

Discuss Importance of preservations and antioxidants in food (2016.)

IMPORTANCE OF PRESERVATIVES:

Food preservation is any number of method by which food is kept from spoilage after slaughter or harvest. An oldest method of preservations are refrigerating, drying, fermentation. But now canning, pasteurization, freezing, irradiation are used. Advances in packaging material played a important role in food preservation.

Why do we need to preserve food?

We need to preserve food because of future use. following are the main reasons to preserve food.

- To protect food from microbes and other spoilage agents.
- To ensure that food is safe for future consumption.
- To prolong food storage time.

Principles of preservation.

- Killing microbes
- Remove micro-organism
- Destroying Enzymes
- Inhabitation of microbial growth

IMPORTANCE OF ANTI OXIDANTS IN FOOD

Antioxidants is a type of molecules that neutralizes the harmful damage caused free radicals that damage living cells, spoil food and degrade materials such as rubber, gasoline, lubricating oil. Antioxidants can take the form of enzymes, vitamins supplements or industrial additives. They are routinely added to metals and food stuff to prevent free radical damage. Antioxidants are found in many food, including fruits and vegetables. They are also available as dietary supplements.

Examples:

- ↳ Vitamin A
- ↳ Vitamin C
- ↳ Vitamin E
- ↳ Lutein

Dietary Sources of Antioxidants

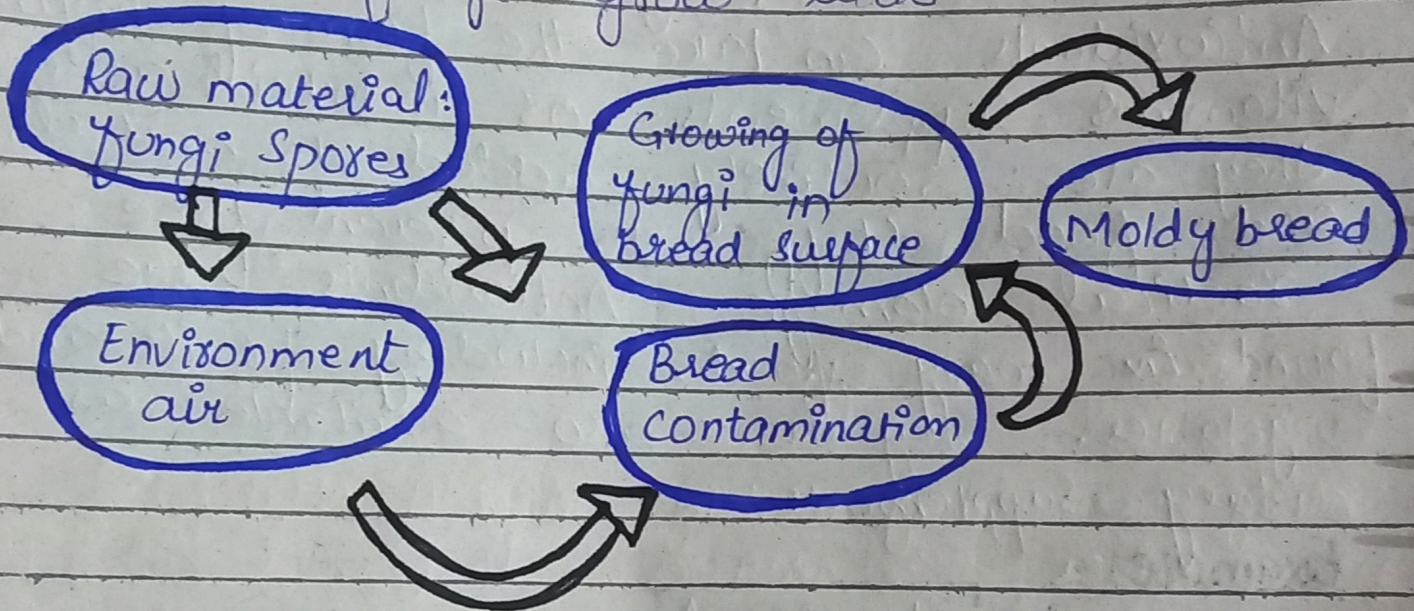
Vitamin C: also known as ascorbic acid. Prevent throat, mouth, pancreas and the cancer of stomach.

Beta carotene: absorbs free radicals that target the molecule of cell membrane.
Vitamin E: also protect from heart disease and contact and may strengthen the immune system.

2021

How a slice of bread decomposes due to growth of fungi?

Scrapping the mold off does not make the bread mould go away as it goes deep into deep inside the bread forming roots, which will again make the fungi grow back.



→ If a moist bread is exposed to outer environment then there is a chance of formation of bread mould.

→ Bread mould is the formation of fungus that leads to spoilage of the bread making the food not worthy of intake.

