

Food Preservation

SJ Christopher 2019

The most important reasons for preserving foods are to kill harmful microorganisms or suppress their growth, and to inactivate enzymes. Food preservation can be achieved by different methods, including heat processing, refrigeration, salting, smoking, drying, pickling, and irradiation.

Heat processing methods include canning, pasteurization and blanching. In the canning process, food is placed in metal cans, heated at over 100°C, and then sealed under vacuum. Canned foods retain their nutritive value for a long time, although there is some loss of Vitamin C and a smaller loss of vitamin B after several months of storage.

Pasteurization is a mild form of heat treatment, used to inhibit bacterial growth in milk. Pasteurized milk must be refrigerated to control bacterial growth, because pasteurization does not kill all the bacteria in milk.

Blanching is another mild heat treatment, consisting in the immersion of food in boiling water for about 30 seconds. It is used to preserve fruits and vegetables before they are dried or frozen, and aims to destroy enzymes.

Refrigeration is possible either by chilling or deep-freezing. Chilling is a short-term method used to preserve foods at 3°C to 5°C. Chilled foods stay fresh only for two or three days, whereas frozen foods retain their freshness much longer because microbial growth does not take place at temperatures lower than -9.5°C. Deep-frozen foods will retain their nutritive value for months, despite a partial loss of Vitamin C.

Irradiation is also used to preserve food. Food irradiation is the process of exposing foodstuffs to a source of energy which strips electrons from individual atoms in the targeted material. The radiation can be emitted by a radioactive substance or generated electrically. Irradiated food does not become radioactive. This treatment is used to preserve food, reduce the risk of food-borne illness, prevent the spread of invasive pests and delay or eliminate sprouting or ripening. It is permitted by over 50 countries, and 500,000 tonnes of food are processed each year in the world.

Exercise A: Use the underlined words in the text in the following sentences.

1. often involves a change of colour, e.g lemons turn from green to yellow.
2. Enzymes in fruits and vegetables can be destroyed by
3. illnesses like salmonella or botulism can be extremely dangerous.
4. Before eating an orange, you must away the peel from the outside of the fruit.
5. The exams at the end of the course.
6. Low temperatures can the growth of plants, so that they mature later.
7. Many people continue to smoke, the health risks.
8. Italian cooking uses olive oil, French cooking tends to use butter.
9. is a food preservation method that uses vinegar.
10. The researchers success after years of hard work.
11. Every student to learn skills that will be useful to find a good job.
12. Tuna is often stored in to preserve its nutritive value.

Exercise B: Answer the questions with complete sentences.

1. Why are foods preserved?
2. Which preservation methods are named in the text above?
3. Which vitamins do canned foods lose?
4. Why is milk pasteurized?
5. What is blanching?
6. What is the temperature range for chilled foods?
7. How long does deep-freezing preserve foods?
8. Which vitamin is partially lost by deep-frozen foods after several months?
9. How does food irradiation work?
10. Is irradiated food radioactive?
11. Why is it used ?
12. How many countries allow food irradiation?

Exercise C: Read the text about salting and complete with: a/the/0 article

Salting is food preservation method which consists in addition of salt (... 10% solution).

This extracts moisture responsible for growth ofspoilage microorganisms. Salting is used to preservemeat and fish, and it involves high loss ofprotein and Vitamin C.

Salting is often used incombination with smoking, which not only stops or reduces microbial growth, but also reduces oxidation offats. Nowadays, smoking is mostly used as flavouring agent, e.g. during ripening period of certain soft cheeses.

Exercise D: Match the beginnings and ends of the sentences about drying.

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| 1. Drying works on the principle | a loss of protein. |
| 2. Air-drying is used for solid or | for a very long time. |
| 3. Spray-drying and vacuum drying | semi-solid foods. |
| 4. Freeze-drying is used for vegetables | are used for liquids. |
| 5. Food preservation by dehydration involves | that bacteria cannot grow without moisture |
| 6. However, it preserves vitamins | fruits, coffee, meat, etc. |