** The study was carried out in the framework of the scientific project № C-26/792 and the State assignment AAAA-A19-119112290009-1.*

УДК 663.885

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THE CHOICE OF A METHOD FOR FILTERING A FUNCTIONAL BEVERAGE TO PRESERVE ITS MINERAL COMPOSITION

Keywords: functional nutrition market, functional beverage, adaptogenic, methods for filtering, microfiltration, minerals.

The development of the functional and specialized products industry is driven by a growing consumer awareness of the relationship between nutrition and health. The population began to perceive products not only as a resource for life, but as a source of nutritious nutrients that improve health. In this regard, the range of functional and specialized food products of multidirectional effects on the human body is growing rapidly [1, 2].

The segment of functional non-alcoholic juice-containing beverages in Russia began to develop relatively recently, and there are practically no beverages with a preventive effect and adaptogenic action. Their action is aimed at stimulating the activity of the limbic system to improve memory, concentration, increase working capacity and prevent disorders of the nervous system. In this regard, a functional drink was developed. Functional juice-based, adaptogenic beverage contains a large number of mineral compounds such as: Na, K, Mg, Ca, Fe, Cu, Zn, Mn, due to juices and cell walls of plant materials.

Macronutrients and trace elements play an important role in neurometabolism, nerve impulse transmission, participate in protein synthesis, etc.

In industrial production, beverages undergo a filtration process in order to remove suspensions, microorganisms to achieve a longer shelf life and maximum quality indicators for consumers.

In this regard, it is relevant to determine the concentrations of macronutrients and trace elements in a filtered and unfiltered beverage.

In the experiment, the first type of filtration was chosen – microfiltration, which allows particles from 0.1–1.0 μm in size to be retained on the filter.

Minerals in the beverage were determined by atomic absorption spectroscopy with flame atomization of steam on a spectrophotometer Shimadzu AA 6300 [3, 4].

Thus:

• the concentration of potassium (K) after filtration did not change;

• the concentration of iron (Fe) decreased by more than 75.0 %;

• copper (Cu) concentration decreased by more than 20 %;

• the concentration of macronutrients: sodium (Na), magnesium (Mg), calcium (Ca) and trace elements: zinc (Zn), manganese (Mn) decreased by 1–5 %, which is within the margin of error.

The results obtained allow us to analyze the loss of minerals and determine the necessary amount of beverage consumption to ensure the daily intake of macronutrients and trace elements of the body.

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