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Preserving and canning food products by optimal methods, and protecting it from spoilage

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Abstract

Our current research includes the use of optimal methods in the process of canning food, preserving it and protecting it from spoilage and rot to which various types of food products are exposed due to microorganisms or due to chemical reactions that may occur when a period of time passes. The method used for this purpose ensures that the physiological and chemical characteristics of the food products that are packaged are not changed, so the necessary conditions must be observed. These conditions and controls are different represented in the type of devices and equipment used, in addition to the buildings and storage places through which food products are marketed after the production operations are completed. The percentage for every type of preservation medium arranged as; canning 7%, chemicals 27%, microbial 30%, physical 6%, radiation 5%, refrigeration 1%, miscellaneous 24%, respectively.

Keywords: food products, preserving and canning, optimal methods, spoilage

Introduction

Preserving and canning food, and food products, is very important in our daily life, as it constitutes the main factor in making our lives safe while ensuring the provision and saving of as much food as possible in order to avoid losing food after it has been spoiled. It is necessary to slow down the natural corruption that may occur to food or food products, so the focus is on getting rid of the problems that may occur to food through the establishment of an integrated system through which we can preserve food from spoilage, and thus ensure the possibility of marketing in local and international markets. Thus, we have ensured the quality of food products and ensured that their usefulness lasted for the longest period of time, according to their validity period. In Europe countries and other countries in the world, the food production system, developed by the (European- Union) formally the (European-Economic-Community), gives a listing of different commonly used addition ^[1]. Simple cooling, radiation and other methods that are used to preserve food and its products, are considered old Methods, but they are successful and effective, but it is possible to develop and raise their efficiency, by innovating and adding modern methods that are consistent with the modern scientific progress that the developing countries are witnessing. Heat causes the damaging of proteins, lipids, and nucleic acids and finally leads to destabilizing of membrane ^[2]. It induced destabilized, like oxidation of sulfhydryl-group of the membrane binding bound of protein ^[3]. The building for the food production process and the workers specialized in this field have a distinguished role in the manner of food production, its validity, and its human use. Therefore, there are controls that fall under an integrated system that cannot be changed, but must be managed well and documented in order to maintain the quality of food production. The development and improvement of food production through the use of successful methods for preserving and packaging food products must be subject to continuous calibration, and to ensure that the steps taken are steps in the right direction and documented in special records according to the dates in which the production carried out.

Objectives: The main objectives of the current research study are to know the most important basic ingredients that must be available in food production, and to open the way for researchers to proceed according to this plan and adopt it in specialized scientific studies, industrial and applied, since food production is part of the economic wealth of advanced developing countries.

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Materials, and Requirements

1. Packaging, and canning devices.
2. Buildings, and production areas.
3. Used machines, and equipment.
4. Raw materials, and packaging materials.
5. Manufacturing processes.
6. Types of additional materials to food products.
7. Storing of food products, and Marketing.
8. Laboratory control, and Documentation.

Methods

The workers must be trained and qualified scientifically, and within the specialization of manufacturing and food production. Ensure that contamination factors do not reach the food product during the food manufacturing process, in addition to maintaining personal hygiene. Adherence to head wear, masks, paws and other industry requirements. Follow the instructions, and document the steps in detail. Ensure the viability and cleanliness of the building and all attached sections, devices and equipment for the industry and their cleanliness, and waste and waste must be disposed of in an approved system. Ease of transporting materials between work places and reducing the movement of people in the workplace, arranging machines in the operating

places, and reducing the occurrence of product contamination with a foreign substance. Packaging materials must be clean and disinfected, and contain scientific and written information on the details of cleaning and disinfection of buildings and all equipment to be used. The equipment used in the manufacture of food must be easy to clean and maintainable and not allow the product to be contaminated with any kind of external pollutants, and the metal used must not be rusted or from materials that do not interact with food products. Machines used in the manufacturing process must be cleaned before and after use. All information must be written in detail about how to receive the raw materials used in manufacturing and production, as well as packaging materials, their identification information, their storage, their validity check, and caution during their handling operations. After all the main requirements are met in the necessary in preserving and packaging food products, we use the method used by [4], which includes relying on the percentages shown at fixed rates as indicated in the results. The place of production must be in an industrial place far from people's housing to avoid the impact of food production waste on the environment, and therefore its direct impact on the health and safety of people.

Results

Table 1: Percentage for every type of preservation medium

No.	The type of medium that contributes to the preservation and canning of food products.	Percentage for every type of preservation medium.
1.	Canning	7%
2.	Chemicals	27%
3.	Microbial	30%
4.	Physical	6%
5.	Radiation	5%
6.	Refrigeration	1%
7.	Miscellaneous	24%

