

Секція 1. ІННОВАЦІЙНІ ТЕХНОЛОГІЇ ХАРЧОВОЇ ПРОДУКЦІЇ РЕСТОРАННОЇ ІНДУСТРІЇ

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DETERMINATION OF ENERGY VALUE AND VITAMIN COMPOSITION OF DIETARY SUPPLEMENTS BASED ON MALT EXTRACTS «POLYSOL» (ВИЗНАЧЕННЯ ЕНЕРГЕТИЧНОЇ ЦІННОСТІ ТА ВІТАМІННОГО СКЛАДУ ДІЄТИЧНОЇ ДОБАВКИ НА ОСНОВІ СОЛОДОВОГО ЕКСТРАКТУ «ПОЛІСОЛ»)

The issue of healthy and balanced nutrition is extremely important for Ukraine. The most acute problems include high percentages in the diets of saturated animal fats and light carbohydrates; high consumption of confectionery; low share of fish and seafood, dairy products, quality meat products and meat, vegetables, fruits. All this leads to the lack of many vitamins (in particular, vitamin C, vitamins fat-soluble group – A, D, E) and trace elements (iron, iodine, selenium, folic acid, etc.).

Malt extract «Polisol», which is made from sprouted grains of cereals: barley, oats, wheat and corn - a natural food product, which is a source of useful biologically active components. Due to the deep hydrolysis of the malt, the enzymes, mono- and oligosaccharides, dextrins, minerals and vitamins pass into the extract. Due to these substances, Polisol has a high nutritional value, and due to the significant content of reducing carbohydrates (maltose, glucose and fructose), the extract is easily absorbed by the human body. Therefore, malt extract «Polisol» is a vitamin-mineral complex containing naturally-balanced B vitamins, vitamins C, E and minerals Ca, Mg, K, P, Na, Zn, Fe, Cu. In addition, it is the source of 15 amino acids, 8 of which are essential for the body. The extract is a thick, viscous, dark brown syrup with a solids content of 74.0–76.0% by weight. Polisol malt extract is known to improve taste and prolong the shelf life of baked goods thanks to maltodextrins. The extract is used instead of sugar and sweet syrups. Compared to other sweeteners, the malt extract gives the product a natural taste, aroma and pleasant appearance. In addition, it is a natural dye. It is used in the production of baby food, dairy products, breakfast cereals, food products for athletes, technologies of bakery and confectionery products, low-alcohol and non-alcoholic drinks.

That is why the extract «Polisol» has become the basis for the manufacture of dietary supplements with a wide range of beneficial properties. So, the LLC «Research and Production Company «Delta» has launched a series

of dietary supplements based on the supplement «Polisol». In addition to the malt extract «Polisol», dietary supplements included extracts with proven biological effects obtained from various types of plant materials.

The Law of Ukraine «On Consumer Protection», in particular in Article 15 «The right of the consumer to information about products» states: «The consumer has the right to obtain necessary, accessible, reliable and timely information about the products, which provides the opportunity for its conscious and competent choice. The information must be provided to the consumer prior to purchasing the product or ordering a job (service). Product information is not considered an advertisement». Therefore, the specialists of the Department of Chemistry, Microbiology and Hygiene of food of KSUFTT were tasked to determine: the content of proteins, fats, hydrocarbons, calories and vitamin composition of dietary supplements based on «Polisol». The studies were conducted on the basis of the laboratory of physical and chemical research of food systems of KSUFTT and the laboratories of the participants of the scientific-educational cluster «High-grade nutrition: innovative aspects of technology, energy-efficient production and marketing», in particular, State Scientific Institution «Institute for Single Crystals» of National Academy of Sciences of Ukraine.

The study was conducted according to standard methods: DSTU 7804: 2015 Fruit and vegetable processing products. Methods for determining solids or moisture; DSTU 7824: 2015 Fruits, vegetables and products thereof. Methods for determining total protein content; GOST 8756.21-89 Products of processing fruits and vegetables. Methods for determining fat; GOST 8756.13-87 Products of processing fruits and vegetables. Methods for determining sugars. Sample preparation for analysis was refined by the authors of this material.

Vitamins B₁, B₂, B₆, BC, B₁₂, C were determined using high performance liquid chromatography (HPLC). Vitamin E was determined by thin layer chromatography. Ascorbic acid was not detected by HPLC using standard. This gave reason to believe that it is in oxidized form in the form of dehydroascorbic acid. Therefore, a titrimetric method using cysteine and visual indication of the titration end point of sodium solution of 2,6-dichlorophenolindophenolate was used to quantify it.

Studies have shown that dietary supplements based on polysolyte polysolate extract have an energy value of 290 kcal / 100 g, are a valuable source of B vitamins, containing on average 35,7 mg / 100 g of vitamin C, from 0.47 to 1.16 mg / 100g of Vitamin E and can be recommended for daily use to prevent diseases of a different nature.