Materials and methods. The object of the study was the leaves of Iridodictyum Cantab harvested in the Botanical Garden of V. N. Karazin Kharkiv National University (Kharkiv, Ukraine) in May 2017. Raw materials were dried to air-dry condition. For determinations, 70% alcohol-water extract was used.

A preliminary study of the qualitative composition of phenolic compounds in raw materials was carried out using the methods of one-dimensional and two-dimensional chromatography on paper Filtrak FN 4 in the systems n-butanol –acetic acid – water (4: 1: 2) and 15% CH_3COOH.

Qualitative reactions to flavonoids were carried out: 1) cyanide sample, 2) reaction with alkali (10% NaOH), 3) with $FeCl_3$; for tannins: 1) general precipitates with 1% gelatin solution, 1% quinine chloride solution, $Pb(CH_3COO)_2$ basic, 2) staining reaction with ammonium-iron alum, 10% CH_3COOH and 10% solution $Pb(CH_3COO)_2$; on saponins: 1) foaming, 2) sedimentation with barite water, 10% $Pb(CH_3COO)_2$ basic, 3) staining: Lafon reaction, Salkovsky reaction, Sagnier reaction; for coumarins: 1) with alkali (10% NaOH) and diazoreactive, 2) lactone test with 10% alcoholic solution of NaOH and 10% HCl.

The quantitative content of the main groups of biologically active substances in the raw materials was carried out spectrophotometrically: the amounts of polyphenols in terms of gallic acid, the amounts of flavonoids in terms of rutin (by the modified method "Herba Hyperici", State Pharmacopoeia (SP, XI), the amounts of isoflavonoids in terms of onoside (by the modified method "Radix Ononis", SP XI), the amounts of hydroxycinnamic acids in terms of chlorogenic acid according to the method developed by the molecular spectroscopic analysis sector of the GNTCL (TPM "Herb Erigeron Canadian") (42-U-6/37-323-96). The determinations were carried out on an Evolution 60S spectrophotometer (USA). The content of tannins in terms of condensed tannins was carried out by the method of permanganatometry according to SP XI.

Results and discussion. The presence of flavonoids, triterpene saponins, hydroxycinnamic acids and condensed tannins was established by qualitative reactions in aqueous-alcoholic extracts from the leaves of Iridodictyum Cantab. Coumarins were not identified.

Using two-dimensional chromatography in the systems: 15% acetic acid (I) and BWH (4: 1: 2) (II), several substances of phenolic nature were identified in the leaves; according to chromatographic behavior in the UV (ultra-violet) light, substances can be attributed to flavonoids, hydroxycinnamic acids and isoflavonoids. Using paper chromatography in a 2% acetic acid system with reliable samples, chlorogenic, neochlorogenic and cinnamic hydroxycinnamic acids were identified.

The quantitative content of the amount of polyphenolic compounds in the leaves of Iridodictyum Cantab was $5.40 \pm 0.10\%$, the amount of flavonoids – $4.73 \pm 0.13\%$, the amount of isoflovonoids – $7.84 \pm 0.13\%$, the amount of hydroxycinnamic acids – $1.08 \pm 0.19\%$, the amount of tannins – $2.31 \pm 0.09\%$.

Conclusions. The results showed that further in-depth study of the Iridodictyum reticulatum variety Cantab, as a source of biologically active substances, can be considered promising for pharmacy.

PROSPECTS OF LYCIUM BARBARUM ANTIOXIDANTS FOR THE SPORTS MEDICINE USE

Kovaleva O.O.[1], Fathi Kaoutar[2], Kovalev V.V. [2]
Scientific supervisor: PhD Kovalev V. V.
[1]H.S. Skovoroda Kharkiv National Pedagogical University
[2]National University of Pharmacy, Kharkiv, Ukraine
volodyakw@gmail.com

Introduction. Competition causes constant increase in volumes and intensity of athlete's loads who are often in extreme conditions in modern sports. This determines the search for new ways of comprehensive support to the athlete's body. Rational and systematic use of recovery determines the effectiveness of the whole system of their preparation, during the annual cycle, and during periods of high loads in many respects.

Protective systems of athletes bodies not always can respond to stress caused by high physical activity adequately. The risk of developing violations in the work of systems and organs rises sharply as a result.

Biologically active food supplements and specialized products that facilitate portability and reduce the negative effects of physical and psycho-emotional stresses are one of the main means of athletes restoring.

Research of new biologically active substances, new forms of known substances and their sources become relevant In this regard.

Antioxidants greatly facilitate load tolerance, increase endurance and resistance to various adverse factors (heat, cold, thirst, hunger, infection, psychological stress, physical activity, etc.). Antioxidants are one of the effective means of restoring the body after increased physical activity.

Plant extracts, with a pronounced antioxidant effect, can be recommended for intense physical activity and should be highlighted among non-doping (allowed) antioxidant drugs.

Antioxidants are used in sports nutrition to accelerate the adaptation to increased stress and restore the body after it, if there is a real danger of overtraining, weakening of the immune system and the risk of developing various diseases. This is due to the acceleration of metabolism, at the expense of muscular activity, and with increasing in oxygen consumption.

The theoretical precondition for the use of these category products for the purpose to correct athlete physical performance is the ability of antioxidants to interfere with excessive activation of free radical oxidation of lipids of cellular and subcellular membranes (lipid peroxide oxidation).

Prospects for the development of new more efficient products related with the search for antioxidants, which specifically operate on certain parts of free radical oxidation. A prerequisite for the purposeful search for new antioxidants with predetermined properties is account communication between their chemical structure and target of action.

From the literature data, it is known that most often a separate antioxidant, even in large quantities, is not as effective as a complex of antioxidants in certain proportions. At the same time, the most prominent properties can be the complexes developed with the use of antioxidants of several mechanisms of action.

The arsenal of effective antioxidant medications for local wound healing is not great despite the large number of known chemical compounds possessing the ability to suppress free radical processes. This is due to the fact that part of the well-known widely used drugs are fat soluble substances, which sharply limits the possibility of their use in the first phase of the wound process.

Aim. The purpose of the work was a study of biologically active compounds containing in extract obtained from leaves and berries Lycium barbarum for use as an antioxidant at the diet of athletes, taking into account synergy and mechanisms of their composition antioxidants action.

Materials and methods. Literature data of relevance and necessity using of antioxidants by athletes has been studied. Biologically active substances containing in extracts of Lycium barbarum leaves and barriers that exhibit antioxidant properties has been studied due to literary analysis.

Results and discussion. The leaves and berries of the Lycium barbarum contains much more ascorbic acid than oranges, iron – more than in spinach, antioxidants are approximately 10 times more than in red grapes, betacarotene is approximately two times more than in carrots. It was also reported that Lycium barbarum medecines stimulate the production of superoxide dismutase in humans – one of the leading antioxidant enzymes. Phytochemical studies of leaves and berries of Lycium barbarum were conducted and technology for obtaining a dry extract was developed at the Department of Pharmacognosy of NFaU.

Conclusions. Thus, the study of the properties of Lýcium bárbarum antioxidant complexes for the inhibition of free radical lipid oxidation, in the development of specialized products athletes nutrition is relevant and promising. In order to create a medicine, it is necessary to study the physico-chemical, pharmacological and technological properties of the extracts in the future.