

RESEARCH OF THE THICK EXTRACT FROM THE LEAVES OF CORYLUS AVELLANA AS FLEBOTROPIC REMEDY

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Introduction. High prevalence of varicose veins and its complications is an emerging problem in the 21st century, and it leads to an increase in disability and the cost of treatment. Varicose veins are superficial vessels in the lower extremity that are abnormally twisted, lengthened and dilated, and often associated with incompetent valves within the vein. Pharmacotherapy includes the use of phlebotropic drugs belong to several different chemical families. Some have been produced by chemical synthesis, but the majority of them are plant-derived compounds, that represents various flavonoids and their combinations. Nowadays it's important to search for the new plant-derived compounds that can adjust as much as possible spectrum of venous disorders, and that would be accessible to a wide range of consumers. The promising substance for pharmacological study as phlebotropic remedy is *Corylus avellana*, which according to the literature, is used in folk medicine for varicose ulcers, capillary hemorrhage and contains in its structure: flavonoids (myricetin, quercetin, kaempferol, afzelin). It is widely known that the hallmark of all bioflavonoids are capillary protective effects and decrease of vascular permeability, which makes anti-inflammatory and anti-edema effects, reduction in venous congestion of the capillaries, improvement of the venous circulation. However, in the pharmaceutical market of Ukraine there are no medications on the basis of *Corylus avellana*, indicating the pharmacological studies feasibility of the medicinal raw materials.

Aim. So, the object of our research has been extract from the leaves of *Corylus avellana* at a dose of 60 mg/kg obtained at the Department of Chemistry of Natural Compounds at the National Pharmaceutical University led by professor Khvorost O. P. Whereas venous diseases the development of inflammation is accompanied by venous wall structure disorder and increases its permeability that leads to edema and venous congestion, the next goal of our research has been to study the thick extract from the leaves of *Corylus avellana* on the course of inflammation in venous stasis of a rat's tail to confirm the prospects of studying *Corylus avellana* as phlebotropic remedy.

Materials and methods. Venous stasis at the tail has been caused by the occlusion of an overlay alloy on the base of the tail for 3 hours to load a metal weight. At the same time the permeability of blood vessels remains the same, but

by 2/3 venous outflow has been hampered from the tail. As a result, developing venostaz accompanied by transsudative edema. On the development of edema we have figured out due to the increase of the volume of the tail, which has been measured in the dynamics within 3 hours after the imposition of ligatures and after 1, 2 and 24 hours after removal of ligature. To assess the effectiveness of the integrated samples in this condition the expected rate of an antiexudative activity, measured by the degree of reduction of edema in the experimental animals, has been compared with the control and expressed as a percentage. Statistical data processing has been carried out using the software package Statistica 6.0. Statistical analysis has been performed using Newman-Keuls criterion for significance level $P < 0.05$.

Results and discussion. It has been determined that occlusion, which has been imposed for 3 hours at the base of the tail, reduces the resistance of capillaries and causes the development of edema. It has been proved that the antiexudative activity of the extract for three hours of the experiment has been 47.8%, 28.5% and 16.2% respectively. Eskuvit (the comparator tablets) within the first hour after the imposition of ligatures has also reduced the volume of the tail, but slightly inferior to the effect of the *Corylus avellana* extract treatment group from the leaves. In a second experiment the activity of Eskuvita has been almost at the level of the treatment group of the investigated extract. In the third hour the occlusion of the tail and an hour after the removal of ligature influenced prototypes tail volume has slightly decreased, but not significantly due to the group of control animal pathology. Two hours after removing the tail the ligation volume in the animals, which have been treated with the investigational extracts and tablets Eskuvit, has decreased and an antiexudative activity has amounted to 66.7% and 61.0% respectively. A day later in the control animals and the animals treated with Eskuvit have remained negligible swellings, and in the group of the *Corylus avellana* extract treatment from the swelling has completely gone.

Conclusions. Thus, the thick extract from the leaves of *Corylus avellana* at a dose of 60 mg/kg has a pronounced veinprotective activity on the model of venous stasis in the rat's tail. In some moments the extract is more active than the comparator Eskuvit. That is all confirms the prospects of further study of the extract as phlebotropic remedy.