



# Principles of Food Preservation

Principles of Food  
Preservation

preservations is to put them for a few minutes in boiling water.

► **Removal of insects, worms and rats:**  
By storing foods in dry, air tight containers the insects, worms or rats are prevented from destroying it.

► **Preservation methods include:**

► **Thermal processing:**

Application of heat, Inactivate enzymes, Kill microorganisms.

Various methods are Blanching, Pasteurization, Sterilization, Boiling, Steam under pressure.

► **Removal of heat (cold processing):**

Lowering temperature of food, Decreases the rate of enzymatic, chemical and microbial reactions in food, Storage life is extended.

Various methods are Refrigeration and Freezing.

► **Control of water content (drying):**

Microorganisms require free water, Free water is removed from the food and therefore, is unavailable to microbial cells, Multiplication will stop, Water unavailable for chemical/biochemical reactions, Storage life extended.

Various methods are Freezing, Physical removal of water from food (dehydration),

Removal of some of the water from food (concentration), Addition of substances that bind water in food, making it unavailable (sugar, salts).



► **Radiation:**

Ionizing radiation, Inactivate microorganisms in food, Destroy storage pests, Inactivate enzymes.

Various methods are Infrared radiation and Ultraviolet radiation.

► **Atmosphere composition:**

Removal of oxygen, Inhibits O<sub>2</sub>-dependant enzymatic and chemical reactions, Inhibits growth of aerobic microorganisms.

Various methods are Paraffin wax, Nitrogen backflushed bags (potato chips), Controlled atmosphere storage, Vacuum packaging of fresh food (cured meats).

► **Fermentation:**

Specific microorganisms are used (starter cultures), Facilitate desirable chemical changes, Longer storage life, Produce antimicrobial substances





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### ► Food Preservation Definition:

Food preservation is an action or method used to maintain foods at certain desirable properties or quality to obtain maximum benefit. A good method of food preservation is one that slows down or prevents altogether the action of the agents of spoilage without damaging the food.

Preservation makes it possible to consume some of these foods during off seasons, throughout the year. Food preservation usually involves controlling or preventing growth of microorganisms or minimizing the quality of degradation due to microbial spoilage or unwanted chemical changes in foods such as rancidity due to oxidation of fats over time. Preservation of foods is no longer simple and straightforward today; it has evolved to a

highly inter-disciplinary field of science.

In recent years, many new sophisticated preservation techniques have developed to extend the quality and shelf-life, minimize risk, protect the environment, and improve functional, sensory, and nutritional properties.

### ► Principles of Food Preservation:

1. Prevention or delay of microbial decomposition



2. Prevention or delay of self-decomposition of the food

### ► List of the principles of food preservation:

#### ► Removal of microorganisms or inactivating them:

This is done by removing air, moisture, lowering or increasing temperature, increasing the concentration of salt or sugar or acid in foods.

#### ► Inactivating enzymes:

Enzymes found in foods can be inactivated by changing their conditions such as temperature and moisture, when you preserve peas, one of the methods of