

Aim. Given the presence of the hepatoprotective effect of the Prunofit extract, was appropriate to examine its effect on the intensity of cholestatic syndrome in acute toxic hepatitis.

Materials and methods. Determination of alkaline phosphatase activity was carried out by the kinetic method using test kits from Lachema (Czech Republic). The method is based on determining the rate of accumulation of 4-nitrophenol, which is formed by reaction of alkaline phosphatase with 4-nitrophenyl phosphate.

Results and discussion. When modeling loperamide-induced constipation with combined subacute alcoholic liver damage in the control pathology group, there was a significant increase in alkaline phosphatase (2.6 times) compared with the intact control. It reflects the destructive processes in the liver tissue and biliary tract. Against the background of the introduction of the Prunofit extract at a dose of 200 mg/kg, there was a significant decrease in the activity of alkaline phosphatase by 1.4 times compared with the control pathology. It should be noted that the Prunofit extract tended to decrease the expression of cholestasis syndrome and was more effective than the preparations of the reference group (Silybor, 25 mg/kg + Senadexin, 14 mg/kg). There was a significant decrease in alkaline phosphatase activity by 1.06 times.

Conclusions. An analysis of experimental data showed that the Prunofit extract at a dose of 200 mg/kg exerts an inhibitory effect on the destructive consequences of toxic liver damage, reducing the expression of cholestasis syndrome, and is not inferior to the effect of the reference drugs.

ANTIOXIDANT EFFECT OF BEARBERRY LEAVES EXTRACT IN RATS UNDER EXTERIMENTAL INSULIN RESISTANCE

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Introduction. Natural antioxidants contain a high concentration of phenolic compounds and normally occur in fruits, vegetables, and herbs. Bearberry (*Arctostaphylos uva-ursi* L. Sprengel) is a ubiquitous procumbent evergreen shrub located throughout North America, Asia, and Europe. Well-known anti-inflammatory and diuretic properties of polyphenolic Bearberry leaf extracts. The antioxidant properties of the extract are not well understood.

Aim. The antioxidant activity of bearberry leaf extract (BPE) was investigated in rats under experimental insulin resistance induced by high fructose diet.

Materials and methods. Our investigations were conducted on inbred albino male rats weighing 190 ± 15 g. Insulin resistance was induced by keeping animals on a high fructose diet: every day they received a 20% fructose solution instead of water for 7 weeks. Insulin resistance development was controlled by measuring of blood glucose and insulin levels in experimental animals. From the 5th week animals with IR were administrated intragastrically by BPE in dose in dose 100 mg/kg body weight during 14 days. Arphasetin was used as a comparison drug. It was administrated in recommended dose recalculated for rats (18 ml/kg). Blood was collected to get serum. TBARS, conjugated diens and superoxide dismutase (SOD) and catalase (CAT) activity were measured spectrophotometrically. The data were processed statistically.

Results and discussion. Keeping animals on a high-fructose diet was accompanied by oxidative stress and lipid peroxidation development. TBARS and conjugated diens levels were 68 and 98% higher than in control pathology. SOD and CAT activity were significantly decrease also. BPE administration to experimental animals was accompanied by a significant increase TBARS and conjugated diens levels up to normal. The obtained result was comparable with the effect of the comparison drug Arfazetin.

Conclusions. In conclusions, Bearberry leaves polyphenolic extract showed a positive effect due to its antioxidant activity and scavenging ability. Therefore, this study confirmed that bearberry leaves can be used as a source of antioxidants with potential use to create a new drug with anti-inflammatory properties.

MECHANISM OF ACTION OF CORONAVIRUS 2019-nCoV ON A CELL OF A HUMAN ORGANISM

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Introduction. The world community is faced with the problem of global scale – the spread of the new deadly coronavirus – 2019-nCoV. The virus encompasses all the human population. All efforts have been devoted to curbing the spread and creation of a vaccine against the new generation of coronavirus.

Aim. Based on the literature, which disclose the nature and characteristics of the structure of the coronavirus 2019-nCoV, to study pathogenic mechanisms of its effect on human cells.

Materials and methods. Used information-analytical, bibliosemantic research method, structural analysis and comparative content analysis.

Results and discussion. Coronaviruses have a specific way to penetrate into the cells, which reduces the efficiency of conventional protecting cell membranes against viruses. They do not penetrate the cell membrane in arbitrary locations. The “crown” in coronaviruses serves to attack transmembrane cell receptors by imitating S-proteins attached to the “crown” molecules that are important for cell activity. The new 2019-nCoV mutation uses S-protein on the crown to attach the angiotensin converting enzyme 2 (ACE2) to the receptor, as does the SARS-CoV virus (atypical pneumonia). The difference between 2019-nCoV and SARS-CoV is that it is more stable and more easily attached to the receptor. The 2019-nCoV is more contagious, but less fatal than SARS in terms of mortality. The “deceived” cell receptors themselves securely attach the virus to the cell membrane, linking with fake molecules from the crown S-proteins. Then the coronavirus “detaches” the receptor from the membrane and pushes it inside the cell, then the virus RNA is injected into the cytoplasm of the cell. Virus RNA has a 5'-methylated beginning and a 3'-polyadenylated end. This allows the virus to initiate assembly of its proteins and copies in the ribosome of the cell, which is not able to determine whether it is RNA of the virus or RNA for the proteins of the cell. After receiving the virus RNA and its necessary proteins, viral nucleocapsids are assembled from the genomic RNA of the virus and N-protein in the cytoplasm. Virions are then released from the infected cell through exocytosis. After the virions exit the cell, it dies.

Conclusions. An in-depth study of the 2019-nCoV mechanism of action on the living cell makes it possible to create drugs for the prevention and treatment of this dangerous viral infection.

QUATERNARY AMMONIUM COMPOUNDS IN PHARMACY

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Introduction. The quaternary ammonium compounds (QAC) are widely used in medicine, household and often content in different plant and nature at all. In medicine QAC are widely used as disinfectants. It is used to disinfect patient-care supplies or equipment.