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ОСВІТНЬОГО ПРОЦЕСУ ДО
НАУКОВИХ ДОСЯГНЕНЬ»

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ON THE FEASIBILITY OF USING BLUEBERRY LEAVES INTENSE FOR THE PREVENTION OF DISORDERS OF CARBOHYDRATE METABOLISM (EXPERIMENTAL STUDY)

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Today, one of the main problems in pediatrics is a violation of carbohydrate metabolism in children, which is provoked by excessive uncontrolled consumption of sugar and sweets. Modern advertising and the negative example of other children and adults make it practically impossible to radically limit the use of easily digestible carbohydrates, which causes the further development of type 2 diabetes. This makes it necessary to find useful plant products that would inhibit or even prevent the development of type 2 diabetes. Blueberry (*Vaccinium myrtillus*) is a delicious fruit that appears on our tables from mid-June to the end of July - one of the first summer berries collected from the wild. Historically, in cooking, blueberry gained recognition not only as a tasty fruit, but also as a medicinal raw material in folk medicine. Both bilberry fruit and leaves have been used since the 16th century to treat various ailments, especially diarrhea, inflammation of the mouth and throat, poor circulation, and vision disorders. The purpose of the study: to study the preventive effect of blueberry leaves on structural changes in lung tissue, heart, liver, salivary glands, stomach and kidneys in experimental diabetes in rats. All experimental animals were divided into 3 groups: 1 – intact, 2 – rats with diabetes modeled, 3 – prevention of diabetes with a phytopreparation. The animals of the second group were injected intradermally with dexamethasone at a dose of 0.125 mg/kg of body weight for 14 days to reproduce impaired glucose tolerance. In the 3rd group, rats were given prophylaxis with a herbal preparation in the form of a decoction (2 ml in a 1:10 dilution). Dry blueberry leaves were used in the study. The study of blood lipids showed that in animals with experimental diabetes, total cholesterol increased by 1.5 times compared to animals from the intact group. With prophylactic use of the herbal preparation, this indicator

decreases by 1.7 times compared to animals without correction. The level of triglycerides, which increased 4 times during diabetes simulation, decreased by 17% in the diabetes prevention group. Total lipids, which increased with experimental diabetes by 57%, decreased by 9% in the group with diabetes prevention. Studies have shown that with experimental diabetes, the glucose level was 30% higher compared to the intact group. Prophylactic administration of the phytopreparation led to a 30% decrease in blood glucose levels compared to rats with experimental diabetes and 10% compared to intact animals. A morphological study of histological preparations showed that in experimental diabetes there are dystrophic changes associated with a violation of carbohydrate metabolism, a total increase in connective tissue and stroma, a decrease in the lumen of vessels, especially of small caliber, and focal hemorrhages. The greatest changes were observed in the tissue of the lungs, stomach and salivary glands. Prophylactic administration of a decoction of blueberry leaves and berries led to the minimization of the above-mentioned negative phenomena in the experimental group, which was confirmed morphologically. Experimental diabetes leads to dystrophic changes in the tissue of the lungs, heart, liver, stomach, kidneys, and salivary glands. Significant thickening of the vessel walls of the target organs and narrowing of their lumen is noted. Prophylactic administration of a decoction of blueberry leaves and berries has a strong organoprotective effect, leads to the prevention of the development of pathological changes in the heart, lungs, liver, kidneys, stomach and salivary glands. Biochemical, histological and morphometric research in the defined groups revealed significant changes in the modeling of experimental pathology and its prophylaxis with a decoction of blueberry leaves. Today, it is impossible for children to refuse candies and sweets, but it is possible to reduce the negative consequences of their consumption. But type 2 diabetes is already called a disease of civilization. A comprehensive study and comparison of the obtained data made it possible to draw certain conclusions. We consider it promising to further study the beneficial properties of blueberry leaves in order for the creation of biological supplementst and create recommendations for including this useful plant in the diet of children (in the form of fresh berries, compotes, jelly, etc.).