Objectives of food preservation

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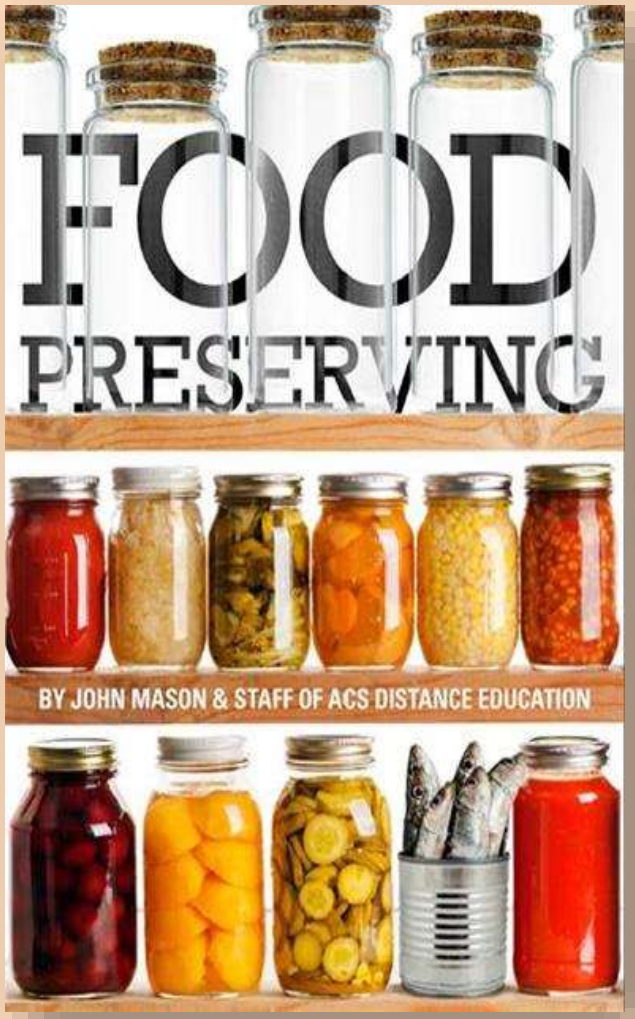


Introduction

Food protection and food preservation have one aim in common they are intended to prevent contamination and spoilage of foods. Many of the methods of food protection and preservation used today are of ancient origin. Having an understanding of food microbiology is important for food protection and preservation practice.

Food preservation

Food preservation includes a variety of techniques that allow food to be *kept for extended periods of time without losing nutritional quality and avoiding the growth of unwanted microorganisms.* There are three basic objectives for the preservation of foods:

- ❖Prevention of contamination of food from damaging agents.
- ❖Delay or prevention of growth of microorganisms in the food.
- ❖Delay of enzymic spoilage, i.e. self-decomposition of the food by naturally occurring enzymes within it.

Like humans, microorganisms need a source of food and water, and they also need a suitable pH and temperature to grow, so food preservation techniques aim to target these requirements. Food preservation depends on procedures which effectively manage the microbial content of foods and on processes that alter or delay the activities of enzymes in the food. The techniques may be applied separately or in combination.

Importants of food preservation

Food preservation activities are as old as human race. It had an important role in the spread of civilization. To make food available throughout the year, humans have developed methods to prolong their storage life i.e. to preserve them. The rotting process can be postponed by adding preservatives, optimizing storage conditions, or applying modern techniques. Therefore, preservation of foods is imperative in order to increase their shelf life.

Need for Food Preservation

EAT what you have,
CAN what you can't.

When food is available more than its present use/ consumption, it should be preserved for future utilization. Thus, preservation activities ensure proper utilization of food. Preservation of fresh produce is needed for following reasons:

•For increasing availability of certain foods which have a short growing season such as fruits and vegetables, for use throughout the year.
•For utilization of surplus crops and prevent wastage.
•For saving money by preserving foods when they are most plentiful, cheaper and are of good quality.
•For producing food which is easier to store, distribute and transport and that can be made available in all places at all times.
•For meeting the needs of the people for food in secluded and difficult areas.
•For ensuring supply of protective foods in homes, hotels and other such places.

Aims and goals of Food Preservation

- Aim of food preservation is to prevent undesirable changes in the wholesomeness, nutritive value or sensory quality of food and reduce chemical, physical and physiological changes of an objectionable nature and eliminate contamination.

