COMMODITY INDICATORS OF BIOLOGICALLY ACTIVE FOOD SUPPLEMENTS "STEVIAMAR", "SKVALEAMIN NEO", "SKVALEMARIN"

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ABSTRACT

The purpose of this work is to evaluate the commodity indicators of biologically active food supplements "Steviamar", "Skvaleamin Neo", and "Skvalemarin" based on organoleptic, physicochemical indicators, requirements for raw materials and materials.

KEYWORDS: *Biologically Active Additives (BAA), Amaranth, Food Additives, Tablet, Capsule, Powder, Technical Requirements, Packaging, Labelling, Control Methods.*

INTRODUCTION

Biologically active additives (BAA) to food "Steviamar", "Skvaleamin Neo", and "Skvalemarin" are produced in the following assortment:

- "Skvaleamin Neo" in the form of tablets, capsules and powder;
- "Steviamar" in the form of tablets, capsules and powder;
- "Skvalemarin" in the form of oil.

Food supplements "Steviamar", "Skvaleamin Neo", and "Skvalemarin" must comply with the requirements of the organization's standard, be produced according to the technological instructions and recipes in compliance with the sanitary norms and rules approved in the prescribed manner [1-5].

REQUIREMENTS FOR RAW MATERIALS

Raw materials of plant species of the flora of Uzbekistan and materials used for the production of dietary supplements for food must be approved for use by the Ministry of Health of the Republic of Uzbekistan. Input control of raw materials and materials is carried out in accordance with GOST 24297 [6].

For the production of dietary supplements for food, the following raw materials and materials are used:

- Amaranth seeds - Amaranthus - in accordance with GOST 28636 or according to a certificate of conformity [7];
- Amaranth leaves, flowers - according to the current regulatory documentation;

- Stevia (Stevia rebaudiana L.) TU 9729-004-00668620-99;
- Stevia concentrate purified from sweet substances;
- Stevia leaf extract TU 9154-003-17444221-09;
- Milk thistle (Silybum marianum L.)
- Leaves and flowers of safflower - in accordance with GOST 12096 or according to a certificate of conformity;
- Sunflower oil - according to GOST 1129 [10];
- D_3 - according to the current regulatory documents or according to the certificate of conformity.

AUXILIARY MATERIALS

- Calcium stearate according to the current normative documents or according to the certificate of conformity;
- Magnesium stearate according to the current normative documents or according to the certificate of conformity;
- Microcrystalline cellulose - purified according to the current ND or imported according to the certificate of conformity;
- Sugar according to GOST 3 1361 or according to GOST 31895 [11];
- Potato starch according to GOST 7699;
- Maltodextrin according to the current ND or according to the certificate of conformity;
- Food natural extract or flavours according to GOST 32049 or imported according to the certificate of conformity [12];
- Purified water – according to the certificate of conformity;
- Drinking water – by O'z DST 950 [13].
- Citric acid – according to GOST 908 or according to the certificate of conformity [14];
- Sodium citrate – according to the current RD or according to the certificate of conformity;
- Potassium sorbate imported according to the certificate of conformity;
- Ethyl alcohol rectified from food raw materials according to O'z DST 3115 [15];
- Gelatin capsules – according to the current RD or according to the certificate of conformity;
- For product packaging, packaging materials must comply with the requirements of standards approved in the prescribed manner.

For production, raw materials are not allowed in which the residual amount of toxic elements and microbiological indicators exceed the maximum allowable levels established by SanPiN 0283 [16].

PACKAGE

Food supplements in the form of oils are poured into vials or bottles with a screw thread on the rim with a capacity of 10,0 ml to 500,0 ml of various types: glass, glass and PET bottles according to the current regulatory documentation.

It is allowed to use other containers, in agreement with the consumer and approved for use for this product name by the Ministry of healthcare of the Republic of Uzbekistan.

Bottles and vials with dietary supplements for food should be tightly closed and not leak when turned over.

It is allowed to pack vials and bottles together with instructions for use in packs of boxed cardboard according to GOST 7933, and GOST 33781. The gross weight of the shipping container should not exceed 10 kg.

