Creating new thermotechnological obtaining quality folate containing functional powders

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The use of new technological approaches to solving problems associated with obtaining high quality powders containing folate. The result is a energy-efficient technologies to reduce the cost of heat in the processes of preparation and drying of raw materials. The proposed measures to stabilize folate containing raw materials by introducing a raw material compositions high in vitamin C, folate can reduce the loss of raw materials without pretreatment. Selection of compositions improves the organoleptic and physical-chemical properties of food powders and products from them.

The base of folate containing is a green pea, an asparagus bean, a spinach with adding a zucchini, an apple and onion. The green pea clicks at the special machines and cut the asparagus bean, the spinach, the apples and the zucchini 0.5×0.5 centimeters. According to literature date, the green pea, the asparagus bean and the spinach always blanch before drying. The reason of blanching is to increase the flexible of fruit tissue, to inactivate enzymes, to improve the penetration of the fruits outer and to delete the air from the tissue.

Based on the features of folate contains, the green pea and the asparagus been was blanching for 2 minutes at the temperatures of 85…90 ºС in soft modes. The spinach was soaking for 5 minutes at the temperature of 20…25 ºС in the water. There are minimum loss of vitamins and other bioactive substances in such modes. We are adding raw ascorbic acid to folate contains in proportion 2:1 in order to stabilize folates.

By using suggested technology of previous processing (3, 4) the researching of folate contains showed the level of folate among the others modes.

It was created a composition for stabilizing folate in folate contains called “asparagus been-onion”. The researching of drying “asparagus been-onion” was carried out at convective drying stend with temperature changes of heating medium from 60…100 ºС.

The temperature rise of heating medium significantly intensifies the process of drying folate contains material. So increasing temperature degrees from 60 till 70 ºС reduce the period of drying at 21% in folate contains composition “asparagus been – onion” (picture 2,a).

The maximum speed of drying with temperature in 100ºС in the mix “asparagus-onion” is 28%/hour, what is in 1,75 more than drying mode with 60 ºС (picture 2,b).

A choice of drying mode first of all connected with quality value of conservation on folates after drying. The researching of temperature influence of heating medium during drying on contents of folates in the asparagus been and in composition “asparagus been – onion” is showed at picture 3. The increasing temperature of heating medium also makes negative influence on the asparagus been because 72% is lost with 80 ºC, and further temperature increasing till 100 ºC makes 91% of losses.

Designed composition of folate contain and drying modes help to save the contents of folates to 31% after drying. The contents of folates is 71% when temperature of heating medium is 60ºC in dried composition, with the temperature increasing from 80 ºC till 100ºC this degree decreases till 48% and 18%.
In comparison with mono raw materials the folate containing save in composition even when the temperature of heating medium rises. The conducted researches have shown that the temperature and components of the composition influence on stability of the folates during the drying.

Keywords: folate, heat technologies, drying, energy efficiency, powders, quality.