- The goal of food preservation is to increase the shelf life of a food while keeping it safe. It ultimately ensures its supply during times of scarcity and natural drought.

Methods of food preservation

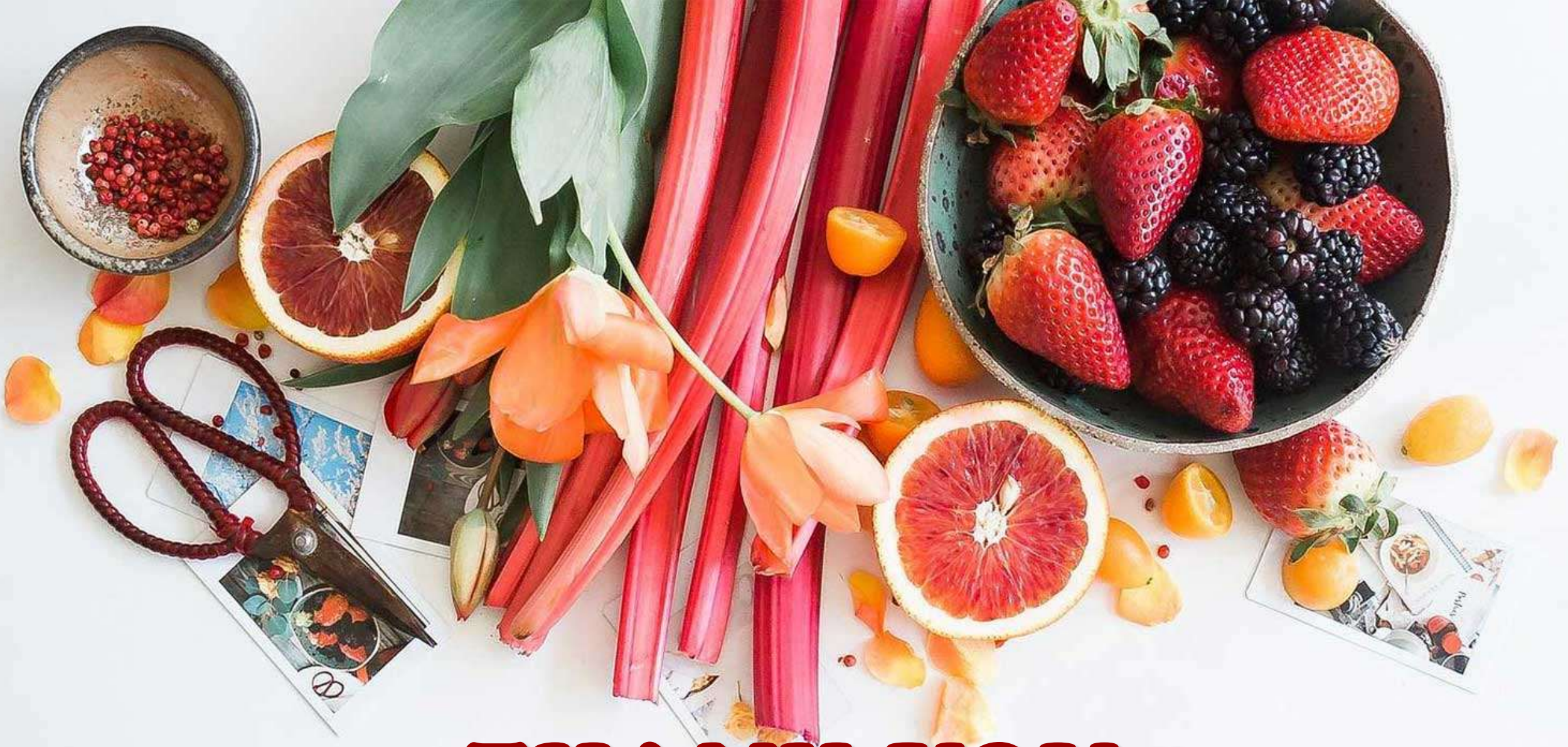
1. Removal or reduction of microorganisms
    - ➢Washing
    - ➢Trimming
    - ➢Sieving
    - ➢Filtration
2. The use of high temperature
    - ➢Boiling
    - ➢Pasteurization
    - ➢Blanching
    - ➢Canning
3. The use of low temperature
    - ➢Chilling
    - ➢Freezing
4. Drying
5 .Fermentation and pickling
6 .Chemical preservation
    - ➢Salting
    - ➢Sugaring
    - ➢Smoking

