

BETULIN IMMUNO

(Betulafarm®)

USER'S

Scope of application

It is recommended as dietary food supplement — a source of betulin, glycyrrhizic acid and hydroxycinnamic acids.

Composition

extract of licorice roots – 140 mg, Echinacea herb extract – 100 mg, birch betulin (birch bark extract) – 40 mg.

Capsule shell composition – gelatin, titanium dioxide, ferric oxide.

Directions for use

For adults: take 1 capsule per day with food during 2-3 weeks. Repeat the course, if necessary, after 2-3 weeks. Consult your doctor before use.

Contraindications

Idiosyncratic reaction to product ingredients, pregnancy, breast-feeding, including for Echinacea component progressive systemic diseases (tuberculosis, leucosis, disseminated sclerosis, collagenoses).

Shelf life: 2 years from the date of manufacture.

Storage conditions

Store in dry place; keep out of reach of children; don't store above +25 °C.

TS 9197-004-74779358-15



It is not a drug product.

Certificate of State Registration

RU.77.99.11.003.E.006268.05.15 dd. May 12, 2015

"Betulin Immuno" should be sold through specialized stores or pharmacy chain shops.

Vitamer LTD., Office III, Orlovo-Davydovskiy Lane 1, Moscow, 129110

Production address: 11 Sovkhoznyaya Street, Petushki, Vladimir Region

By order of Betulafarm LTD.,
St. Petersburg

Claims to be sent to the authorized organization below:
BetulaFarm LTD., 5 Lev Tolstoy Street, St. Petersburg
Phone: 8 800 100 1738.

ADDITIONAL INFORMATION

Detailed information — on the company's web-site: www.betulin.com

INSTRUCTION

Betulin (lup-20(29)-ene-3 β , 28-diol) is widespread, natural compound from the triterpenes group produced from upper birch bark.

Betulin is white color powder, odorless, with weak astringent taste. It is oxygen- and sunlight-resistant, non-toxic. Water-insoluble. It is very soluble in organic solvents. High melting temperature of betulin (240-260 °C), stable chemical formula and inert properties of the molecule provide extended storage period without changing properties.

Echinacea extract is powder of yellow-brown or dark brown color with specific smell. Echinacea purpurea herb contains polysaccharides (heteroxylans, arabinorhamnolactans), essential oils (0.15-0.50 %), flavonoids, hydroxy-cinnamic (chicory, ferulic, coumaric, caffeic) acids, tannins, saponins, polyamines, echinacin (amide of polyunsaturated acid), echinolon (unsaturated cetone alcohol), echinacoside (glycoside containing caffeic acid and pyrocatechol), organic acids, resins purple, phytosterols. Rhizomes and roots contain inulin (up to 6 %), glucose (7 %), essential and fat oils, phenolcarbonic acids, betaine and resins. All parts of the plant contain enzymes, major mineral elements (potassium, calcium) and microelements (selenium, cobalt, silver, molybdenum, zinc, manganese etc.).

Dry licorice root extract is powder of brown color with weak peculiar smell and sickly sweet taste. It contains glycyrrhizin, glycyrrhizic acid and its potassium and calcium salts, as well as flavonovic glycosides – liquiritin, liquiritigenin and iquiritozyde. In addition, vitamins (in particular, ascorbic acid) and other bioactive compounds were discovered in roots of the plant.

APPLICATION FIELD

It is recommended as bioactive food addition: a source of betulin, bioflavonoids, immunostimulating polysaccharides, essential oils, alkamides, polyenes, saponins, sigosterol and glycyrrhizic acids. It can be used as powerful prophylactic combined complex at the secondary immunodeficient states of any origin, at the chronic fatigue syndrome and especially for prophylaxis of different viral diseases, in particular, for prophylaxis of acute respiratory viral infections and flu. It can be prescribed as a prophylaxis drug and rehabilitation agent of the immune system at tumour diseases and during specific antitumor treatment (radiation or chemotherapy).

ANTIINFLAMMATORY AND IMMUNOMODULATOR ACTION OF BETULIN

Betulin activates phagocytosis significantly (nonspecific factors of immunity), activates macrophages, which begin to absorb bacteria more actively, as well as cancer cells uncontrollable by the body and cells affected by viruses.

