Abstract:

The invention relates to algae biomass Spirulina platensis. Biomass of algae Spirulina platensis both in fresh and dry form can be preserved by glucose and fructose. These monosaccharides are the main components of bee honey. Made algae Spirulina platensis and honey preparation complements the human diet for normal functioning almost all the necessary materials. The dose of preparation is 1 to 15 g per day. The invention claimed relates to food products and/or to food supplements, in particular, to manufacture of specifically food product and/or food supplement of algae Spirulina platensis.
5 ALGAE SPIRULINA PLATENSIS PRESERVATION BY NATURAL HONEY

Fresh and air-dry biomass of cyanobacterium *Spirulina platensis* can be preserved with fructose and glucose. These monosaccharides are the main ingredient of bee honey. The preparation, containing cyanobacterium *Spirulina platensis* and bee honey, supplements the human diet with almost all vital substances required for the proper functioning of the organism. The dosage of the preparation is 1 - 15 g a day. This invention relates to the field of food supplement production, in particular, to the production of cyanobacterium *Spirulina platensis* food supplement.

Food supplements include vitamins, minerals, acids, enzymes and other vital substances or their complexes. Deficiency of these substances can lead to impaired functioning of organism and development of various diseases. Often these substances are used as preventive measures against disease development or for suppressing disease progression. The search of new supplements has encouraged the analysis of human and other animals' physiology. The result of these efforts - revolutionary supplements which are drastically different from the primary product placed on the market, e. i. the protein concentrate. The present supplements affect the processes of cells as well as genes. It shows the unique properties and effectiveness of these supplements. However, only natural and organic supplements are the most promising ones [1, 2].

Cyanobacterium *Spirulina platensis* is the only living organism that has not changed over the million years of its existence due to its unique biochemical composition. Thoroughly balanced by nature, this algae is a great source of vitamins, minerals and amino-acids. *Spirulina platensis* is rich in proteins of high biological value. They make up as much as 70 percent of the chemical composition of *Spirulina platensis*. Spirulina contains high amount of blue pigment phycocyanin which is the only effective natural protection against cancer. This pigment can be found nowhere else in nature. The cyanobacterium has high content of folic acid which is essential for proper hemoglobin formation. In addition, Spirulina contains many vital minerals and micro-elements including ferrum, calcium, sodium, potassium, copper, magnesium, zinc, phosphorus, selenium, vitamins, carotene, nucleic acid, enzymes and other active substances [5].

Studies all across the world have shown that *Spirulina platensis* has the following unique properties: destroys the majority of viruses; compensates the deficiency of vitamins and minerals; reduces fat levels in the blood, prevents atherosclerosis and coronary
diseases; accelerates wound healing; encourages the regeneration of cells; exhibits enzymatic activity; increases the resistance to radiation; normalises metabolic processes, enhances immune system and body resistance; alleviates allergy and intolerance; reduces the toxic effect of carcinogens; removes heavy metals, toxins and radionuclides from the body; possesses curative and preventive properties against body impairments and disorders; increases energy levels and vitality; exhibits prebiotic properties [3, 4, 6].

Bee honey promotes liver health, relieves stress, possesses healing and preventive properties against respiratory, heart and blood vessel diseases, prevents joint, kidney and digestive tract diseases, treats burns, helps battle physical and mental exhaustion, enhances immune system and epidermal skin layer. Honey reduces blood pressure and may be used for the treatment of hypertension even in patients suffering from kidney disease or during pregnancy. Honey is rich in minerals, vitamins, enzymes, phytoncides, hormones, aromatic and bactericidal substances. The algae *Spirulina platensis* biomass can be well preserved with fructose and glucose. The said carbohydrates constitute the basis of bee honey.

The aim of the envisaged invention is to create a safe food supplement which would have positive effect on human physiological processes, enhance activity of the vital body systems and supplement the diet with essential substances.