Advantages of Food Preservation

- ❑increased shelf-life
- ❑decreased hazards from microbial pathogen
- ❑decreased spoilage (microbial, enzymatic)
- ❑inactivation of anti-nutritional factors
- ❑ensured round the year availability of seasonal foods
- ❑perishable foods that can be transported to far-off distances from the site of production
- ❑increased availability of convenience foods (e.g. Ready-to-serve beverages, Instant mixes etc.)
- ❑increased variety of foods, some with enhanced sensory properties and nutritional attributes.
- ❑preservation in some cases produces a different form of the products which are of great importance in various cuisines. E.g. raisins, squash and wines made from grapes.

Conclusion

Food preservation *prevents losses and wastage of nutrients* from foods and allows people to benefit from the nutrient concentrated foods. Enormous reduction in spoilage and wastage of perishable foods *builds up country's economy* by making more food available to the people at affordable prices. It provides much needed *employment* avenues to many individuals in the food processing and allied fields.



THANK YOU

UNIT-II
PRESERVATION

Presented by,
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PRSERVATION

a. Low Temperature- Refrigeration, Freezing
b. High Temperature- Canning, Dehydration, Drying

B.PRESERVATION BY HIGH TEMPERATURE

- The temperature and time used in heat processing a food depend upon the effect of heat on food and the other preservative methods employed.

PASTEURISATION

- Pasteurisation is a heat treatment that kills part but not all the micro-organisms present and usually involves the application of temperatures below 100degreeC.
- Pasteurisation treatment have 2 different primary objectives.
- To kill pathogenic microorganisms and inactivate enzymes. It extends product shelf life from a microbial and enzymatic point of view.
- This is the objective when beer, wine and fruit juice are pasteurised.
- The heating may be by means of steam, hot water, dry heat or electric current and the products are cooled promptly after the heat treatment

Preservative methods used to supplement pasteurisation include

- Refrigeration, e.g., milk
- Keeping out microorganisms, usually by packaging the product in a sealed container.
- Maintenance of anaerobic conditions as in vacuum created, sealed containers.

BLANCHING

- Blanching is a heat treatment like pasteurization.
- The term is usually used in conjunction with vegetable processing, where the goals are too inactivate degradative enzymes and de aerate the product before further processing rather than kill microorganisms.
- If omitted, off-favour, vitamin losses and colour changes occur in the frozen storage. Blanching is usually performed by dipping the products in boiling water for 2 to 3 minutes and cooling immediately.

CANNING

- Canning involves the application of temperatures to food that are high enough to destroy essentially all micro-organisms present plus air-tight sealing in sterilised containers to prevent re-contamination.
- The degree of heat and the length of time of heating vary with the type of food and kinds of micro-organisms that are likely to occur in it.
- Most canning is in ‘tin cans’ which are made of tin coated steel or in glass containers but increasing use is being made of containers that are partially or wholly of aluminium, of plastics as pouches or solid containers.

DRYING

- Food drying is one of the oldest methods of preserving food for later use. It can either be an alternative to canning these methods.
- Drying food is simple, safe and easy to learn with modern food dehydrators . Fruit leathers banana, pumpkin seeds ,chips and beef, jerky can all be dried year round at home.

How drying preserves food:

- The optimum temperature for drying food is 140 F.
- High temperatures are used, the food will cook instead of drying ,When the food will cook instead of drying.
- Low humidity aids the drying process. Food contains a lot of water to dry food the water must move from the food to the surrounding air..
- Most foods can be dried indoors using modern food dehydrators counter top convection oven or conventional ovens.

PRESERVATION BY LOW TEMPERATURE

- Cold temperatures chiefly inhibit growth of micro-organisms although freezing may result in the destruction of some micro-organisms.
- Freezing not only ties up most of the moisture present but also increases the concentration of dissolved substances in the unfrozen moisture and hence reduces bacteria available water.
- Sub-zero temperature causes metabolic injury, denaturation and flocculation of cell proteins due to increased concentration of solutes in the unfrozen water.