BAA for food in the form of powder/granules packaged with a weight of 1,0 g to 200,0 g in cardboard packs according to GOST 7933 or with a weight of 0,5 g to 10,0 g in a sachet or for racial tea leaves in imported paper bags according to a certificate of conformity, which are from 1 pc. up to 100 pcs. placed in cardboard packs according to GOST 7933 [17].

It is allowed to produce dietary supplements for food with a net weight of 1,0 g to 500,0 g in bags made of polyethene film of basic grades in accordance with GOST 10354 [18] or cellophane film in accordance with GOST 7730 [19], approved for contact with food products.

For glueing packs and paper bags, polyvinyl acetate dispersion according to GOST 18992 [20] or imported according to the certificate of conformity should be used. Plastic bags must be glued by heat sealing, and bags for racial tea leaves are glued by heat treatment. It is allowed to use self-adhesive stickers for boxes.

A dietary supplement to food in the form of capsules/tablets packaged in weights from 300,0 mg to 1000,0 mg in blister packs made of polyvinyl chloride film and aluminium varnished printed foil (blaster), approved for use by the Ministry of Health of the Republic of Uzbekistan from 1 to 30 pieces or in bottles made of polymeric materials according to the current regulatory documentation in quantities from 10 to 140 pieces. A blister and bottles in an amount of 1 to 4 pieces are placed in boxes made of boxed cardboard according to GOST 7933, GOST 33781 [21].

Packs, bags, and bottles (jars) are placed in corrugated cardboard boxes in accordance with GOST 13511 [22] or imported according to a certificate of conformity. Boxes are pasted over with paper-based adhesive tape in accordance with GOST 18251 [23], or with imported adhesive tape according to the certificate of conformity.

Permissible negative mass tolerances for packaged goods must comply with requirements O'z DST 8.022 [24].

Product packaging must comply with the requirements of UzTR.476-021 [25].

MARKING

Each packaging unit - consumer packaging, must be marked in the form of a glued paper label made of label paper in accordance with GOST 7625 [26] or written a paper in accordance with GOST 18510 [27] indicating:

– Name of the manufacturer, its trademark (if any), address (legal and actual) and telephone

number;

- Name of production;
- Compound;
- Release form;
- Instructions for use;
- Information about contraindications;
- Volume, ml (for oils);
- Net weight (tablets, capsules, powder), g;
- Quantity in a package, pieces;
- Date of manufacture (day, month, year);
- Expiration date (month, year);
- The inscription: "BAA for food, is not a medicine";
- Storage conditions;
- Designation of this standard of the organization;
- Certification information;
- Barcode with the registration number (if necessary);
- “O'zbekistonda ishlab chiqarilgan” or “Произведено в Узбекистане” when selling on the domestic market, when supplying products for export – “Made in Uzbekistan”

If all the necessary information cannot be placed on the packaging unit, it is allowed to include the missing information in the package leaflet (abstract, instructions for use).

Each package is marked with a transport marking in accordance with GOST 14192 with an indication of handling signs: “Fragile. Carefully!" (for glass bottles), "Keep away from sunlight", and "Protect from moisture" [28].

For each unit of transport container in which packaged products are packed, one of the end sides of the box is marked with a stamp, stencil, and labelling, containing the following information:

- name of the manufacturer, a form of ownership, its trademark (if any), address (legal and actual), telephone number;
- Name of production;
- The number of packaging units, and pieces;
- Net weight, kg;
- Date of manufacture (day, month, year);
- Storage conditions;
- Expiration date (year);

- Certification details:
- Designation of this standard of the organization;
- "O'zbekistonda ishlab chiqarilgan" or " Произведено в Узбекистане" - when selling on the domestic market, when supplying products for export - "Made in Uzbekistan".

Product labelling must comply with the requirements of UzTR.490-022 [29].

According to organoleptic indicators, dietary supplements for food must meet the requirements specified in Table 1 [30].

