METHODS OF SODIUM BENZOATE DETERMINATION IN FOOD PRODUCTS

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Introduction. Various food additives have been widely used all over the world, and in particular in Ukraine. It is almost impossible to find any industry that has not undergone the use of these substances for various purposes. However, some of the substances used as additives have a very specific effect on the human body.

Therefore, the use of food additives in products are now allowed at the state level only if, according to existing scientific data, its use does not pose a danger to the health of the average consumer, is technologically justified and does not mislead the consumer. Before authorizing a food additive in the European Union, its safety for human health is assessed by the European Food Safety Authority (EFSA). Food additives are evaluated for toxicity, carcinogenicity, mutagenicity and other indicators. Based on toxicological examination, if necessary, the permissible daily dose is determined, which indicates the amount of the substance per kilogram of body weight, which a person can take daily throughout life without harm to health.

Based on the methods proposed by the European Pharmacopoeia, the United States Pharmacopoeia, and the State Pharmacopoeia of Ukraine, as reactions that allow the identification of sodium benzoate by cation, the most widely used reactions are interactions with a solution of potassium pyroantimonate upon heating and subsequent cooling to form a white precipitate.

For the detection of benzoate ion, the most used is the reaction of interaction with a solution of iron trichloride to form a yellow precipitate. The quantification method is non-aqueous acidimetry in glacial acetic acid with perchloric acid titration using crystal violet as an indicator.

In addition, it is also possible to determine sodium benzoate by acidimetry in the presence of diethyl ether using a mixture of methyl orange and methylene blue as an indicator

Aim. We are considering the possibility of testing the use of chemical methods of determination and assay of sodium benzoate and the possibilities of using these methods depending on the type of food product and on the example of fish preserves.

Materials and methods. Identification of sodium benzoate by chemical methods, in particular by reactions with heavy metal salts for benzoate ion, acidimetrical quantitative determination, methods of mathematical statistics.

Results and discussion. It has been stated that the presence of sodium benzoate as food additive in the composition of fish preserves can be detected by benzoate ion with various heavy metal salt, in particular with ferric chloride, silver nitrate, copper sulphate, cobalt nitrate. The regulated quantity of sodium benzoate allows to detect it by all these reagents. Method of acidimetry was applied for quantification of sodium benzoate. It has been stated, that both samples of food product comply the demands of normative documents of food additives contents in food products.

Conclusions. The elaborated procedures of sodium benzoate determination can be applied for its analysis in food products. The content of sodium benzoate in the examined samples corresponds demands of the Order of Ukraine № 222 «About the statement of Sanitary rules and norms on the use of food additives» 23.07.96 (with changes made in accordance with the Order of the Ministry of Health N 218 (z0569-98) from 23.07.98.