



Role of food preservation in maintaining safety and quality

Sasa Drakula*

Faculty of Food Technology and Biotechnology, University of Zagreb, Zagreb, Croatia

E-mail: drakulasasa@pbf.hr

Food preservation is an essential practice for ensuring the safety and quality of our food supply. By preventing the growth of harmful microorganisms and slowing the natural processes of spoilage, preservation techniques can extend the shelf life of food and reduce the risk of foodborne illness. In this article, we'll explore the role of food preservation in maintaining safety and quality, and take a closer look at some common preservation techniques.

First and foremost, it's important to understand that food preservation is not a new concept. For centuries, people have used various techniques to preserve food, from drying and salting to smoking and canning. These methods were developed out of necessity - before modern refrigeration and transportation systems, it was essential to find ways to keep food edible for longer periods of time.

Today, the need for food preservation is just as important as ever. With a global food supply chain that spans continents and oceans, it's essential to ensure that the food we eat is safe and of high quality. This is particularly true for perishable items like meat, dairy, and produce, which are more susceptible to spoilage and contamination (Clark N, 2019).

One of the most common methods of food preservation is refrigeration. By keeping food at low temperatures, we can slow down the growth of microorganisms and prevent spoilage. This is why we store perishable items like meat and dairy in the fridge - without refrigeration, these foods would quickly spoil and become unsafe to eat. But refrigeration is not foolproof. Even when stored at the correct temperature, food can still spoil if it's not handled properly. This is why it's important to follow food safety guidelines, such as storing raw meat on the bottom shelf of the fridge to prevent cross-contamination, and using

leftovers within a certain timeframe to avoid the risk of foodborne illness (Coelho et al., 2020).

Another common method of food preservation is canning. By sealing food in airtight containers and heating them to a high temperature, we can kill off harmful microorganisms and create a shelf-stable product. Canning is particularly popular for items like fruits and vegetables, which can be harvested in large quantities and stored for long periods of time. But canning also requires careful attention to detail. If the containers are not properly sterilized or sealed, bacteria can still grow and spoil the food. This is why it's important to follow proper canning procedures, including using the correct type of jar and lid, and processing the jars for the appropriate amount of time (Rafiq et al., 2018).

Drying is another method of food preservation that has been used for centuries. By removing moisture from the food, we can create a shelf-stable product that is less susceptible to spoilage. Drying is particularly popular for items like herbs, fruits, and meats, which can be easily dehydrated and stored for long periods of time. But drying also has its drawbacks. Without proper storage, dried foods can become moldy or rancid, and they may lose some of their nutritional value over time. It's important to store dried foods in airtight containers in a cool, dry place to prevent spoilage (Singh et al., 2020).

Smoking is another preservation technique that has been used for centuries. By exposing food to smoke from burning wood or other materials, we can create a unique flavor and texture while also inhibiting the growth of harmful bacteria. Smoking is particularly popular for items like meats, fish, and cheeses. But smoking also has its risks. Some types of wood can contain harmful chemicals that can be transferred to the food, and smoking at too low a temperature may

Received: 25-Apr-2023, Manuscript No. AJFST-23-98175; **Editor assigned:** 26-Apr-2023, Pre QC No. AJFST- 98175 (PQ); **Reviewed:** 15-May-2023, QC No. AJFST-23-98175; **Revised:** 20-May-2023, Manuscript No. AJFST-23-98175 (R); **Published:** 27-May-2023

Citation: Drakula S (2023). Role of food preservation in maintaining safety and quality. AJFST: 023.

not effectively kill off bacteria. It's important to use proper smoking techniques and to only use wood that is safe for food use. In addition to these traditional preservation methods, modern technology has also given us new ways to keep food safe and fresh. For example, high-pressure processing (HPP) involves subject (Suri & Nema 2022).

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