TABLE 1. ORGANOLEPTIC INDICATORS OF DIETARY SUPPLEMENTS FOR FOOD "STEVIAMAR", "SKVALEAMIN NEO", "SKVALEMARIN"

Names indicators	**Characteristic**			
Release form	**Powder/ /granule**	**Pills**	**Capsules**	**Butter**
Appearance	**Crushed mass**	**In the form of a round or some other form. with/without company embossing on one side**	**Solid gelatin capsules of a cylindrical shape with smooth, without surface damage, filled with a crushed mass**	**Homogeneous transparent liquid. Slight haze allowed**
Colour	**From light green to Green colour**	**depending from the colour of the components**		**Light yellow to brown colours**
Smell and taste	**Weak fragrant, slightly astringent, bitter, without foreign taste and odour with a predominance of odour composition of plants**			

According to the physicochemical parameters, dietary supplements for food in the form of granules/powder must comply with the standards specified in Table-2 [31-37].

TABLE 2. PHYSICO-CHEMICAL INDICATORS OF DIETARY SUPPLEMENTS FOR FOOD "STEVIAMAR", "SKVALEAMIN NEO", "SKVALEMARIN" (GRANULE/POWDER)

The name of the indicators	**Norm**
Humidity, %, no more	**10.0**
The content of extractives in terms of the absolutely dry mass of raw materials,%, not less than	**20.0**
Mass field of large fraction (grinding),%, no more	**5.0**
Mass fraction of metal-magnetic impurity	**not allowed**

The content of impurities: **- mineral (earth, sand), %, no more** **- organic (parts of other non-poisonous plants), % no more;**	 **0.1** **0.1**
Mass fraction of browned parts of raw materials,%, no more	**4.0**
The presence of mould and rot	**not allowed**
The presence of poisonous plants and their parts	**not allowed**
pest infestation	**not allowed**
The average weight of powder/granules in a sachet, g	**from 0.5 to 200**

According to the physicochemical parameters, dietary supplements for food in the form of tablets/capsules must comply with the requirements specified in Table-3.

TABLE 3. PHYSICO-CHEMICAL INDICATORS OF DIETARY SUPPLEMENTS FOR FOOD "STEVIAMAR", "SKVALEAMIN NEO", "SKVALEMARIN" (TABLET/CAPSULE)

The name of the indicators	Norm
The average weight of capsules/tablets, g	**0.3-1.0+ I 5%**
Mass fraction of moisture, %, no more	**9.0**
Disintegration, min, no more	**thirty**

In terms of physicochemical and safety indicators, dietary supplements for food must meet the requirements specified in Table-4 [38-55].

TABLE 4. PHYSICAL AND CHEMICAL INDICATORS AND SAFETY INDICATORS OF DIETARY SUPPLEMENTS FOR FOOD "STEVIAMAR", "SKVALEAMIN NEO", "SKVALEMARIN"

The name of the indicators	Norm
Acid number. mg KOH, no more	**2.25**
Mass fraction of moisture and volatile substances,%, no more	**0.15**
Mass fraction of non-fat impurities	**is absent**
Peroxide number of active oxygen mmol /kg	**ten**
Mass fraction of unsaponifiable substances, %, no more	**0.5**
Toxic elements, mg/kg, not more than:	
- Lead	**0.1**
- Arsenic	**0.l**
- Cadmium	**0.05**
- Mercury	**0.03**
- Iron	**5.0**
- Copper	**0.5**
- Zinc	**5.0**
Mycotoxins: aflatoxin B_i, mg/kg, no more	**0.005**
Pesticides:	
- Hexachlorocyclohexane (α-, β-, γ -isomers), mg/kg, not more than	**0.05**
- DDT and its metabolites, mg/kg, no more	**0.1**

Cesium-137 Bk /kg	**60**
Strontium-90 Bk /kg	**80**

The content of toxic elements, the residual amount of pesticides, radionuclides and microbiological indicators must comply with the requirements established by SanPiN 0283. Determination of the content of pesticides and mycotoxins is carried out according to the methods approved by the Ministry of Health of the Republic of Uzbekistan in the prescribed manner.

Control methods for dietary supplements for food in the form of oils, powders/granules and capsules/tablets are carried out according to regulatory and technical documents in the form of GOST, O'z DSt, and GF. The quality of the packaging and the correctness of the labelling will be checked visually. It is allowed to use other control methods approved in the prescribed manner, not specified in the standard of the organization and provide reliable test results.

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