FREEZING

- Freezing may preserve foods for long periods of time provided the quality of the food is good to begin with and the temperature of storage is far enough below the actual freezing temperature of food for long preservation.
- Some micro-organisms are destroyed during freezing preservation but the chief preservative effect of freezing lies in the inability of micro-organisms to grow at freezing and below freezing temperatures.
- In vegetables, enzyme action may still produce undesirable effects on flavour and texture during freezing. The enzymes therefore must be destroyed by heating before the vegetables are frozen.

SLOW-FREEZING PROCESS

- It is also known as sharp freezing.
- In this method, the foods are placed in refrigerated rooms at temperatures ranging from -4degree C to -29degree C.
- Freezing may require from 3 to 72 hours under such conditions.
- Home freezing is done by sharp method.
- For fruits and vegetables the temperatures employed are -15 to -21degree C.

QUICK-FREEZING PROCESS

- The lower temperatures used -32degree C to -40degree C freeze foods.
- so rapidly that fine crystal are formed and the time of freezing is greatly reduced over that required in sharp freezing.
- The fine crystals formed by quick freezing have a lesser effect on breaking up plant and animal cells than do methods of slow freezing that produce coarser ice crystals.
- In quick freezing, large quantity of food can be frozen in a short period of time.
- Quantity production is a large factor in the cost of the product.
- The use of very low temperature for both freezing and holding frozen products adds to the cost but is desirable for many products in terms of retention of palatability and nutritive value.

DEHYDRO FREEZING

- Dehydro freezing of fruit and vegetables consists of drying the food to about 50 per cent of its original weight and volume and then freezing the food to preserve it.
- The quality of dehydro frozen fruits and vegetables is equal to that of fruits and vegetables frozen without preliminary drying.
- The cost is some what less because of weight and volume savings in packing, freezing, storing and shipping.

FREEZING FOODS

Vegetables:

- ✓ Blanching vegetables before freezing reduces the number of micro-organisms, removes some air from the tissues, makes them more compact and enhances their colour.
- ✓ Its most important function is to inactivate enzymes that would otherwise cause deterioration in palatability, colour and ascorbic acid content during storage.
- ✓ One of the principal reasons for off-flavours are rancidity of the fatty material in unbalanced frozen vegetables.
- ✓ In addition to the development of rancidity, chlorophyll and carotene may be lost rom green vegetables during storage.
- ✓ Salad vegetables, that are to be eaten raw are not successfully frozen because they lose heir crisp texture and hence their appeal, in the process of blanching and freezing.

FRUITS

- ✓ As with vegetables, the enzymes of fruits can be inactivated by blanching but this is not usually done because it gives the fruit a cooked flavour and soft texture.
- ✓ Fruit is best if cut directly into syrup of sugar to prevent oxidation and if excess air is excluded from the package.
- ✓ Sugar not only increase sweetness but also helps to retain volatile aroma better.
- ✓ Bananas suffer from chilling injury at temperatures lower than 12degree C. The suitable temperatures are 13+- 1degree C for storage.

MEAT AND POULTRY

- Unlike vegetables and fruits, meat and poultry require no special preparation for freezing other than wrapping.
- Enzyme action and the formation of ice crystals may account for the improved tenderness of meat that has been frozen and stored.
- After slaughtering the animal, the pork, meat and poultry is chilled promptly to avoid spoilage.
- The tendency of the fat of pork and poultry to become rancid during storage in a freezer is aggravated by storage before freezing.
- The tenderness of beef and lamb may be increased by allowing the carcasses to age a few days about 5 days at temperatures slightly above the freezing point before freezing.

- Boning meat before freezing has the advantage of saving freezer space because boned meat occupies only two-thirds to three-fourths as much space as meat that has not been boned.
- Pork does not keep as well as beef or lamb in freezer storage because its fat becomes rancid more rapidly.
- Degree of unsaturation of fat in pork, fish and poultry are responsible for rancidity.
- The intimate mixture of muscle pigment and fat that occurs in ground meats may explain why they become rancid more readily during storage than cuts frozen whole.
- As the fat of meat becomes rancid in freezer storage, the colour of myoglobin fades.

EFFECT OF FREEZING ON NUTRITIVE VALUE

- Freezing itself has little effect on the nutritive value of foods.
- There is some loss of water-soluble vitamins in the preparation of vegetables for freezing because of blanching and subsequent chilling.
- Loss of ascorbic acid occurs during storage if the temperature is much above -18degree C. Frozen beans retain more ascorbic acid and thiamin than the canned beans.
- Acceptability is also better. It is often convenient to cook foods in larger quantities than needed for one meal so that a portion can be frozen for future use.

