Technology Development of Receiving Food Ingredients from Vegetable Raw Materials

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***Abstract*—** Today, among the domestic producers of meat products is growing recognition that without quality food ingredient does not create a modern generation of export of meat products. It is known that the quality and taste aromatic properties of natural dry spices exposed negative changes under the influence of various factors, and may be due to improper storage conditions, the presence or absence of a vacuum or inert gas packaging, packaging type, degree and method of grinding, etc.

In this regard, we have developed a recipe and technology of food ingredients from vegetable raw materials. The nutrition and biological value of food ingredients from aromatic herbs and vegetable cultures is investigated. It is carried out ultrasonic dispersion of food ingredients from vegetable raw materials.

Application of new food ingredients for the domestic meat industry will give the ability to produce technologically complex multifunctional multi-meat products, ensuring the safety of products in storage, increasing the stability of the product in different types of damage, and to ensure the optimal performance of the rheological and thermodynamic characteristics thus achieve improved texture and water-holding capacity and increase the yield of the finished product, which ultimately helps to improve the economic potential of the meat processing enterprises.

***Keywords* —** taste and aromatic ingredients, vegetable cultures.

I. Introduction

ASPECTS of production of agricultural raw materials and food where it is necessary to consider creation of the industry of food ingredients as this question of national security are included in the Concept of food security of RK.

Lack of the necessary ingredients will affect quality, prime cost and periods of storage of almost all types of meat products. In this regard, of course, it is time to create in Kazakhstan sector of food ingredients, the quality of domestic meat ingredients must comply with international requirements and be competitive not only in domestic but also in foreign markets. Production of high-quality food ingredients will allow developing to the domestic enterprises of meat branch production with high quality indicators from a horse-flesh, a goat's meat and fowl. It is known that quality and high-aromatic properties of natural dry spices are subject to negative changes under the influence of various factors and can be caused by the wrong storage conditions, existence or absence of vacuum or the environment of inert gas in packing, a type of packing materials, degree and way of crushing, etc.

One of the most promising options of flavored spice is the way of their introduction into the product in the form of emulsions, provides the most uniform distribution of flavored spices in the bulk of the food, such as meat [1].

II. Bioavailability

For definition of quality indicators were studied mineral (P, K, Ca, Mg) and vitamin (B1, B2, B12, E) structure taste-aromatic ingredients and vegetable cultures (fig. 1,2,3,4).

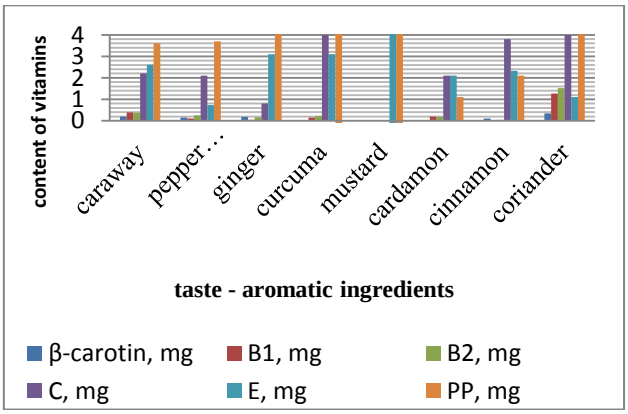

Fig.1 Vitamin structure taste-aromatic ingredients

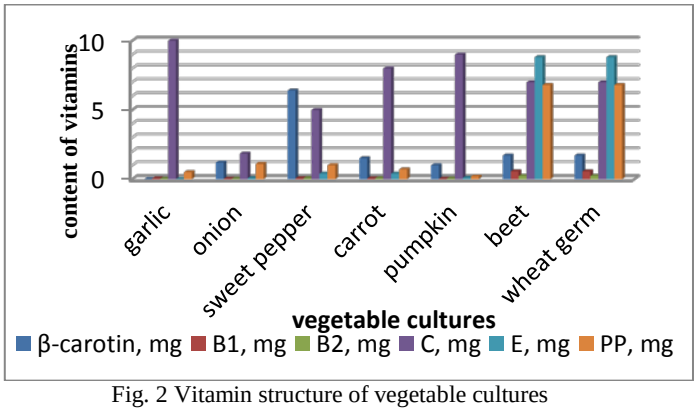

Fig. 2 Vitamin structure of vegetable cultures

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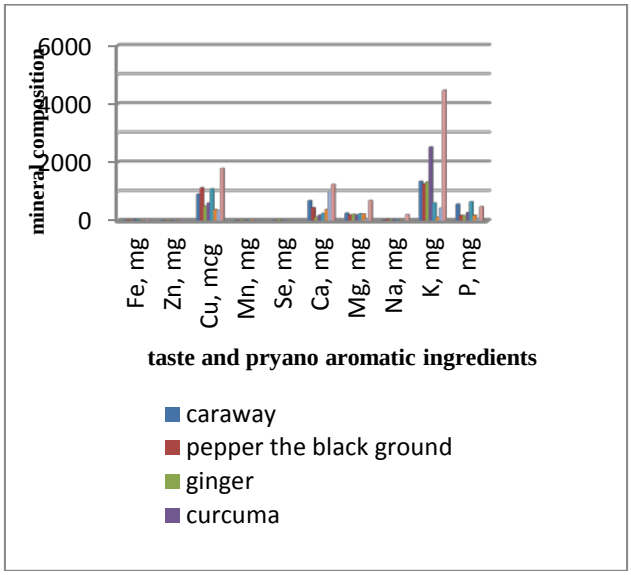