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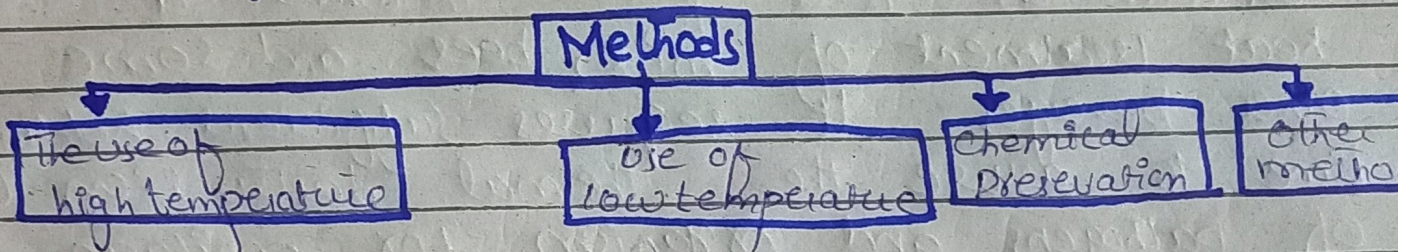
Dissoluss the Methods of food preservation.

FOOD PRESERVATION:

Any number of methods which is kept from the spoilage of food after sluttering or harvesting. Food preservation has its roots in ancient times as humans have always needed to obtain food and store a portion of later use.

METHODS OF FOOD PRESERVATION.

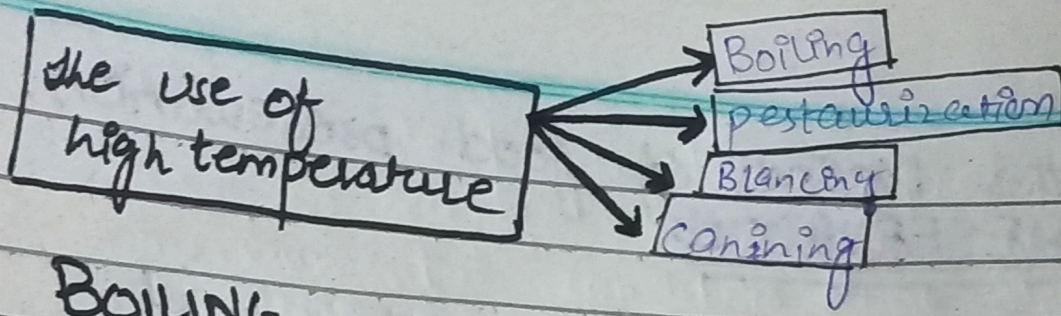
Following are the methods of food preservation



The Use of high temperature

Heat is one of the oldest method of to kill microorganism at the temperature of 100°C . The greatest advancement of food preservation is when advertantly made when human discovers, heating, melting or roasting and other hence treatment of food hence preserving the food for longer periods.

Some of the methods are discussed below



BOILING :

Boiling is the oldest method of food preservation. Boiling is a process applying heat to water until the temperature reaches at 100°C . Boiling food in water does not kill all microorganisms but the vegetative cells, yeasts and moulds are quickly destroyed at 100°C .

PASTEURIZATION :

Pasteurization is a process in which a heat treatment of milk, beer and some other beverages. It requires sufficient holding time to assure the thermal destruction of pathogens and organisms for spoilage without altering the nutritional value.

Blanching :

Blanching is a mild pre-cooking operation which can reduce the bacterial load on vegetables by 90%. It means application of boiling water or steam.

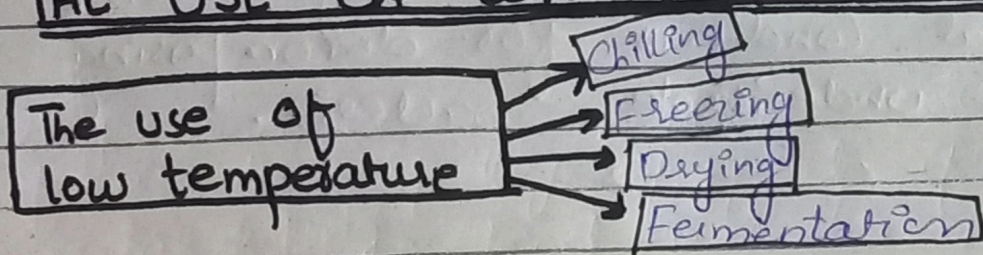
Canning

Canning method involves the following steps:

- ① Sterilising the food to be canned
- ② packing it in sterile
- ③ Air-tight stainless steel metal.
- ④ and sealing the containers to prevent

contamination during handling and storage.

THE USE OF LOW TEMPERATURE



Chilling:

Chilling involves reducing food temperature but only to approximately -1°C . Refrigerators are normally used for cold chilling/storage at 0°C to $+8^{\circ}\text{C}$ for preservation of food.

Freezing

Freezing of food when carried out properly it is the best method for food preservation and is nearly natural as state as possible. In low temperature reduces or slow down the enzymes reaction and the growth of microorganism.

Drying:

this is the dehydration process by which water/moisture content of food is removed or decreased. Pathogenic and other bacteria cannot multiply in the absence of water.

Fermentation

Fermentation is a process of anaerobic or partially anaerobic oxidation of carbohydrates that produces acids and

alcohol. In fermentation presence of acid or alcohol creates a unfavourable environmental conditions for decomposing and other undesirable bacteria.