



CHEMICAL COMPOSITION OF SOME PROTECTORS IN FOOD

Dilorom Khasanova

Doctor of Philosophy in Chemical Sciences (PhD),

Senior Lectures at the Department of Chemistry Andijan State University

E-mail: Diloram.Kh@mail.ru

Annotation

The article provides information about the types, chemical composition and some harmful properties of food additives. An analysis of the literature on conservative nutritional supplements is also carried out. The influence of some food additives with conservative properties on food products was revealed.

Keywords: food additives, dyes, preservatives, stabilizers, flavors, emulsifiers, pH regulators, alzheimer, parkinson, vitamins.

Introduction

Food additives are commonly used for flavoring, smelling, coloring, appetite suppression, various disorders, and nausea. Many foods and medicines contain synthetic compounds. As a result, a person consumes up to 2.5 kg of various nutrients per year [1].

At the same time, it is impossible not to use nutrients at all in the modern food industry. Without it, the food industry will not be able to produce food on an industrial scale. In particular, antioxidants used in the production of canned food temporarily prolong enzymatic oxidation, slowing down the oxidation process [2]. As a result, their shelf life can be increased several times. Food flavor enhances the smell and taste of foods. Dyes are used in the processing and storage of products to preserve the natural color or artificial coloring. Preservatives are used against the growth of microorganisms. Foam stabilizers are used to prevent rapid settling of creamy candy foam [2].

Food additives are those that are harmful to human health. Such nutritional supplements are approved and will be added to the foods we consume. This is why people should be aware of nutritional supplements for their health. Harmful substances can cause various diseases in the human body. For example, it can increase the risk of allergies and lead to the development of chronic diseases. Some can cause gastrointestinal disturbances, various skin rashes, blood pressure disturbances, and carcinogenic effects. The use of the most harmful compounds in the food industry is prohibited [3].





Of great importance is the quantity and sensitivity to the components in food. The daily intake of each dietary supplement was studied. In quality products, its regulatory indicators are controlled.

All nutritional supplements are divided by some scientists into 3 groups.

1. Natural
2. Artificial, close to natural
3. Fully synthetic

Natural E is made from plant, animal or mineral components. They do not have a harmful effect on the human body. These include E100 (dyes derived from turmeric); Take, for example, E406 (if it forms jelly from algae) and others.

Food additives close to nature are substances of natural origin that are artificially produced on an industrial scale. They may contain additional products of manufacture. Examples of this group are E260 (vinegar), E160 (carotene) and others. Many of the fully synthetic nutritional supplements are poorly understood and reported in the literature to be harmful to the body.

Reducing the use of harmful food additives means preventing the occurrence of various diseases. In the food industry, various dyes, food and flavor enhancers, antioxidants and preservatives are used to improve the quality of products, extend their shelf life and further improve their taste. We can usually call them nutritional supplements. All nutrients can be classified in the following order:

Table 1 Classification of food additives

code	properties	code	properties
E100- E199	Paints	E600-E699	Odor and taste enhancers
E200-E299	Preservative	E700-E799	Antibiotics
E300-E399	Antioxidants	E800-E899	stock islands
E400-E499	Stabilizer	E900-E999	blowing agents
E500-E599	Emulsifiers, pH regulators	E1000-E1999	Biocatalysts

When buying a product, of course, you need to pay special attention to its expiration date and composition. As can be seen from Table 1, the specific codes for each food additive are coded from E-100 to E-999. The table below lists the technical names and chemical formulas of some nutritional supplements with conservative properties:



Table 2 The chemical composition of some food additives

Chemical name	Index	Formula
Sorbic acid	E 200	 <chem>O=C(O)C=CC=CC</chem>
Sodium sorbate	E 201	 <chem>[Na]OC(=O)C=CC=CC</chem>
Potassium sorbate	E 202	 <chem>[K]OC(=O)C=CC=CC</chem>
Calcium sorbate	E 203	 <chem>[Ca]OC(=O)C=CC=CCOC(=O)C=CC=CC</chem>
Sodium benzoate	E 211	 <chem>[Na]OC(=O)c1ccccc1</chem>
Sodium nitrite	E 250	$\text{Na} - \text{O} - \text{N} = \text{O}$
Acetic acid	E 260	 <chem>CC(=O)O</chem>



The following table provides information on the effects of certain nutrients on the body:

