

Food Preservation

Principles of Food Preservation

Prevention or delay of microbial decomposition.

1. By removal of micro-organisms.
2. By hindering the growth and activity of micro-organisms.
3. By killing the micro-organisms using heat or radiation.
4. Prevention or delay of self decomposition of food.

Causes of Food Spoilage

Chemical and Physical Spoilage.

Micro-biological spoilage.

Enzymatic Spoilage.

Methods of Preservation

Lowering water activity.

Heat treatments.

Low temperature.

Chemical preservation.

Lowering Water Activity

**Dehydration using high Concentration
Of Salt or sugar.**

Sundrying.

Heat Treatments

1. **Blanching – Heat to deactivate enzymes**
2. **Pasteurization – Heat to kill pathogenic bacteria**
3. **Sterilization – Heat to kill all bacteria and other organisms**
4. **Canning using high temperature.**

Low Temperature

1. Refrigeration - $< 40^{\circ}$ F
2. Freezing - 0° F

Chemical Preservation

Use of acids like Acetic acid, vinegar, Citric acid.

Chemicals like Sodium Benzoate and Potassium Metabisulphite.

Use of oils and spices.

Addition of salt and sugar.

Food Preservation in India

- Heating to kill or denature organisms (e.g. boiling)
- Oxidation (e.g. use of sulphur dioxide)
- Toxic inhibition (e.g. smoking, use of CO₂, vinegar)
- Dehydration (drying)
- Osmotic inhibition (e.g. use of syrups)
- Low temperature inactivation (e.g. freezing)
- Ultra high water pressure (e.g. fresherized, a kind of “cold” pasteurization, the pressure kills naturally occurring pathogens, which cause food deterioration and affect food safety.)
- Many combinations of these methods