

# SEARCH FOR NEW MEDICINAL PLANT RAW MATERIALS WITH ANABOLIC ACTIVITY

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**Introduction.** Proteins are the most important biological substances of living organisms. They serve as the primary plastic material of cells, tissues and organs of the human body. Proteins are the basis of hormones, enzymes, antibodies and other entities that perform complex functions in human life (digestion, growth, reproduction, immunity, etc.).

Since proteins are central to the implementation of the body's vital processes, the violations of protein metabolism are components of the pathogenesis of all pathological processes. With a lack of protein in the body there are serious violations: a slowdown of growth and development of children, changes in liver, in activity of the endocrine glands and in the blood, the weakening of mental activity, decreased performance and resistance to infectious diseases.

**Aim.** Study of modern literature and the analysis of the role of anabolics in protein metabolism.

**Materials and methods.** The study of scientific literature sources from 2012 to 2016.

**Results and discussion.** The modern nomenclature anabolic agents include various chemical structure and origin of drugs having the ability to enhance protein synthesis in the body. It is hormonal and anti-hormonal drugs, amino acids, vitamins, coenzymes, nootropic, herbal products, bee products and others.

However, the basic therapy is represented by hormones, particularly anabolic steroids, which have a positive effect on protein metabolism, but they do have number of serious side effects (negative effects on the mental state of a person, the reproductive function in men, the adrenal cortex, cardiovascular system, liver, musculoskeletal system, skin and others), which limit their use.

In this regard, one of the major problems in modern pharmacology is the creation of new drugs that will contribute to the intensive renewal of proteins or have a direct stimulating effect on the different stages of protein synthesis.

Plant adaptogens show, as a rule, mild anabolic effect, but in its ability to increase physical and mental performance (ergotropic action) are superior to most synthetic drugs. A positive trait of plant anabolic drugs is a low toxicity, a wide range of pharmacological actions and the reasonable price. They are able to influence the metabolic processes in the body that is caused by the presence in their composition the amount of biologically active substances – flavonoids, ecdysterones,

polysaccharides, saponins, coumarins and others that enhance the pharmacological action of each other.

The range of domestic drugs has more than fifty plant drugs that can influence the body's metabolism (*Rhaponticum carthamoides*, *Rhodiola rosea*, *Aralia mandshurica*, *Panax ginseng*, *Oplopanax elatus*, *Eleutherococcus senticosus*, *Schisandra chinensis*, *Sterculia platanifolia*, and others). But the main for them is ergotropic rather than anabolic effect.

In Ukraine the herbal drugs with anabolic activity are almost absent. Therefore, the study of plants in order to create drugs that will implement a positive effect on protein metabolism and thus do not show pronounced negative effects remains an urgent problem of modern pharmacy and medicine.

It is known from literature sources total flavonoid preparations from different species of *Trifolium*, *Ononis*, *Medicago*, *Solidago* and *Psoralea* was increased the total protein content in skeletal muscles and internal organs by 30-50%. Body weight gain in the animals for 2 weeks was 60-75%, which is probably due to the stimulation of DNA and protein synthesis, and regulation of anabolic processes.

Analyzed the chemical composition of plants with different mechanisms of anabolic action. Herbal anabolic steroids can be divided into 3 groups: phytoecdysones, estrogen and hypoglycemic action anabolics.

*Phytoecdysones* called group of polyhydroxylated steroid compounds (*Rhaponticum carthamoides*, *Plantago major*). In experiments it was found that ecdysterone of *Leuzea* increased body weight and total protein in the liver, heart and kidneys.

*Phytoestrogens* – analogues of female sex hormones – have diverse structure. First of all, it may be steroidal estrogens similar to human (*Salix alba*, *Glycyrrhiza glabra*, *Prunus armeniaca*); stilbenes (*Anisum vulgare*, *Trifolium repens*); coumarin derivatives (*Trifolium repens*, *Trifolium hybridum*, *Medicago sativa*); isoflavonoids (*Medicago sativa*, *Prunus avium*, *Genista tinctoria*).

There are several groups of plants which include *glycokinins* having effect similar to insulin. One of these glycokinins groups has an anabolic activity (*Phaseolus vulgaris*, *Medicago sativa*, *Galega officinalis*, *Lactuca sativa*, *Elytrigia repens*, *Taraxacum officinale*, *Lactuca sativa*, *Apium graveolens*, *Juglans regia*, *Verbascum phlomoides*).

**Conclusions.** Thus, perspective is the depth study of the composition and activities of the aforementioned plants, as well as the search for new medicinal plant raw materials which has an anabolic influence on the human body.