ON THE PROBLEM КОНСЕРВАНТОF DETECTING PRESERVATIVES IN FOOD PRODUCTS

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Abstract

Food, beverages, and pharmaceuticals often use preservatives such as sulfur dioxide and sodium and potassium salts of bisulfite, sulfite, and metabisulfite. Syrophytes areульфиты known as potential allergens that should be labeled on food and beverages.

Keywords: preservatives, sulfur dioxide, sulfites, allergens.

Relevance of the problem.

Sulfur dioxide is a category of chemical compounds widely used as additives in the food industry. SO far, the use$_{of}$ SO2 in the fruit and vegetable industry has been indispensable, although its safety has been controversial. In order to fully understand the benefits and risks of SO2$_2$, more research is needed to evaluate the molecular mechanisms of SO2 metabolism$_2$ in fruit and vegetable cells and tissues, and to uncover the mechanisms of interaction between SO2$_2$ and fruit and vegetable components, as well as the efficacy and safety of bound SO2$_2$ https://doi.org/10.1080/10408398.2023.2203737. [8, 12]. CUlfites are used in the food and alcohol industry as preservatives and antioxidants. They are often usedт in the pharmaceutical industry [10].

Beer, wine, dried, canned, or frozen fruits often contain sulfites, and seafood and fried potatoes are often prepared using these substances. Sulfites are also present as pollutants in the atmosphere. The frequency of occurrence of sensitivity to sulfites is unknown, but this condition is recognized more and more often. Clinical management is based on avoiding intense physical activity on days when air pollution is high, and avoiding foods and medications containing sulfites [6].

Components (including food additives, flavorings), biologically active additives, the use of which may cause allergic reactions or is contraindicated in certain types of diseases and which are listed in paragraph 32 of the Technical Regulations, are indicated in the composition of food products, regardless of their quantity. The most common components, the use of which can cause allergic reactions or is contraindicated in certain types of diseases, include: sulfur dioxide and sulfites, if their total content is more than 10 milligrams per kilogram or 10 milligrams per liter in terms of sulfur dioxide [1].

Manufacturers of confectionery products, including cookies, often do not have information about the content of sulfur dioxide in the raw materials used and do not assume the presence of this substance in finished products, which leads to a violation of the requirements of the regulations [3].

When exposed to sulfites orally or parenterally, sensitive people experience clinical symptoms of dermatitis, urticaria, hypotension, asthma attacks, abdominal pain and diarrhea, even anaphylactic reactions. When exposed to food or drugs containing sulfites, skin or respiratory reactions often occur, which are often episodic or acute, sulfites can cause chronic

skin and respiratory symptoms, in some cases food intolerance, which is often difficult to differentiate from other diseases due to the lack of diagnostic methods [2, 11].

The metabolism of sulfite and the role of sulfite oxidase in detoxification of exogenous sulfite are considered in connection with the etiology of hypersensitivity to sulfite [7].

Sulfur toxicity is mainly associated with high levels of the element and its toxic volatiles in the environment. Sulfur dioxide, as an air pollutant, can negatively affect human health, causing bronchitis, bronchoconstriction, and increased lung resistance. Each population in an ecosystem has a range of tolerance to changes in its physical and chemical environment. When the body's tolerance limit is exceeded, a small change in homeostasis triggers a threshold effect. This effect may explain why many environmental problems seem to arise suddenly, such as forest loss, declining fish populations, and many diseases among humans and animals [9].

Knowledge of sensitizing properties and cross-reactions between allergens, individual approach to diet selection, as well as timely in in vitro diagnosis of" guilty " allergens prevents food allergy complications. [4]

Thus, in many regions of the world, sulfites are now among the potential allergens (along with the likes of peanuts, fish, crustaceans, gluten, and milk) that should be labeled on food and beverages. In the European Union (EU), levels in food and beverages above 10 mg/kg or 10 mg per litre must be labelled. Warning labels are now commonplace, but in practice there is still a huge amount of ignorance and misinformation about the use of sulfites in food, beverages, and pharmaceutical products. Therefore, clinicians should be aware of the sensitivity to sulfites in order to be able to make a correct diagnosis and provide treatment recommendations [5].

Control over the use of food additives is carried out by the competent national authorities, which must control the food industry for the safe use of these substances [12].

Conclusions. Identification of preservatives, including sulfur dioxide in food, and labeling of this allergen helps prevent unwanted allergic reactions among consumers.

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