Storage of frozen foods:

- A storage temperature of -18degreeC is usually recommended for frozen foods. The period during which a food can be stored successfully varies with the food as well as with the storage temperature.


THANK YOU

PRESERVATION BY USE OF CHEMICALS

Presented by

Rosy.K

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Department of Food Science and Nutrition

SYNOPSIS:

- Preparation of Crush
- Preparation of Squashes
- Preparation of Synthetic Syrub

INTRODUCTION OF CRUSH

- According to the food safety and standard act(FSSAI),2006 of India , crush means the product of unfermented but fermented fruit juice obtained from any suitable fruit by blending it with nutritive sweeteners and water.
- It should contain25 percentage of juice 55 percentage of TSS and maximum3.5 percentage of acidity.

INGREDIENTS FOR STRAWBERRY CRUSH

Strawberries - 600gm

- Sugar- 1200gms/6cups
- Citric acid-1+1/2tbsp
- Water-600ml/3cups
- Red food color-3/4tbsp (I used raspberry)

PREPARATION METHOD

- Before u begin make sure of u have sun dried, clean ,food grade storage bottles read at hand.
- Wash and hull the strawberries keep aside.
- Place it at the mixer and pulse at regular intervals.
- It should be pulpy in consistency and not become a paste.
- After 4-5 times at the mixer I transferred to one bowl.
- Heat water in deep pan. When it hot add sugar and then stirring with the ladle till it dissolves completely.
- Pass the solution through a fine sieve to remove the scum floating on the tops. et the crush comes to room temperature.
- Transfer to the bottle and Store in fridge.
- Use as required to make strawberry lemonade or milkshake.
- Here the lemon add that I made using the crush.
- I just added 3tbsp of strawberry crush in the place of fruit and it turned so yummy.

EVALUATION OF SHELF LIFE OF THE CRUSH:

- The present investigation was carried out evaluation of shelf life of the crush prepared by the stored fruits and pulpy.
- It was stored under a low temperature up to60 day.
- It was stored under the cryogenic freezing up to90 days and the pulp store with application of 500ppm
- Respect samples are stored for 3 months at room temperature.

HOW CAN WE USE THE CRUSH:

- Strawberry flavored desserts like cake and cookies.
- It also can be used to make milkshake, ice cream ,ice chilled soft drinks and tea.
- And also used to make waffles and also pan cake.

TYPES OF THE FRUIT CRUSH

- Banana crush
- Strawberry crush
- Apple crush
- Grapes crush
- Pineapple crush

CHEMICALS USED IN THE CRUSH

- Citric Acid
- Sodium benzoate

PREPARATION OF SQUASHES

- INTRODUCTION:
- Fruit squashes are becoming popular in comparison with synthetic beverages evidently because of their taste, flavor, nutritive value and their storage stability.
- A number of research worker in different countries investigated the formulations of different fruit based on soft drinks, squash, non-carbonated fruit juice drink etc.
- A fruit juice beverage is a clear or nearly clear unfermented liquid which is developed from the removal of the sweet watery sap from live fruits.
- This beverage may be served as fresh juice drink as soon as it is expressed from the fruit. Squash can be prepared from fruits such as mango, orange, pineapple, litchi, lemon etc.

REQUIRMENTS

- Ripe fruits,
- Juice extractor,
- Pulper machine,
- Knives,
- Bottles,
- Utensil,
- PP Cap sealing machine

PROCEDURE

- Select good quality fully ripe fruits
- Wash and peel the fruit and extract juice as in orange.
- juice can be recovered and in mango, pulp can be extracted.
- Mix the pulp well to make it a smooth paste.
- Take sugar, water and citric acid as needed.
- Mix the ingredients and give one or two boils to dissolve the sugar
- Cool the sugar syrup, and Add the fruit pulp.
- Mix the pulp and sugar thoroughly and pass through a muslin cloth
- Add approved color and flavor.
- Add preservative i.e. potassium/sodium meta bisulphite (KMS/SMS)@ O.7g/liter or sodium benzoate (SB)@ 1.0g/liter of finished product.
- Fill the squash in sterilized bottles and seal it with pilfer proof (PP) Cap and store in cool dry place.

