EVALUATION OF HYPOLIPIDEMIC ACTIVITY OF FLAVONOIDS FROM *CROCUS SATIVUS*

Narbutaeva D.A.
Tursunkhodjaeva F.M.
Makhmudova Sh.R.
Institute of Chemistry of Plant Substances of the Academy of Sciences of the Republic of Uzbekistan, Tashkent city, Republic of Uzbekistan
e-mail: narbutaeva83@list.ru
https://doi.org/10.5281/zenodo.17342360

Relevance. It is currently established that lipid metabolism disorders are a leading risk factor for the development of cardiovascular diseases -vascular diseases, mainly due to the significant influence of cholesterol on the development of atherosclerosis, diabetes mellitus, obesity, and, accordingly, the risk of developing ischemic stroke. Therefore, the search for new active agents capable of exerting a pharmacocorrective effect on impaired lipid metabolism remains a highly relevant task. As part of the ongoing search for new non-toxic and effective herbal remedies for the treatment of cardiovascular disease and ischemic stroke, encouraging results were obtained when considering a drug with the tentative name "Saflavin" (dry powder of the aqueous fraction of the ethanol extract of secondary metabolites of Crocus sativus L. stamens).

The aim of the study was to investigate the hypolipidemic effect of the sum of flavonoids from C. sativus flower stamens on a model of experimental hyperlipidemia.

Materials and methods. Experimental hyperlipidaemia (HL) was induced in rats weighing 180–200 g by administering adrenaline and ethanol. Adrenaline hyperlipidaemia was reproduced by intraperitoneal injection of a 0.1% adrenaline solution at a dose of 1.5 mg/kg. The study drug, Saflavin, was administered orally to the animals at a dose of 100 mg/kg three times, the last time 30 minutes before the adrenaline injection. Ethanol hyperlipidaemia was induced by sequential administration of 50% ethanol for three days at doses of 2, 4 and 6 g/kg. The study drugs were also administered to animals for three days, two hours before the administration of ethanol and then 24 hours after the last administration of ethanol. The study was conducted in comparison with the drug 'Atoris (Atorvastatin) 20 mg tablets' (KRKA dd. Novo mesto, Slovenia). The blood serum lipid spectrum (total cholesterol – TC, triglycerides – TG, high-density lipoproteins – HDL, low-density lipoproteins – LDL) was studied using reagents manufactured by Cypress Diagnostics (Belgium). The data obtained were processed statistically using Student's t-test in Statistica version 6. Statsoft, Inc. (2001).

Results. The experiments showed that adrenaline hyperlipidaemia in control animals was accompanied by an increase in TG and LDL by 41.2–40.9% and a slight increase in serum OX content. The administration of Saflavin contributed to a decrease in serum TG and LDL levels in experimental rats by 34.4 and 32.6%, while the well-known drug atorise reduced these parameters by 22.3 and 27.9% under these conditions. A decrease in OX content was also observed under the action of Saflavin and Atoris by 34.5-28.1%. Thus, treatment of animals with ethanol hyperlipidaemia with the studied drugs Saflavin and Atoris led to a decrease in serum cholesterol levels by 39.4-33.3% and triglycerides by 38.9–28.7%. At the same time, there was an increase in HDL levels by 19.0–15.5% and a decrease in LDL levels by 21.0–18.5% compared to the values in control animals.

Thus, the experiments showed that Saflavin has a hypocholesterolemic and hypoglyceridaemic effect and normalises lipid metabolism disrupted by the administration of the standard and adrenaline. The effect of Saflavin in these experiments exceeded or was quite comparable to that of atorisol.

The work was carried out with the support of the Budgetary program of fundamental scientific research of the Academy of Sciences of the Republic of Uzbekistan.