Betulin demonstrates the apparent anti-inflammatory effect regarding to the exudation and proliferation phase. Betulin has an effect on the immune system through the cytokine network. Cytokines are soluble peptide neurotransmitters, which are messengers of intercellular interactions at the immune

response. They determine a type and duration of the immune response, control proliferation of cells, hemopoiesis, inflammation, wound healing and other processes.

ANTIVIRAL ACTION OF BETULIN

It was demonstrated that betulin induces the interferon synthesis orally. The antiviral activity of betulin was ascertained regarding to viruses of the bird flu, type A flu virus, herpes simplex virus, hepatitis C, HIV-1, infectious rhinotracheitis, illness of mucous membranes, diarrhea virus. The mechanism of the betulin medioprophylactic action is related to its viricidal, interferon inducing and immunomodulatory action.

Betulin blocks a site in the virus protein molecule, which proteinase contacts with, as a result the virus is deprived a possibility to infect other cells. Betulin influences on the virus replication late stage, on the formation process of the capsid – a cone-shaped core, which jointly with internal nucleocapsid provides the correct packing of the viral genome – two molecules of the single-stranded RNA. As a result, the core and internal nucleocapsid take the wrong form preventing the maturation of a viral particle. Any failure in the viral proteolysis process leads to the loss of infectivity (virulence) by the virus. Hence, betulin prevents the adequate virus reproduction in the body.

An advantage of betulin is the fact that the amount of antiviral preparations is limited; many immunomodulators cannot be widely used in the clinical practice due to their toxicity and undesirable effects. For example, interferon preparations are characterized by their short duration of action, a necessity to use them in the initial stage of disease and high cost. The prolonged use of interferon causes anxiety and irritability, phrenoplegia and attempted suicide. Acyclovir and preparations on the basis of triazocompounds seriously impair the liver and kidneys. When treating with HIV-preparations on the basis of blockers of reverse transcriptase and others, doctors have to condone with extremely serious complications in the course of the antiretroviral therapy due to the absence of an alternative.

Betulin is not toxic and does not have side actions. Betulin is able to reduce the interferon system hyperactivity, promotes its functional activity at hyporeactivity and favors to maintain the ability of leucocytes to produce interferon.



IMMUNOMODULATORY ACTION OF ECHINACEA

Echinacea has immunomodulatory and antiinflammatory effect. Polysaccharides promote phagocytic activity of neutrophils and macrophages, stimulate interleukin-1 generation. The complex of active substances induces the transformation of B-lymphocytes in plasma cells, improves functions of T-helpers. Thanks to inulin, levulose and betaine it improves exchange processes, especially in liver and kidneys. The chemical analysis of Echinacea distinguishes several groups of substances, which have the importance for medicine. They are polysaccharides, flavonoids, derivatives of caffeic acid, essential oils, polyacetylenes, alkylamides etc. Water-soluble polysaccharides stimulate the cellular immune system and liposoluble components enhance phagocytosis. Echinacea polysaccharides also improve tissue regeneration by stimulation of fibroblasts. Aboveground parts of Echinacea purpurea are rich in polysaccharides, but the root of Echinacea angustifolia – in inulin.

Inulin accelerates motion of leucocytes to places affect by an infection. But branched water-soluble heteroglycans containing several different sugars are more powerful polysaccharides of the immunity, whereas inulin contains only polyfructose. Studies established that Echinacea purpurea extracts containing polysaccharides cause the increase generation of phagocytes in spleen and bone marrow and migration of granulocytes to peripheral vessels as well.

The most essential derivatives of caffeic acid are chicoric acid, chlorogenic acid, cynarin and echinacoside. The main valuable substance – echinacoside – is accumulated in roots and in small proportion in flowers. It is no less effective than penicillin in a fight against wide spectrum of viruses, bacteria, fungi and protozoa. Echinacoside protects the III type collagen against destruction by free radicals helping it to go back to the natural profile. This discovery explains the success of local application of Echinacea extracts for prevention and treatment of skin damages by ultraviolet rays. Alkylamides inherent in great amounts in Echinacea angustifolia roots possess slight anesthetic action.

