-2,4-dinitrophenyl derivatives, and these were analyzed in

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the form of the trimethylsilyl derivatives by mass spectrometry (see [2]). The predominating bases in the lipids under consideration were identified as Δ^4-sphingenines and sphinganines; their total amount in the corresponding fractions of the methylanolates exceeded 95%, and their ratio was between 5:1 and 6:1. As minor components the 16:0, 16:1, 18:2, 20:0, and 20:1 sphingosine bases were present. The fatty acid methyl esters were analyzed by GLC-mass spectrometry (the esters of the hydroxy acids in the form of their trimethylsilyl derivatives). In the methanolysate of the u-GCs, esters of the following acids were detected: 16:0 (1.9%), 18:0 (14.5), 20:0 (1.7), 20:1 (1.6), 22:0 (4.4), 22:1 (6.2), 24:0 (17.0), 24:1 (35.0), 26:0 (3.5), 26:1 (8.7), 28:0 (5.5). In the analogous fraction of the methanolysate of the h-GCs esters of the following 2-hydroxy acids were found: 18:0 (22.7%), 20:0 (28.2), 22:0 (6.4), 24:0 (27.3), 25:0 (5.2), 26:0 (3.7), 26:1 (1.4), 28:0 (2.9), 28:1 (2.2). The same unsubstituted and 2-hydroxy acids were found in the products of the degradation of the GCSs but their quantitative composition differed by a lower amount ($\sim$0.5%) of the C_{28} acids and a rise to the 5-6% level of the 18:0 and 24:1 acids. A feature of the glycolipids studied may be considered to be the presence in them of a considerable amount of acids with relatively short chains (C_{18}, C_{20}) and also an appreciable amount of the C_{28} acids.

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FLAVONOIDS OF THE FLOWERS OF *Crataegus sanguinea*

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We have investigated the flavonoid composition of the flowers of *Crataegus sanguinea* Pall. (redhaw hawthorn). Flavonoids were extracted from the raw material with 96% ethanol twice for 48 h each time. The combined extract was evaporated to dryness and the residue was treated with hot distilled water, and after cooling the solution was filtered and purified by treatment with chloroform. The sum of the phenolic compounds was extracted with ethyl acetate. After the solvent had been distilled off, a yellowish-brown powder was obtained. It was dissolved in ethanol, and, on standing, a yellow precipitate deposited from the solution which, after recrystallization from ethanol, was identified by UV and PMR spectroscopy, melting point, R_f values with markers, and the products of its hydrolysis, as hyperoside [1].

Another six compounds of flavonoid nature (two aglycones and four glycosides) were isolated by column chromatography on cellulose and silica gel, and five of them were identified, as follows:

Substance 1 — $C_{15}H_{10}O_7$, mp 309-312°C, $\lambda_{max}^{CH_3OH}$ (nm) 255, 269 sh, 370; quercetin [2];

Substance 2 — $C_{16}H_{12}O_7$, mp 271-274°C, $\lambda_{max}^{CH_3OH}$ (nm) 273, 328, 373; 8-methoxykaempferol [1];

Substance 3 — $C_{21}H_{20}O_{10}$, mp 255-257°C, $\lambda_{max}^{CH_3OH}$ (nm) 270, 303 sh, 335, $[\alpha]_D^{20}$ −14° (c 0.1; pyridine); vitexin [1];

Substance 4 — $C_{27}H_{30}O_{16}$, mp 193-197°C, $\lambda_{max}^{CH_3OH}$ (nm) 257, 268 sh, 300 sh, 362, R_f 0.53 (BAW, 5:1:4); bioquercetin [3]; and

Substance 5 — $C_{22}H_{22}O_{12}$, mp 239-243°C, $\lambda_{max}^{CH_3OH}$ (nm) 271, 328, 355, $[\alpha]_D^{20}$ −6.6° (c 0.1; ethanol), R_f 0.76 (BAW, 5:1:4); pinnatifidin [4].

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