



COMPARATIVE STUDY OF HEPATOPROTECTIVE ACTIVITY OF POLYPRENOLS FROM VITIS VINIFERA (VITAPRENOL) AND CARSIL IN EXPERIENCES ON RATS WITH HEPATITIS, CAUSED BY FOUR-CHLORIDE CARBON

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Abstract

The work reveals isolating method of polyphenols from leaves of *Vitis vinifera* subsp. *Silvestris*. The received substance under the conditional name of vitaprenol was studied as a hepatoprotective agent in rats with acute toxic hepatitis, caused by carbon tetrachloride. It was shown, that the studied polyphenols, in a more pronounced degree, than the noted hepatoprotective agent - carsil, restore sharply reduced under hepatitis the total content of protein in the blood serum. Significantly they reduce the manifestations of hepatocyte cytolysis syndrome and cholestasis. Under their influence, a rapid restoration of carbohydrate metabolism in the liver is observed, sharply increasing processes of lipid peroxidation in hepatitis are inhibited, and the activity of enzymes of the antioxidant defense of organism - catalase and superoxide dismutase are normalized. The obtained data in the experiments showed that under the conditions of administration to rats, along with carbon tetrachloride, vitaprenol already in the first days, it significantly prevents the hepatotoxic effect of the selected toxicant. From Table 1, it is seen that in the control, the total protein content of the rats in the blood decreased in relation to the corresponding indicator of intact animals to 19.5%, immediately after the end of seeding with their carbon tetrachloride. In rats which received Vitaprenol three times, the protein content decreased to only 6.9%. Less pronounced than in the control, it was in animals, treated with vitaprenol and hepatocyte cytolysis syndrome, as indicated by lower activity values of the enzymes alanine and aspartate aminotransferase. Lower values of alkaline phosphatase activity (compared with the control is 22.8% less) also indicated less pronounced cholestasis in this case

Keywords. Leaves of *Vitis vinifera* subsp. *Silvestris*, acute toxic hepatitis, rats, polyphenol, hepatoprotective agent, liver, carbohydrate metabolism, lipid oxidation

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INTRODUCTION

Compounds, related to polyphenols, at last times they attract increased attention in connection with the detection of a sufficiently high regenerative activity in them [1]. Some of them have already served as the basis for the development of appropriate drugs [2]. A wide analysis of local plant sources for the content of polyphenols in them and a study of their biological activity is carried out at the Institute of Plant Chemistry of the Academy of Sciences of the Republic of Uzbekistan [3, 4, 5]. This report provides data on the isolation of polyphenols from vine leaves - *Vitis vinifera* subsp. *Silvestris* and their effectiveness, when it is used to restore the metabolic and functional state of the liver, when it is struck by carbon tetrachloride.

PROPOSED METHODOLOGY

Isolation of polyphenols.

The air-dried leaves of the plant (100.0 g) were crushed to a grinding degree of 2.0-3.0 mm, extracted three times with 96% ethanol (3 x 500 ml) by ultrasonic stirring for 30 minutes. Alcoholic extracts of a total of 1300 ml were combined, 1000 ml was taken from it and 200 ml of a 50% aqueous KOH solution was added to it, stirred for an hour, an equal volume

of water was added and extracted three times with hexane. Hexane extracts were combined, washed with water to pH = 7, and dried over anhydrous Na₂SO₄. The solvent was distilled off on a rotary evaporator under reduced pressure at 400C. As a result, 5.5 g of a fraction of unsaponifiable substances was obtained, which was separated on a silica gel column and 1.88 g of a polyphenolic fraction with a content of more than 95.2% was obtained (34.20% of the unsaponifiable fraction, 1.88% of the air-dry mass) and controlled by TLC. For TLC, we used Sorbfil plates (Russia) 10 x 10 cm in size, AL SIL G / UV (Germany), 20 x 20 cm in size, a benzene-ethyl acetate 24: 1 solvent system, 1: 2 hexane - chloroform, KMnO₄ developer in sulfuric acid, 3% alcohol solution of vanillin or iodine vapor. The experiment was repeated three times.

Identification was carried out using IR, NMR-H1 and C13 spectra. The spectral characteristics of the selected polyphenols correspond to published data [3, 6].

The homologous composition of polyphenols was determined as described [7], where the content of deca is 6.5%, undeca - 47.9%, and dodecaprenol - 45.6% of the sample weight.