

**Salahaddin University –Erbil**

**College of Agricultural Engineering Sciences**

**Department of Food Technology**

**Estimation of preservative Sodium Benzoate in some processed packed fruit juices**

Research Project

Submitted to the department of (Food Technology) in partial fulfilment of

the requirement for the degree of BSc. In (Food Technology)

By

**Chyaban anwer ahmad**

Supervised by

 **Lecturer /Dina Suad Ali**

 February 2024

**1-Introduction**

Fruit juices are consumed globally, not merely owing to their flavor, taste, and freshness, but also because of their valuable wellbeing properties while consumed on

regular basis. Several people are becoming aware of the significance of consuming fruits in their everyday diet as fruit juices are appropriate and suitable sources of

carotenoids and polyphenolic compounds (Akbari-Adergani, et.al., 2013), exerts antioxidative, immunomodulatory and antimicrobial effect. The gut microbiota is an important contributor to human health. Vegetable/fruit juices provide polyphenols, Fruit and vegetables are good sources of oligosaccharides, fiber and nitrate (beet juice), which may induce a prebiotic-like effect contribute to general health and decrease the risk of chronic diseases such as cardiovascular disease (Sneha, and Preetha, 2015).

To be labeled as a fruit juice, the US Food and Drug Administration (FDA) mandate that a product be 100% fruit juice. In general, juice drinks contain between 10%

and 99% juice and added sweeteners, flavors, and sometimes fortifiers, such as vitamin C or calcium. According to FDA regulations, these ingredients must be listed on the label. Some juices have naturally occurred high contents of potassium, vitamin A, and vitamin C. In addition, some juices and juice drinks are fortified with vitamin C, vitamin D and calcium ( Aslam ,et.al., 2020). Juice contains no fat or cholesterol, and unless the pulp is included, it contains no fiber.

The most preferred oldest chemical preservative used in cosmetic and food industries is sodium benzoate which is soluble in water (Sneha, and Preetha, 2015) a white granular or crystalline powder in appearance (Magomya , et.al., 2020) Sodium benzoate is used as a common food preservative in salad dressings, carbonated drinks, jams, fruit juices and other condiments and is labeled by the code E211, classified” Generally Recognized As Safe” (GRAS) and regulates the concentration of sodium benzoate to 0.1% by weight in food products by The US Food and Drug Administration (FDA). Its content must be declared and must not exceed the established limits by legislation (Aslam, et.al., 2020 ) In season, the fruit is preserved to make it available for further use in off season. During preparation of packed juices, more preservative is added, thus increasing its amount in the finished product (Amirpour, et.al., 2013) Benzoates is the most commonly used preservatives in foodstuffs and is analyzed by various methods, such as thin layer chromatography, UV spectroscopy, high performance liquid chromatography (HPLC) and gas chromatography. Nowadays, HPLC is the most common analytical procedure for the detection and quantification of these preservatives in foods and beverages (Akbari-Adergani ,et.al., 2013) .

This study aims to determine the amount of preservative sodium benzoate in fruit juices and its safe levels, aiming to raise consumer awareness about processed fruit juice safety.

**6.References**

* Akbari-Adergani, B., Eskandari, S. and Bahremand, N., 2013. Determination of sodium benzoate and potassium sorbate in â€ dough€ samples in post market surveillance in Iran 2012. *Journal of Chemical Health Risks*, *3*(1).
* Amirpour, M., Arman, A., Yolmeh, A., Akbari Azam, M. and Moradi-Khatoonabadi, Z., 2015. Sodium benzoate and potassium sorbate preservatives in food stuffs in Iran. *Food Additives & Contaminants: Part B*, *8*(2), pp.142-148.
* Amin, R., Rahman, S.S., Hossain, M. and Choudhury, N., 2018. Physicochemical and microbiological qualities’ assessment of popular Bangladeshi mango fruit juice. *The open microbiology journal*, *12*, p.135.
* Aslam, M., Hamid, S., Khalid, S., Kamran, H. and Azhar, S., 2020. Determination of preservative sodium benzoate in selected samples of fruit juices and squashes. *Asian Journal of Allied Health Sciences (AJAHS)*, pp.27-32.
* Magomya, A.M., Yebpella, G.G., Okpaegbe, U.C., Oko, O.J. and Gambo, S.B., 2020. Analysis and health risk assessment of sodium benzoate and potassium sorbate in selected fruit juice and soft drink brands in nigeria. *Int. J. Pharm. Chem*, *5*, pp.54-59.
* Pereira, L.M., Della Betta, F., Seraglio, S.K.T., Schulz, M., Nehring, P., Gonzaga, L.V., Fett, R. and Costa, A.C.O., 2021. Assessment of sorbate and benzoate content in mustard, ketchup and tomato sauce by sub-minute capillary electrophoresis. *Food Technology and Biotechnology*, *59*(3), pp.376-384.