Table 3 Dangerous food additives

Very dangerous	E123, E510, E513, E527
Dangerous	E102, E201, E400, E503, E110, E220, E401, E620, E120, E222, E402, E636, E124, E223, E403, E637, E127, E224, E404, E129, E228, E405, E155, E233, E501, E180, E242, E502
Carcinogenic substances	E131, E316, E283, E142, E219, E310, E153, E230, E954, E210, E240, E212, E249, E213, E280, E214, E281, E215, E282
Substances that strongly affect the stomach	E338, E463, E339, E465, E340, E466, E341, E343, E450, E461, E462
Substances that cause skin diseases	E151, E907, E160, E951, E231, E1105, E232, E239, E311, E312, E320
Substances that inhibit the intestinal microflora	E154, E633, E626, E634, E627, E635, E628, E629, E630, E631, E632
Substances that affect blood pressure	E154, E250, E252

Food manufacturers are required to list food additives used in product packaging. The consumer should examine its contents before purchasing the product. Below we will consider the dangerous food additive E220 [4].

E220 - SO₃. Sulfuric anhydride is present in 99% of wine and has a colorless malodor. Elevated concentrations pose a threat to human health. It is used in the food industry as a preservative to prevent the growth of fungi and microorganisms. In case of poisoning with E 220, symptoms such as headache, cough, sore throat, nausea and vomiting may occur. The high content of E 220 in wines destroys B vitamins and leads to allergic diseases of the skin, hair and nails. Causes digestive disorders. E220 is used in the processing of almost all dried fruits [5].

In our study, a number of food compounds with conservative properties were studied. For this, homemade juices, compotes and fermented milk products were chosen. The organoleptic properties of these products were studied for 10 days by adding substances with different conservative properties to solutions of these products [6]. The effect of some food additives with preservative properties on food is presented in Table 4 below. In our studies, we prepared apricot juice in a natural way and observed the effect of 1.5% solutions of citric acid on it. The results obtained are presented in table 4.



Table 3 The effect of some food additives with conservative properties on food

1 day					
Nº	Samples	Organoleptic indicators			
		Smell	Taste	Coloring	Turbidity
1	Natural juice	Hasn't changed	Hasn't changed	Hasn't changed	Hasn't changed
2	1 sample	Hasn't changed	Hasn't changed	Hasn't changed	Hasn't changed
3	2 sample	Hasn't changed	Hasn't changed	Hasn't changed	Hasn't changed
2 day					
1	Natural juice	Has changed	The taste of fermentation	Has changed	There is clouding
2	1 sample	Hasn't changed	Hasn't changed	Hasn't changed	Hasn't changed
3	2 sample	Hasn't changed	Hasn't changed	Hasn't changed	Hasn't changed
3 day					
1	Natural juice	There was a pungent odor	Came to an unusable state	muddy	Became cloudy
2	1 sample	Has changed	The taste of fermentation	Has changed	A white film appeared on the surface
3	2 sample	Hasn't changed	Hasn't changed	Hasn't changed	Hasn't changed
4 day					
1	Natural juice	There was a pungent odor	Came to an unusable state	muddy	Became cloudy
2	1 sample	There was a pungent odor	Came to an unusable state	muddy	A white film appeared on the surface
3	2 sample	Has changed	The taste of fermentation	Has changed	clouding

Note: Experimental samples were carried out at a temperature of 200°C. 1 - sample. Addition of 1% citric acid solution; Example 2 Addition of 5% citric acid solution
The results of the experiment showed that the concentration of substances with conservative properties had a significant impact on food products. In conclusion, we noticed that the more additives added, the longer the shelf life. However, an increase in the concentration of nutrients can have a negative impact on the human body. Therefore, we propose to strictly control the introduction of nutrients in the amount specified in the specifications.



Conclusion

we recommend the production of food products with the addition of new natural food additives, since the excessive consumption of food additives can lead to various diseases, and various preservatives can cause cancer. We have prepared an environmentally friendly food supplement "Astosh" from natural products based on plants grown in our country. Its prevention of gastrointestinal disease and diabetes has been studied in clinical trials. Food supplement Astosh is officially registered as a food supplement by the Ministry of Health of the Republic of Uzbekistan and is approved for use. This food supplement received a certificate of conformity (MC) and a hygiene certificate (GS). We recommend controlling the amount of synthetic food compounds that are harmful to the body, mentioned above, when serving HS and MC products. Methods should be adopted to control the quantity and chemical composition of food additives and analyze them based on relevant state standards.

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