

Pharmacological activity of extracts from the *Prunus Domestica*

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The experimental research is devoted to the study of pharmacological properties of extracts obtained from the fruits of *Prunus domestica* to get a potential hepatoprotective agent with moderate laxative properties.

In the study of acute toxicity of extracts PE-1, PE-2, PEPC and PEF from *Prunus domestica* fruits by intragastric and intraperitoneal administration to mice and rats, it was found that the median lethal doses of all studied extracts exceed 5000 mg/kg, which allows them to be classified to IV toxicity class «relatively harmless substances» in accordance with the classification of K.K. Sidorov.

The results of pharmacological screening revealed the presence of laxative and hepatoprotective properties in the PEF and PEPC extracts. The studied extracts had moderate laxative effect on the model of loperamide-induced constipation (26% and 20%, respectively, compared with IC). PEF extract showed the highest laxative activity at a dose of 200 mg/kg (29%), which exceeded the maximum activity of PEPC extract, which was observed at a dose of 100 mg/kg (26%) and «Picolax» at a dose of 0.3 ml/kg (27%).

The data of experimental study of the hepatoprotective activity showed that the PEF extract decreased the activity of cytolytic enzymes ALT, AST, AP and GGTP by 1.4 times compared with CP. Determination of AOS markers in hepatocytes showed that on the model of alcoholic liver damage PEF extract at a dose of 200 mg/kg reduced the content of DC in the liver homogenate by 29.3%, TBA-AP – by 21%, GPL – by 22.6% and increased HGS by 39.4%, α -tocopherol by 42% compared with CP. The detected anticytolytic and antioxidant effects of PEF extract are probably due to presence of hydroxycinnamic acids and anthocyanins in its chemical composition. The PEF extract was determined as the most active according to the results of screening tests by the laxative and hepatoprotective properties. Histomorphologic studies of two selected extracts PEPC and PEF from *Prunus*

domestica fruits confirmed the advantage of normalizing of liver hepatocytes function by activating regenerative processes in liver tissue. The PEF extract revealed greater normalizing effect. This extract was conventionally named «Prunofit». The study of the lipotropic properties of «Prunofit» on the model of alcoholic liver damage showed a decrease in the intensity of lipolysis, hepatic steatosis, manifestations of hyperlipidemia, which occurred in rat liver homogenate and in rat serum. «Prunofit» was at the level of the reference drug «Methionine» in the ability to inhibit fatty infiltration of the liver. Microbiological studies have shown that «Prunofit» does not show antimicrobial activity against reference cultures of *S. aureus*, *E. coli*, *B. subtilis*, *P. aeruginosa*, *C. albicans*. But it was revealed the presence of prebiotic properties in «Prunofit», which is accompanied by an intensification of growth of both bifidobacteria and lactobacilli. The prebiotic effect of extract is probably due to the presence of organic acids in its chemical composition.

Studies examining the specific pharmacological action of «Prunofit» in a model of comorbid functional constipation combined with alcoholic liver damage in rats have shown that investigated extract has a moderate laxative effect without provoking secretory diarrhea (the number of fecal bolus 29.8 ru versus 18.5 ru in CP). The introduction of «Prunofit» contributed to the normalization of all studied indicators of intestinal motility (fecal bolus, wet fecal mass, dry fecal mass, % of water in feces), which did not differ statistically from similar indicators in the IC group. In this case, according to the obtained experimental data, it is likely that the studied extract has a «soft» laxative effect (68% versus 50% in CP) mainly due to improved intestinal motility.

Therefore, the proven pharmacological effects of «Prunofit» were detected in the treatment of constipation combined with acute alcoholic liver damage and exceeded the effects of combined treatment with hepatoprotector «Silybor» and laxative «Senadexin». «Prunofit» in contrast to «Senadexin» did not cause signs of diarrhea in animals, which may be a beneficial feature of this remedy in subsequent clinical use. The studied extract «Prunofit» can be as prospective alternative to treatment with herbal hepatoprotectors in combination with laxatives, which will avoid polypragmatism in the treatment of comorbid conditions in gastroenterology, associated with intestinal congestion and functional disorders of the liver.