## FAQs

### 1. Differentiate between sun drying and dehydration

Dehydration is a process a faster process. It is carried out under controlled hygienic conditions. It is independent of weather. However, investment on machinery and processing cost is needed.

Sun drying is a slower process, carried out in open conditions with little hygienic control. It is not possible in cloudy weather or rainy days. It requires no machinery hence, processing cost is low.

## 2. Describe the usage of sulfite as food preservative.

Sulfites are commonly used in the preservation of dehydrated fruits and vegetables, wine, juice and sausages. It is used for the control of Yeasts and bacteria.

#### 3. Describe an ideal food preservative

An ideal preservative should meet the following criteria: (i) they should inhibit the growth of a wide range of micro-organisms (ii) they should be non-toxic to humans (iii) should not be expensive (iv) should not affect the flavour, taste or aroma of the food product (v) should not be inactivated by the food (vi) should not promote the development of resistant micro-organisms (vii) should kill rather than inhibit the micro-organisms.

## 4. What are the general principles for preventing food contamination?

The general principles for preventing food contaminations are

1.Water used in food preparation should be of good quality and adhere to the standards specified by FSSAI.

2. All the utensils must be kept clean and covered.

3. All surfaces that come in contact with food should be well cleaned.

4. The areas used for storage, preparation and serving of food should be free of pets, rats and insects.

5. All type of prepared food should be clearly labeled, covered.

6. Food and the utensils should be kept separate from chemicals and poisons.

7. Cloths and handling aids that come into contact with dishes and utensils, and that are used to cover food, need to be changed daily and washed in hot water before use.

## 5. What are the precautions that a food handler needs to adhere?

All the food handlers should avoid bad habits such as scratching, touching the hair, nose or mouth, having unclean hair, unclean and long fingernails. Food handlers should avoid smoking, coughing or sneezing in food handling and preparation areas. They should be healthy and should not be carrying any contagious diseases like skin infections, diarrhea or sore throats. They should always wash their hands before they enter the premises where food is prepared or handled and after using the toilet.

## 6. Name the various physical method of food preservation

Physical Methods of Food Preservation includes Dehydration, Freezing, Cool Storage, and Heat Treatment

## 7. Explain the principals behind cold storage method of preservation

Refrigeration temperature lowers the growth rate of micro-organisms and chilling can slow down the enzymatic and chemical reactions in food.Generally, freezing can prevent the growth of most food-borne micro-organisms and the usual temperature for cold storage is 4.5-7°C. For frozen food, it should be stored at or below -18°C where the enzymatic and microbial changes may be stopped or extremely slow.

# 8 Describe the problems associated leading to spoilage due to enzyme present in food with examples.

Most of the plant and animal tissues contain enzymes which are active at room temperatures. An increase of temperature by 10°C doubles the rate of the chemical change. Eg. Rancidity of fats, which leads to the deterioration in flavour of food. Oxidation also leads to a loss of ascorbic acid an important vitamin for human beings. These enzymes may soften the tissue and change colour.Eg. Cut Apple and Banana.

## 9. What are the three basic objectives of food preservation.

The three basic objectives of food preservation are

- Prevention of contamination of food from external damaging agents.
- Prevention or delay of growth of spoilage microorganisms.
- Delay of enzymatic spoilage by the naturally occurring enzymes within the food (self-decomposition).

# **10. What are D and z value?**

The D-value of an organism is the time required in a given medium, at a given temperature, for a ten-fold reduction in the number of organisms. The z-value is a measure of the change of the D-value with varying temperatures.

# **11.** Describe brining as a method of food preservation.

Salt in high concentration (15-20%)can prevent the water being available for bacterial growth. This process is known as reducing the water activity (aw). It can slow down the growth rate of bacteria and thus the food is preserved. Salt can be used in brine (salt water) or applied to food directly. Most common salt used for such preservations is sodium chloride or common salt.

## 12. How can sugar be used in food preservation?

Sugar binds to moisture and thus can preserve food by preventing the growth of microorganisms. However, sugar needs to be used in high concentration (65% or above). Products such as jams and jellies are preserved by using sugar. Most of the candies (both hard and soft) are preserved using sugar.

## **13.** Explain HTST and LTLH.

HTST (High temperature-short time) is a method in which food product is heated at high temperature for a short time. For example, milk is heated to  $72^{\circ}$ C and held for 15 seconds.

In LTLH (Low temperature-long time) Food product is heated at a lower temperature for longer period of time. Eg.milk is heated to 62.8°C and held for 30 minutes.

## 14. Describe the process of pickling with appropriate examples.

Pickling is a process which uses of acids (vinegar or citric acid) or acids, spices and brine in combination. This treatment lowers the pH and thus inhibits the growth of many micro-organisms. It is more effective against yeast and bacteria than moulds. About 20% vinegar (acetic acid) prevents the spoilage of most products. It is used in the preservation of pickles, sauces and chutney. Citric acid, is also used in the preservation of certain fruits and vegetables. Products of jams, jellies and squashes may contain citric acid.

## 15. Describe the process of canning.

Canning is a process in which temperatures of over 100°C and sealing in sterile airtight containers are used. Such treatments kill all spoilage organisms and their spores it also inactivates enzymes. The packaging materials for canning can be tin or glass. In this process the food is sterilized ie. the food is free from all microorganisms and its spores. This also prevents decomposition of the food, making it unattractive or inedible. Sterilization also prevents pathogenic (disease-producing) organisms from contaminating the food.