PRECAUTIONS

- Do not heat the juice.
- Do not mix hot sugar syrup in juice or pulp.
- Do not use sodium or potassium meta bi sulphite for colored squashes.
- Always use stainless steel utensils, knives etc.

SYNTHETIC SYRUB

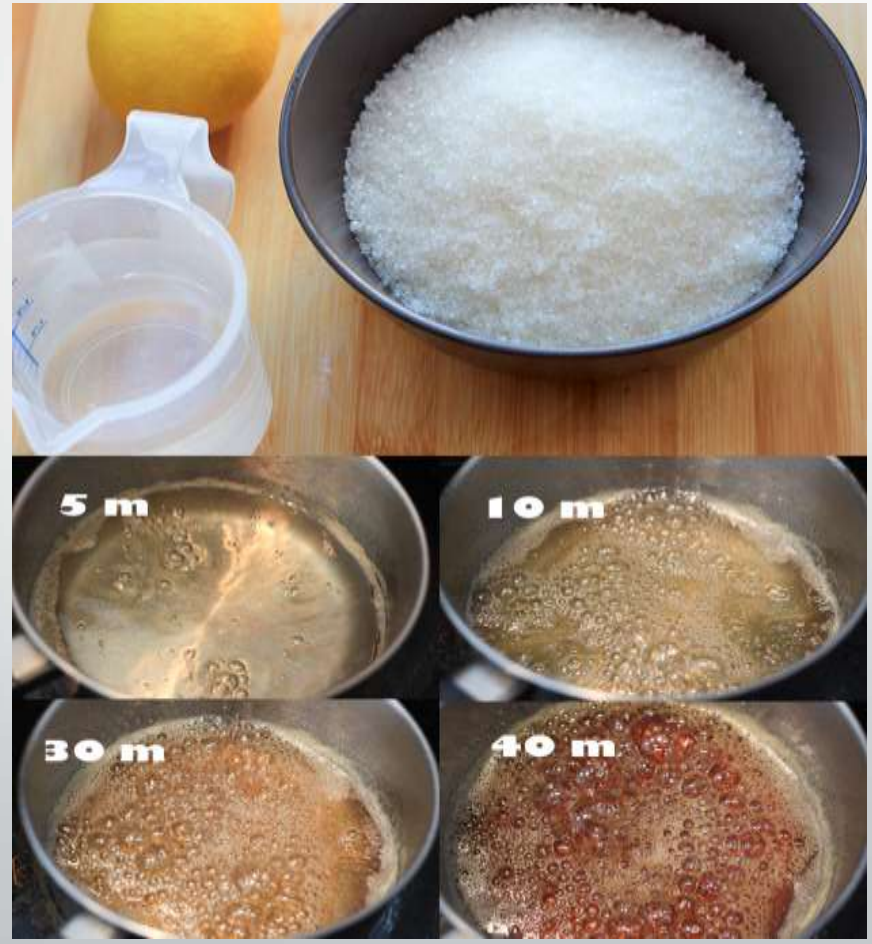
INTRODUCTION:

- ✓ Synthetic syrup or sharbat means the syrup obtained by blending syrup made from sugar, dextrose or liquid glucose.
- ✓ It may also contain fruit juice and other ingredients appropriate to the product.

SYNTHETIC SYRUPS MADE:

- In cooking a syrup is a condiment that is thick, viscous liquid consisting primarily of a solution of sugar in water, containing a large amount of dissolved sugars but showing little tendency t deposit crystals.
- Its consistency is similar to that of molasses. The viscosity arises from the multiple hydrogen bonds between the dissolved sugar, which has many hydroxyl (OH) groups.

SYNTHETIC SYRUP MADE:



- ✓ Maple syrup is actually made from maple tree sap that’s been boiled down to reduce the water content and concentrate the sugars.
- ✓ Those sugars caramelize, resulting in maple syrups characteristic rich colour and flavour.
- ✓ It takes about 10 gallons of sap to make just 1 quart of maple syrup.

PREPARATION OF SYNTHETIC SYRUPS:

- ✓ Sugar syrups can be prepared and preserved by simple techniques using head a chemical preservative.
- ✓ The syrup prepared without the addition of colour and flavour can be used in beverages, etc. instead of granulated sugar.
- ✓ For coloured and flavoured syrups, often two or more colours or flavours are combined for a specific effect.