Echinacea angustifolia roots contain copper, betaine, echinacine B, echinacene, echinacoside, arabinose, fructose, echinolone, fat acids, glucose, iron, inulin, polysaccharides, potassium, polyacetylene, resin, sulphur, protein, tannines, vitamins A, C, E and many other substances. Echinacea can support the immune system using several mechanisms. In the first place, Echinacea stimulates the activity of leucocytes, which fight with an infection. Furthermore, according to studies Echinacea can enhance phagocytosis – a process, which enables the body to remove bacteria, viruses, sick and damaged cells.

Studies demonstrated that Echinacea could block the action of the hyaluronidase enzyme, thereby promoting the protection of the body against distribution of bacteria and viruses. Nowadays specialists recommend taking Echinacea at the next states: any septic states, blood poisoning symptoms, meningitis, catarrhal diseases, flu, bronchitis, tonsillitis, otitis, burns, furuncles, pox, erysipelas and purulent ulcers, gangrene, oral ulcers, gingival inflammation, candidiasis, psoriasis, eczema, inflammatory processes of urogenital tract, puerperal infections, gonorrhoea, trichomoniasis, herpes, hemorrhoids, lesion by poison and stings. Echinacea can be a useful auxiliary agent at treatment of oncologic diseases, AIDS and the chronic fatigue syndrome.



BIOLOGICAL ACTIVITY OF LICORICE ROOT

Licorice (Yashti-Madhu) ranks one of the first places in the “gold row” of Ayurveda plants, because it has effect on all body systems. Thanks to its estrogenic fraction, it possesses an antiulcer effect, and thanks to its high content of saponins – an emollient and expectorant effect. The availability of liquiritine glycoside stipulates laxative, choleric and spasmolytic action. Betasitosterols prevent prostatic adenoma development and strengthen urine passage.

High content of glycyrrhizin and glycyrrhizic acid also provides immunomodulatory, antiinflammatory and adaptogenic effects. Licorice root is used in Ayurveda as a “key plant” in many phyto-formulations. Its chemical composition is presented by

glycyrrhizin glucoside containing potassium and calcium salts of glycyrrhizic acids; by glycyrrhizic acid (triterpene saponoside); by flavonoids (about 27 components) – liquiritine, liquiritoside, liquiroside etc.; by glycyrrhetic (glabric) acid; dihydrostigmasterol, betastigmasterol, cirrisine amarine, asparagine. Licorice also contains vitamin C, yellow pigment, essential oil, steroids, gums, resins and amarine. Licorice preparations possess antiinflammatory, moderately antibacterial, hyposensitization and immunomodulatory actions. The chemical structure of licorice glycosides is similar to the structure of hormones being secreted by adrenal glands and helps the body to fight with stress effectively.

Substances released from licorice strengthen capillaries and regulate metabolism. Furthermore, one of licorice components – betaglycyrrhizic acid – acts in much the same way like corticosteroid hormones, with which the distinct antiinflammatory and antiallergenic properties of licorice are related to, therefore it is appropriate to use it at allergic “itching” dermatoses, changes of microcirculation in blood vessels of skin.

Polysaccharides of licorice root (in particular, glycyrrhizin) possess the apparent immunomodulatory properties. Licorice in small doses provides immunomodulatory effect, in high doses – immunosuppressive. According to numerous modern researches, its root possesses powerful antioxidant properties, as well as enables

the effective decline of of cholesterol level in blood. Licorice root has an antiinflammatory effect similar to cortisone consisting in reduction of inflammatory reactions being caused by histamine and serotonin. Expectorant properties of licorice are related to content of glycyrrhizin in its roots, which stimulates the ciliated epithelium activity in trachea and bronchial tubes, as well as it strengthens the secretory function of mucous membranes of upper air passages.

It has spasmolytic effect on smooth muscles, because it contains flavanove compounds, among which liquiritoside is considered the most active. It possesses mild laxative action, protects intestinal epithelium strengthening release of mucus, hence preventing formation of ulcers.

INDICATIONS AND USAGE

Betulin, extracts of Echinacea and licorice root can be prescribed as a powerful prophylactic preparation at the secondary immunodeficient states of any origin, at the “chronic fatigue” syndrome and especially for prevention of different viral diseases, in particular for prevention of the acute respiratory viral infection and flu. The complex can be prescribed as a prophylactic drug and the immune system restoration agent at tumour diseases and during specific antitumoral treatment (radiation therapy, chemotherapy).

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