The stated aim is achieved when the human ration involves a food supplement containing natural cyanobacterium *Spirulina platensis* biomass which has at least 8.0 % of the blue pigment phycocyanin on the dry matter basis, and is preserved with liquid or creamed (partially crystallised) bee honey.

The algae are preserved with bee honey at the following ratio of ingredients (% by mass): 0.85 - 20 cyanobacterium *Spirulina platensis* biomass, the rest is liquid or creamed honey. Before preservation, the cyanobacterium *Spirulina platensis* biomass is washed with drinking water and vacuumed to 70 - 75 % moisture. The vacuumed biomass of cyanobacterium *Spirulina platensis* is poured while mixing into the liquid or creamed honey. The mixing is done for 15 - 30 minutes. The cyanobacterium *Spirulina platensis* biomass preserved with honey remains active for up to 12 months.

The stated aim is achieved when the human ration involves a food supplement containing natural cyanobacterium *Spirulina platensis* biomass which has at least 8.0 % of the blue pigment phycocyanin on the dry matter basis, and which is dried under active ventilation to an air-dry substance having 9.5 - 14.0 % of moisture and bee honey. Before drying, the cyanobacterium *Spirulina platensis* biomass is washed with drinking water and vacuumed to 70 - 75 % moisture content. The vacuumed biomass is dried in the drying
facility under 36-42 °C temperature. The air-dry cyanobacterium *Spirulina platensis* biomass remains active for at least 24 months. The algae is additionally preserved with bee honey at the following ratio of ingredients (% by mass): 0.5 -50 of air-dry cyanobacterium *Spirulina platensis* biomass, the rest is liquid or creamed bee honey. The air-dry biomass of cyanobacterium *Spirulina platensis* is poured while mixing into the liquid or creamed honey. The mixing is done for 15 - 30 minutes. The cyanobacterium *Spirulina platensis* biomass preserved with honey remains active for up to 36 months.

The human ration, supplemented with a mixture of *Spirulina platensis* biomass and bee honey, supplies human body with all essential substances required for the vital physiological processes. The daily allowance is 1—15 g per person.

References:


1. The food supplement containing cyanobacterium Spirulina platensis which has at least 8.0% of the blue pigment phycocyanin on the dry matter basis, characterized in that the cyanobacterium is in the form of a fresh Spirulina platensis biomass, and it additionally contains bee honey at the following ratio of ingredients (% by mass): 0.85 - 20 of cyanobacterium Spirulina platensis, the rest is liquid or creamed honey.

2. The production method of the food supplement according to claim 1, characterized in that the Spirulina platensis biomass before preservation is washed with drinking water and vacuumed to 70 - 75 % moisture; the vacuumed cyanobacterium Spirulina platensis biomass is poured while mixing into liquid or creamed honey.

3. The food supplement containing cyanobacterium Spirulina platensis having at least 8.0% of the blue pigment phycocyanin on the dry matter basis, characterized in that cyanobacterium Spirulina platensis is in the form of air-dry biomass and additionally preserved with bee honey at the following ratio of ingredients (% by mass): 0.5 - 50 of air-dry cyanobacterium Spirulina platensis biomass, the rest is liquid or creamed bee honey.

4. The production method of the food supplement according to claim 3 characterized in that the cyanobacterium Spirulina platensis biomass is washed with drinking water, vacuumed to 70 - 75 % moisture, dried to an air-dry substance under 36-42 °C temperature; the air-dry cyanobacterium Spirulina platensis biomass is poured while mixing into liquid or creamed honey.
### A. CLASSIFICATION OF SUBJECT MATTER

INV. A23B4/14 A23L1/08 A23L1/30 A61K36/02

### b. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A23B A23L A61K

### c. DOCUMENTS CONSIDERED TO BE RELEVANT

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See patent family annex.

Date of the actual completion of the international search

12 November 2010

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Name and mailing address of the ISA/Authorized officer

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**DOCUMENTS CONSIDERED TO BE RELEVANT**

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