Ajwa
Shahi
Rose
SYRUP

METHODS OF PREPARATION OF SYRUP:

Four methods are commonly used for preparation of syrups.

1. Agitation without heat: This method is used for the preparation of syrups containing volatile substances…
2. Solution with heat…
3. Addition of a medicated liquid…
4. Percolation…

DEFINITION OF METHODS OF PREPARATION OF SYRUP:

1. **Agitation without Heat:**

- Loss of solution during the process.
- This method is used for the preparation of syrups containing volatile substances.
- In this process active substance is added in solution and agitated in a glass-stoppered bottle.
- Closing of bottle is necessary to protect the syrup from contamination and

2. Solution with heat:

- This process is generally preferred as it simple and less time consuming method, particularly if the constituents are not effected by heat and are non-volatile in nature.
- In this process sucrose is added in the aqueous solution and heated till the sucrose is dissolved completely.
- Adding remaining amount of distilled water makes up volume of the solution.
- If the syrups containing any substances which are coagulated, it can be separated subsequently by straining.

3. Addition of a medicated liquid:

- This method is put to use in those cases in which tinctures, fluid extracts or other medicated substances in liquid form are added to syrup to medicate it.
- In this process some time precipitation takes place due to the presence of resinous and oily substances.
- It is necessary to take are that medicated substance should not get precipitated in this process.

4. Percolation:

- In this process, purified water or an aqueous solution is allowed to pass through a bed of crystalline sucrose.
- A pledget of cotton is put in the neck of the percolator and purified water or aqueous solution is added in the percolator containing sucrose.
- The glow rate is controlled the stopcock and maintained such that drops appear in rapid succession.
- If required, a small portion of liquid is re-passed through the percolator of dissolve the sugar completely in the liquid or aqueous solvent.


03
HARIO

RECIPES:

BANANA:

- Water=1 Litre
- Sugar=2Kg
- Liquid Glucose=150g
- Citric Acid=2g
- Sodium Benzoate=1g
- SMC Colour=Apple green, 1-2g
- SMC Flavour=Banana 81051, 1.5ml

STRAWBERRY:

- Water=1 Litre
- Sugar=2Kg
- Liquid Glucose=150g
- Citric Acid=2g
- Sodium, Benzoate=1g
- SMC Colour=Strawberry red,1-2g
- SMC Flavour=Strawberry 935,2ml


STRAWBERRY
SYRUP

PRESERVATIVES:

- Syrup should be kept at low temperature, about 25 degree C is suitable for preservation.
- Following preservatives are used to prevent bacterial and mould growth viz.
- methylparaben, sodium benzoate, benzoic acid, glycerine etc.

PRESERVATIVES

LABEL AND STORAGE:

- Syrup should be kept in well-closed containers and stored at temperature below 30 degree C.
- Bottle should be completely filled, carefully stoppered and stored in cool dark place.

Fruits

↓

Washing

↓

Cutting into halves

↓

Juice extraction

↓

Straining

↓

Addition of preservative
(KMS 1g/litre juice)

↓

Storing in glass container for 10-15 days
For clarification
(suspended material settles down)

↓

Symphonizing off the
supernatant clear juice

↓

Straining and measuring

↓

Preparation of syrup

↓

Straining

Mixing of juice with syrup

↓

Addition of preservative
(KMS 0.6 g/litre product)

↓

Bottling

↓

Capping

↓

Storing in cool and dry place

THANK YOU

PRESERVATION BY USE OF SUGAR

Preservation by Use of Sugar

- Inroduction
- Jam
- Jelly
- Marmalade
- Tuty-Fruity

SUGARING

- The preservation of food by use of sugar is called as sugaring.
- Sugaring is a method of food preservation that requires the food to be dehydrated and then to be packed with either crystallized sugar or with the liquids containing high amount of sugar such as honey or molasses.
- The main purpose of this food preservation method is to treat the food in order to stop the growth of bacteria.

Food preserved with crystallized sugar

Food preserved with liquid sugar

HISTORY OF SUGARING FOOD PRESERVATIVE

- the methods of preserving food adopted by the early American colonists used to include sugaring as one of the methods.

- early Americans were not so well-equipped with the techniques and means of transporting food from different climates and they could only rely upon the seasonal fruits and vegetables.

- With the lack of refrigeration, they were not able to store food for longer periods, therefore they developed various food preserving procedures that helped them in retaining the nutritional value and quality of food for extended period of time.

