

The isolation of the homogeneous phospholipids — PC, PI, PE, PA, lyso-PC, and lyso-PI — was carried out with the aid of column chromatography and preparative TLC. For the first three phospholipids the position distribution of the fatty acid radicals was established with the aid of enzymatic hydrolysis (snake venom), and for the others the total composition was determined (by alkaline hydrolysis) [1] (Table 1).

We observed no predominance of any individual phospholipid in the tomato seeds, but we must point out the high yield of lyso-PC (22% of the total phospholipids), which is probably connected with the deacylation of the PC in the industrial treatment of the tomatoes. In the grape seeds, the main components were PC, PE, PI and PA.

The qualitative and quantitative compositions of the fatty acids of homogeneous phospholipids differed from the fatty acid compositions of the oils of tomato and grape seeds [2].

The following conclusion can be drawn: In the industrial cycle, tomato [3] and grape seeds retain their phospholipids. A comparison of the results obtained with those available in the literature on plant phospholipids showed that no marked structural changes take place in the composition of the phospholipids.

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#### MONOSACCHARIDE COMPOSITION OF A GLYCOPROTEIN SYNTHESIZED

##### *In Vitro* BY NUCLEI OF RABBIT BRAIN NEURONS

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UDC 612:591:04

There is information in the literature which shows changes in the process of development of the glycoproteins present in the human brain [1] and also in the structural configuration of the carbohydrate moiety of the proteins of the mucous secretion of the stomach [2]. It is assumed that the soluble glycoproteins are the precursors of the glycoproteins of the cell membranes and participate in the long-term regulation of the functioning of these membranes [2].

We have studied the monosaccharide composition of the carbohydrate moiety of the glycoproteins synthesized *in vitro* by the nuclei of the neurons of the grey matter of the rabbit brain. The rabbit brains were taken immediately after sacrifice. The neuronal nuclei and the synthesis of protein in them were carried out by a procedure described previously [3].

The proteins synthesized *in vitro* by the rabbit brain neuron nuclei were obtained by extraction in Tris-glycine buffer, pH 8.3. Then the total protein was fractionated on Sephadex G-50 in ammonium acetate buffer, pH 6.06. The fractions obtained were dialyzed against water and freeze-dried. The Tris-glycine fraction (II) [4] was studied.

We determined the amino acid composition of this acidic protein and performed electrophoretic analysis in 10% polyacrylamide gel, pH 8.3. The molecular weight was ~15,000.

To determine the monosaccharide composition of this fraction, the glycoprotein was hydrolyzed with 2 N H<sub>2</sub>SO<sub>4</sub> at 100°C for 8–10 h. The hydrolysate, after neutralization with an anion-exchange resin and concentration, was analyzed by thin-layer chromatography in a fixed layer of KSK silica gel in the systems butan-1-ol-methanol-water (5:3:1) (1) and

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Translated from *Khimiya Prirodnykh Soedinenii*, No. 4, pp. 514–515, July–August, 1982.  
Original article submitted February 26, 1982.

butan-1-ol-acetone-water (4:5:1) (2). The chromatograms were visualized with aniline phthalate, and the sugars were identified by comparison with authentic samples.

It was established that the carbohydrate moiety of the glycoprotein synthesized by the isolated rabbit brain nuclei consisted of xylose and glucose, the xylose being quantitatively the main monosaccharide.

The results of the investigations confirm those of NMR spectroscopy: The protein synthesized by isolated rabbit brain nuclei is in fact a glycoprotein.

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#### REACTION OF THE OXYGEN ANION RADICAL WITH CINNAMIC ACID NITRILES UNDER THE CONDITIONS OF INTERPHASE CATALYSIS

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UDC 547.581:542.951:542.955.1:546.21-128.2

The great attention that is being devoted to the chemistry of the oxygen anion radical is due to the importance of its participation in the normal and pathological processes of the pathological activity of organisms.  $O_2^-$  is formed as the product of the enzymatic reduction of oxygen. Superoxide dismutase (SOD) catalyzes its disproportionation in tissues. If the metabolism is disturbed, the oxygen anion radicals accumulate and have a disruptive action on vitally important systems [1].

It is well known that oxygen decreases the resistance of cells to radiation, and at the same time superoxide dismutase, catalyzing the decomposition of  $O_2^-$ , possesses radioprotective properties. Consequently, in studying the radioprotective properties of unsaturated nitriles we decided to check a possible link of the activity of certain representatives of this class of substances with their capacity for interacting with  $O_2^-$ . We have studied the reaction of cinnamionitrile and of p-methoxy- and p-nitrocinnamionitriles with potassium superoxide — a source of oxygen anion radicals.

Potassium superoxide rapidly decomposes water, but it dissolves only slightly in organic solvents and therefore it does not react or reacts only feebly in them. However, in the presence of phase-transfer catalysts and, particularly, crown ethers,  $KO_2$  becomes soluble in nonpolar solvents, including benzene [2]. Under these conditions anion radical is not passivated by solvation but shows a very high reactivity [3]. At the same time, its nucleophilic properties are more strongly expressed and therefore it actively participates in nucleophilic substitution and addition reactions [4, 5].

In place of the 18-crown-6 and dicyclohexyl-18-crown-6 that are usually used in such reactions, we employed a catalyst kindly provided by A. K. Tashmukhamedov consisting of a derivative of dibenzo-18-crown-6 (I). In order to compare it with the interphase transfer catalysts described in the literature, we performed a model reaction of the oxidative cleavage of chalcone by  $KO_2$  in benzene, which has been stated to give, when 18-crown-6 was used, an 87.6% yield of benzoic acid and a 5% yield of phenylacetic acid [4]. The conditions of the reaction and the procedure for isolating the products were the same as used by Rosenthal and Frimer [4], except that a more dilute solution was used: 100 ml of absolute benzene to 0.59 mmole of chalcone. The  $KO_2$  was obtained as described in a handbook [6].

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