

Benzoic acid - description, benefits, effects on the body and the best sources

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Abstract. Each of us has seen the E210 additive in food products more than once. This is the symbol for benzoic acid. It is found not only in products, but also in a number of cosmetics and medicines, as it has excellent preservative and antifungal properties, while being mostly a natural substance.

Benzoic acid is found in cranberries, lingonberries, and fermented milk products. Of course, its concentration in berries is lower than in products produced at enterprises.

Benzoic acid, consumed in acceptable quantities, is considered safe for human health. Its use is permitted in almost all countries of the world, including Russia, Ukraine, countries of the European Union, and the United States of America.

Keywords: benzoic acid, general characteristics, daily requirement, digestibility, beneficial properties, signs of deficiency, signs of excess

Foods rich in benzoic acid:

- Cowberry
- Cranberry
- Fruit juices
- Alcoholic drinks [1]
- Soft drinks
- Canned food
- Canned fruits and vegetables
- Candies
- Jelly
- Gum
- Sauces (ketchup, mayonnaise)
- Margarine
- Meat (salted, marinated)
- Vermicelli
- Bakery products

General characteristics of benzoic acid

Benzoic acid appears as a white crystalline powder. It has a characteristic odor. This is the simplest monoprotic acid. It is poorly soluble in water [2], so *sodium benzoate* (E 211) is more often used. 0.3 grams of acid can dissolve in a glass of water. It can also be dissolved in fats [3]: 100 grams of oil will dissolve 2 grams of acid. At the same time, benzoic acid reacts well to ethanol and diethyl ether.

Nowadays, E 210 is isolated on an industrial scale using the oxidation of toluene and catalysts.

This additive is considered environmentally friendly and cheap. Benzoic acid contains such impurities as benzyl beazoate, benzyl alcohol, etc. Today, benzoic acid is actively used in the food and chemical industries. It is used as a catalyst for other substances, as well as for the production of dyes, rubber, etc.

Benzoic acid is actively used in the food industry. Its preservative properties, as well as its low cost and naturalness, mean that the E210 additive can be found in almost every product prepared at the factory.

Daily requirement for benzoic acid

Benzoic acid, although found in many fruits and fruit juices, is not a vital substance for our body. Experts have found that a person can consume up to 5 mg of benzoic acid per 1 kg of body weight per day without harm to health.

Interesting fact

Unlike humans, cats are very sensitive to benzoic acid. For them, the consumption rate is in hundredths of a milligram! Therefore, you should not feed your pet your own canned food, or any other food containing a lot of benzoic acid.

The need for benzoic acid increases:

- for infectious diseases;
- allergies [4];
- when blood thickens;
- helps with milk production in nursing mothers [5].

The need for benzoic acid is reduced:

- at rest;
- with low blood clotting;
- for diseases of the thyroid gland.

Benzoic Acid Absorption

Benzoic acid is actively absorbed by the body and converted into *hippuric acid*. Vitamin B10 is absorbed in the intestines.

Interaction with other elements

Benzoic acid reacts actively with proteins [6] and is soluble in water and fats. Para-aminobenzoic acid is a catalyst for vitamin B9 [7]. But at the same time, benzoic acid can react poorly with other substances in foods, resulting in a carcinogen. For example, reaction with ascorbic acid (E300) can lead to the formation of benzene. Therefore, care must be taken to ensure that these two supplements are not used at the same time.

Also, benzoic acid can become a carcinogen due to exposure to high temperatures (more than 100 degrees Celsius). This does not happen in the body, but it is still not worth heating ready-made food that contains E 210.

Useful properties of benzoic acid, its effect on the body

Benzoic acid is actively used in the pharmaceutical industry. Preservative properties play a secondary role here, and the antiseptic and antibacterial properties of benzoic acid come to the fore.

It perfectly fights simple microbes and fungi, so it is often included in antifungal medications and ointments.

A popular use of benzoic acid is in foot baths to treat fungus and excessive sweating.

Benzoic acid is also added to expectorants - it helps thin the mucus.

Benzoic acid is a derivative of vitamin B10. It is also called *para-aminobenzoic acid*. Para-aminobenzoic acid is necessary for the human body to form protein, which allows the body to fight infections, allergies, improves blood flow, and also helps produce milk in nursing mothers.

The daily requirement for vitamin B10 is difficult to determine, since it is related to vitamin B9. If a person fully receives folic acid (B9), then the need for B10 is satisfied in parallel. The average person needs about 100 mg per day. In case of abnormalities or illnesses, additional B10 may be required. In this case, its norm is no more than 4 grams per day.

For the most part, B10 is a catalyst for vitamin B9, so its scope of action can be defined even more broadly.

Signs of excess benzoic acid in the body

If an excess of benzoic acid occurs in a person's body, he may experience an allergic reaction: rash, swelling [8]. Sometimes signs of asthma [9] and symptoms of thyroid dysfunction [10] are observed.

Signs of benzoic acid deficiency:

- disturbances in the functioning of the nervous system (weakness, irritability, headache [11], depression [12]);
- gastrointestinal disorder;
- metabolic disease;
- anemia [13];
- dullness and fragility of hair;
- growth retardation in children;
- lack of breast milk.

Factors influencing the content of benzoic acid in the body:

Benzoic acid enters the body along with food, medicines and cosmetics.

Benzoic acid for beauty and health

Benzoic acid is widely used in the cosmetics industry. Almost all cosmetics intended for problem skin contain benzoic acid.

Vitamin B10 improves the condition of hair and skin [14,15]. Prevents the early formation of wrinkles and gray hair.

Sometimes benzoic acid is added to deodorants. Its essential oils are widely used in the production of perfumes, as they have a strong and persistent odor.

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