THE PROCESS OF SUGARING:

- Sugaring is the process of food preservation mainly done with crystallised form of sugar or liquefied sugar syrup.
- Any fruit or vegetable that has to be preserved is washed thoroughly and desiccated by dehydration. The food is then cooked in sugar product or raw sugar until crystallised and the resultant food is preserved in dried form.
- Some fruits are even glazed in sugar syrup, but sold after being extracted from the liquid.

SUGARING OF VARIOUS FOODS:

Fruits – Apples, pears, plum, cherry, apricots and peaches are some of the popular fruits that are commonly preserved by sugaring method. These fruits are either dried before preservation or glazed in sugar syrup. Fruits are also combined with alcohol and preserved.

Vegetables – Ginger and carrot are the most common vegetables that are often sugared to prepare relishes or sweet pickles.

Angelica – It is a herb that is widely used as a flavoring agent. However, sugar preserved or candied strips of angelica are extremely popular as cake decorations.

Citrus peel – The peels of citrus fruits like lemon and amla (Indian gooseberry) are often candied to form relishes. However, ‘murabba’ (Indian candied dish) includes whole amla

PRINCIPLE OF PRESERVATION BY SUGAR:

Sugar in high concentrations acts as a preservative due to **osmosis**. Sugar attracts all available water and water is transferred from the **microorganisms into the concentrated sugar syrup**. The microflora is dehydrated and cannot multiply further. The concentration of sugar in sugar preserved products must be **68 per cent or more**, which does not allow microorganisms to grow. When foods low in acid are used, they are usually combined with some acid fruit. Besides contributing flavor to the product, the acid aids in the preservation. The amount of sugar used in manufacture of these products varies widely.

SUGAR PRESERVED FOOD PRODUCTS:

Based on the form in which the fruit is used, preserved products may be classified as:

- Jams, jellies, marmalade, cheese, toffee made from fruit in small pieces/ pulp/ juice
- Crystallized, glazed, candied fruits made from whole fruit/ big pieces

Marmalade

Candied fruits

ADVANTAGE OF SUGARING

Sugaring has few advantages over other preservation methods, as this process does not require large number of ingredients and often the sugar extract or glaze is used to sweeten various other foods as well. It is also an easy preservation method with less time involvement.

DISADVANTAGES OF SUGARING

There is a risk in this method as sugar is believed to attract moisture very fast. When the atmospheric moisture is high in content, the yeast present in the environment starts its action and sugar starts fermenting into carbon-di-oxide and alcohol. Although fermented food is also a preserved food, the sugared foods should be prevented from fermenting, as it may lead to an unpleasant taste.

THANKS A BUNCH!

PICKLING

Content

- Definition
- Meaning
- Pickling process
- Step by step preparation
- Sources

DEFINITION

- **Pickling** is the process of preserving or extending the shelf life of food by either anaerobic fermentation in brine or immersion in vinegar.

- The **pickling** procedure typically affects the food's texture, taste and flavor.
- The resulting food is called a **pickle**, or, to prevent ambiguity, prefaced with **pickled**.

MEANING:

- ***Pickling*** is a **global culinary art**.
- ***Pickling*** is the **process of preserving** edible products in an acid solution, usually vinegar, or in salt solution (brine).

- The process of ***pickling*** is also known as **brining** and the resulting foods as pickles.

PICKLING PROCESS:

- The chief difference between low-salt fermentation and pickling is the use of vinegar, herbs, and spices in the ***pickling process***.
- In either method salinity is low enough for the produce to be eaten without first being freshened (rinsed in water).
- Cucumbers and green tomatoes

are the vegetables most frequently treated by fermentation ***pickling***.

METHOD OF PICKLING:

- There are two basic ***methods*** of introducing acid to ***food***, or ***pickling***. In the direct ***method*** — called quick ***pickling*** or short brining — ***food*** is covered in vinegar, and that is that.
- ***Foods*** most commonly quick-***pickled*** are fruits and vegetables.

STEP BY STEP PICKLING:

- Fill a large pot with hot water.
- Submerge canning jars in the hot water and bring to a boil.
- Gather and cucumbers/vegetables/fruits.
- Make the **pickle** brine.
- Remove jars from hot water.
- Fill jars with **pickle** ingredients.
- Add extra spices .
- Prepare jars for sealing.

Examples(Sources):


THANK YOU