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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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. $0\frac{1}{2}$ 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 0_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 0_2^2 . We have studied the reaction of cinnamonitrile and of p-methoxy- and p-nitrocinnamonitriles 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, KO₂ 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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The acids obtained were analyzed by the GLC method (LKhM-8MD chromatograph, column 3 m long filled with 20% of SKTFT on Celite, temperature 206°C, carrier gas hydrogen) in the form of their methyl esters. Benzoic and phenylacetic acids were obtained with yields of 67.4% and 43%, respectively. This reaction showed the good catalytic activity of the crown ether (I). The new reactions of potassium superoxide with cinnamonitrile and its p-methoxy and p-nitro derivatives were carried out at room temperature in absolute benzene and in the dark. The instrument was isolated from atmospheric humidity.

The products were benzoic, anisic, and p-nitrobenzoic acids. The first two acids were identified from GC chromatograms of their methyl esters, which showed the formation of only one acid in each reaction. The benzoic and p-nitrobenzoic acids were separated by sublimation, and they showed no depression of the melting points in admixture with the corresponding known acids. The best yield of benzoic acid (74%) was obtained from cinnamonitrile at a molar ratio of RC=N to crown ether to KO_2 of 1:1:1 at a reaction time of 8 h using 40 ml of benzene per 0.7 mmole of nitrile.

Anisic acid was obtained with a yield of 40.5% at the same ratio of the reactants and a reaction time of 2.5 h. p-Nitrobenzoic acid was obtained with the 40% yield at a ratio of the reactants of 1:0.4:4 and the use of 100 ml of benzene per 0.54 mmole of the nitrile. The neutral fraction of the reaction products contained unchanged crown ether and the initial nitrile.

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