Fig. 3 Mineral structure taste-aromatic ingredients

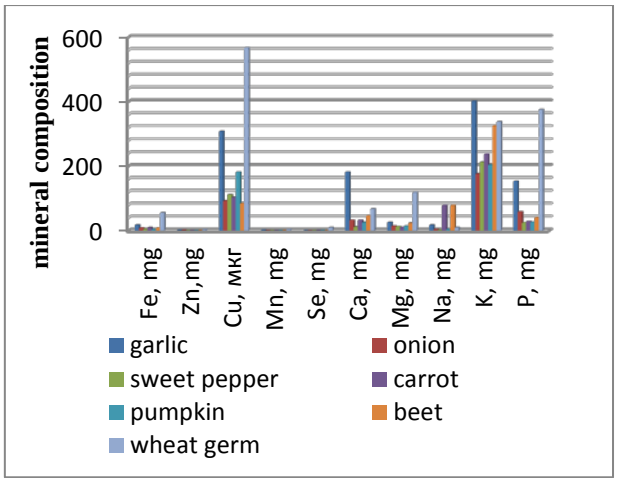

Fig. 4 Mineral structure of vegetable cultures

It is established that they have the high content of vitamin C – 21 – 31mg (caraway seeds, black pepper, cardamom, wheat germ, onions, garlic), E - 4,70 - 8 mg (ginger, wheat germ), β – carotene – 310 - mcg (black pepper, carrots, pumpkin), PP-0,228 – 10,7 mg (mustard, a coriander, wheat germ), mg B1-0,383 (caraway seeds, a coriander, garlic, wheat germ), B2 – 0,379-1,26 mg (caraway seeds, a coriander, wheat germ), Fe microcells – 41,42 mg (a turmeric, a coriander), Zn-7,47 (cardamom), Cu-910 mcg (caraway seeds), – on 100 g.

III. Formulation

On the basis of the conducted researches, the compounding of food ingredients from vegetable raw materials is developed [2]. As a result of researches 3 options of compounding of an emulsion were made at different ratios (tab. I).

When developing new types of food ingredients from taste and taste aromatic ingredients and vegetable cultures preservation of the organoleptic indicators peculiar to traditional food ingredients has to become a necessary condition. When carrying out comparative researches of samples of taste-aromatic emulsions it was offered to carry out an organoleptic assessment by means of determination of appearance, a smell and taste. Change of organoleptic qualities of a product indicates usually and deterioration of their biological value (reduction of the content of vitamins, irreplaceable fatty acids, etc.) and possible accumulation harmful to an organism, products of disintegration of protein, decomposition of carbohydrates, oxidation of fats [3].

TABLE I
FORMULATION OF EMULSION TASTE –AROMATIC INGREDIENTS AND VEGETABLE

Product name	Recipe, %		
	Option 1	Option 2	Option 3
Caraway	1,0	2,0	3,0
Ground black pepper	3,0	4,0	5,0
ginger	1,0	2,0	3,0
curcuma	1,0	2,0	3,0
mustard	1,0	2,0	3,0
cardamom	3,0	4,0	5,0
cinnamon	3,0	4,0	5,0
coriander	3,0	4,0	5,0
wheat germ	3,0	4,0	5,0
Green bell pepper	5,0	6,0	7,0
garlic	2,0	3,0	4,0
Onion	2,0	3,0	4,0
Beet	1,0	2,0	3,0
Carrot	5,0	6,0	7,0
Pumpkin	5,0	6,0	7,0
vegetable fat	10,0	15,0	18,0
Water	51,0	31,0	13,0

As a result of organoleptic indicators option 2 is chosen at the following ratio of ingredients, %: caraway seeds-2,0, ginger-2,0, turmeric-2,0, mustard-2,0, black pepper-4,0, cardamom-3,0, cinnamon-3,0, coriander-3,0, pepper sweet-5, garlic-2, onions-2, beet-1, carrots-5, pumpkin-5, wheat-4 germ, water-31 and vegetable fat of-15%.

Thus, high potential possibilities of use taste-and aromatic ingredients and vegetable cultures on condition of implementation of mutually balancing of components in compounding of foodstuff are shown.

IV. Conclusion

The developed technology application of new types of food ingredients will give the chance to make the technological difficult multifunctional multicomponent meat products for domestic meat branch, providing safety of production at storage, to increase firmness of products in different types of damage, and also providing optimum indicators of rheological and thermodynamic characteristics thereby to achieve the improved consistence and moisture-holding ability and to raise an exit of finished goods that as a result promotes improvement of economic potential of work of the meat-processing enterprises.

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Gulmira Kenenbay is Ph.D. The general experience of work makes 11 years, including research experience - 7 years.