

Use of Extracts and Powders of PhytoGenesis for Improvement of Functional Properties of Confectionery Masses

Maria Janchyk, Oleksandr Niemirich, Jelyzaveta Smirnova
National University of Food Technologies

Introduction. Due to adverse environmental situation in Ukraine, it is important to create new kinds of foods, including confectionery products of high nutritional and biological value. Confectionery represents a group of foodstuffs of the wide range, which differ greatly in composition of recipes, production technology and consumer properties. They play a significant role in replenishing of a person's energy balance.

Materials and methods. Confectionery masses are semi-finished products which are widely used in institutions of restaurant business. Production of confectionery masses is possible when using dietary supplements of a phytoGenesis. Considering it, the studies on creation of confectionery masses from the main fondant with addition of powders from carrots, bananas, seeds of sesame, nut raw materials and extracts of medicinal plants have been conducted.

Results. Using computational and analytical methods was balanced by a chemical composition of several recipe ingredients of confectionery masses. For the first option, to the finished fondant carrot powder, ground sesame seeds and blueberry extract were added. Carrot powder contains vitamins B, PP, C, E and K and also carotene, which in the human body turns into vitamin A. There is also a sufficient quantity of mineral substances and trace elements (potassium, iron, phosphorus, magnesium, etc.) that are necessary for the human body as well as essential oils, pantothenic and nicotinic acids. Because of carotene being a fat soluble vitamin, it is best absorbed along with fat and vitamin E, for this purpose to this sample ground sesame seeds were added. In seeds of sesame there are a lot of fatty oils, consisting mainly of esters of glycerol and organic acids, saturated and polyunsaturated fatty acids and triglycerides. They contain sesamin, a powerful antioxidant, capable to reduce the general level of cholesterol in blood, prevent the development of many diseases, including cancer. Substances, irreplaceable for full vital activity of a person, are a part of extract of bilberry, such as: lemon, oxalic, amber and apple acids. Blueberries include micro- and trace elements: manganese, potassium, iron, phosphorus, sulfur, copper, zinc and chromium. Iron contained in the berry, completely is absorbed by a human organism.

In the second case the recipe composition was enriched with banana powder, ground walnuts and Sophora extract. Bananas contain tannins and aromatic substances, enzymes, vitamins C, B1, B2, B6, PP, provitamin A, calcium salts, magnesium, sodium, phosphorus, iron and a lot of potassium. Walnuts, in turn, have a high nutritional value. The main components of nuts are easily digestible in fats (60-70%). In addition, walnuts contain valuable protein, a significant amount of vitamin E and B vitamins, minerals (potassium, phosphorus, magnesium, iron) and fiber. Medicinal properties Sophora's extract prove due primarily to the fact that its buds and flowers contain up to 30% of rutin. Rutin - is the same vitamin E, and it's also nicotinic acid, which is known to participate in many processes in the body. Thanks to this substance, Sophora is also useful for skin because rutin participates in protein and carbohydrate metabolism. Sophora is also useful for the gastrointestinal tract, it cures intestinal disorders and improves peristalsis. Thanks to vitamin E, Sophora reduces blood sugar, relieves high blood pressure, and prevents stroke and heart attack.

The main objective of the paper was to study the effect of herbal powders and extracts of medicinal plants on crystal formation of fondant mass during its maturation and whipping. In the test items there have been found homogenous structure of the solid phase, extracts and powders particles up to 15 microns that do not exhibit the properties of crystallization centers, even distributed by weight, keeping moisture.

Conclusions. As a result there have been studied organoleptic properties of the described above samples: appearance, taste, smell, and especially consistence, which proved to be very plastic. Considering the studied above, the direction of development based on confectionery fondant mass with the addition of extracts and powders of a phytoGenesis is possible to regard topical now.