Discussion

There are some types of food, such as grains, nuts and the like, that we can preserve for several months without resorting to special processing methods. While there are many other foods, such as milk or meat, in their fresh state, they do not remain edible, but are quickly destroyed by environmental conditions of all kinds. The causes of food product spoilage are diverse, the acidic function may be in combination with other factors that consider pests the main source of food product spoilage, but microorganisms may be the source of spoilage, they acts as secondary role, mainly against spoilage flora [5]. Pests, insects and rodents may completely destroy many crops and food products, in addition to playing a significant role in transmitting types of dangerous diseases to food. Therefore, the use of optimal methods of preserving, canning and storing food products while they are protected from the main causes of spoilage and preventing rodents from accessing them, is an important matter in this field. Therefore, the means of protection will consist of various types of microorganisms as well, such as bacteria, fungi, yeast and others, and it is considered the secondary factor for food spoilage and food products in particular when their number doubles to cause a change in taste or flavor. Microorganisms, especially bacteria, multiply and multiply in spoiled food products, leading to the production of acidity, gases, and some changes in

biological and chemical properties as a result of different environmental conditions. And some of these substances are considered toxic and lethal to humans and thus lead to the end of his life. There must be stability in the stability of food products based on a scientific basis, not just an empirical one, and this is what food scientists and engineers have taken care of. A relatively complete approach to food preservation is found in the Handbook of Food Preservation and other references [6, 7]. In our current research, we mentioned the most important means that should be used in food preservation and canning operations, as shown in figure no. 1 below:

These percentages mentioned are the amount at which the appropriate preservation and canning process is achieved, since the amount and strength of its effect in protecting food products has become fixed at this level, while if there was an increase or decrease in it, there would have been a defect and the desired purpose could not be achieved. Many researchers suggest that saccharin is a sweetening agent alone, as it is free from the expected risks of spoiling and poisoning the food product, so they consider it safe and suitable for human consumption.

With the use of improved methods for evaluating these toxicological effects, some additives may be dispensed with, and new, safer additives, or successful techniques for using

existing additives in a way that reduces the risks to the food product may be used [8].

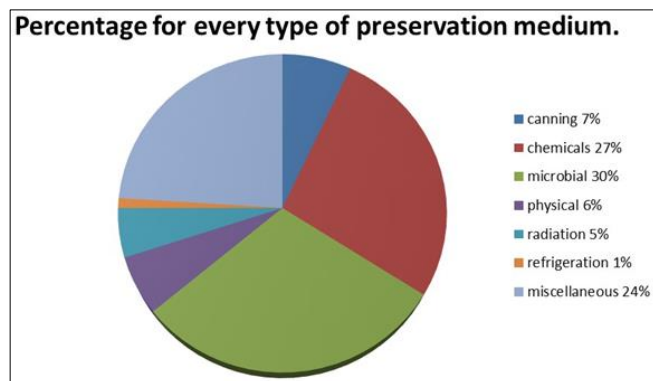


Fig 1: To show the type of medium that contributes to the preservation and canning of food products.

The process of preserving and canning foodstuffs is a skill of industrial importance. It benefits all human society as well as animal consumption as well. It has several main purposes:

1. Storing food products of both types, plant and animal, after harvesting and preparing them, to ensure that they are distributed to consumers within a well-studied plan.
2. Make sure to follow the optimal and most balanced diet throughout the year.
3. Reducing waste that results from kitchens by preserving unused and uneaten food and its suitability for later use.
4. Preserving the food store, such as spices, and dry ingredients such as grains such as rice and flour, for final use in cooking.
5. Prepare for potential disasters, emergencies, and periods of food scarcity or famine.

Conclusion

We conclude from our research study the possibility of adopting new methods by inventing modern methods of preserving and canning food that do not stop at a certain limit, but are subject to scientific theories as well as practical experiences in this field. At present, there is some concern among some individuals who produce food, for fear of the spread of factors and causes of spoilage of food products. Although there are recommendations to go to eating natural foods because of what food products may be exposed to, it is necessary to reach the right methods used to make food products safe and healthy and there is no need to fear them or worry about eating them by humans and animals as well. In addition, attention to food and products and improving their quality is one of the important things that the country's economy can rely on.

References.

1. Jukes D. Food Additives in the European Union. 2000. Food Law, 2001. www.fst.rdg.ac.uk/foodlaw/additive.htm.
2. Gould GW. Heat-induced injury and inactivation. In: Mechanisms of action of food preservation procedures (Ed. Gould, G. W.), Elsevier Appl. Science. New York, 1989, 11-42.
3. Yatvin MB, Grummer MA. Membrane structure and radiation and hyperthermic damage. Radiat. Phys. Chem., 1987;30:351-364.

4. Ganesh Surwase et. (Research Trends on Food Preservation: A Scientometric Analysis). Scientific Information Resource Division, Bhabha Atomic Research Centre, Trombay, Mumbai, 2014, 400-085.
5. Gustavo V Barbosa-Canovas *et al.* Water activity in foods: fundamentals and applications Blackwell Publishing and Institute of Food Technologists. USA, 2007, 313.
6. Jayaramam K S. Critical review on intermediate moisture fruits and vegetables, Applications, Lancaster, Technomic. Pub.Co., 1995, 411-442.
7. Kalichevsky-Dong MT. The glass transition and microbial stability. Boca Raton, USA, 2000, 25-35.
8. Branen AL, Davidson PM, Salminen S, Thorngate III JH. In: "food additives" second edition, Marcel Dekker, Inc. Newyork, 2002.