Squashes and Cordials

Welcome to the learning session on food technology. Today's lecture deals with squashes and cordials.

By the end of today's lecture you will have a brief understanding of the following topics with relevance to squashes and cordials:

1. Definition of squashes and cordials
2. Market potential of squashes and cordials
3. Preparation of squashes and cordials
4. Serving methods of squashes and cordials
5. Requirements for making squashes and cordials
6. Ingredients used in the preparation of squashes and cordials

Introduction

In India, which is basically a hot country, the use of refreshing and thirst quenching beverages, mostly falling under the category of aerated waters has become quite stagnant. Because of this fall and also because of the increase in the number of health conscious people during the last few decades, the products like fruit juices, squashes, cordials, crushes, syrup and ready-to-serve beverages have been introduced in the country on a commercial scale to a large extent. The rapid rise in the production of these beverages in different parts of our country is proof enough of their rising popularity. The use of fruits by industries for the preparation of such products will reduce the wastage of fruits during handling and also add nutrition and palatability to the drink.

Fruits provide an important source of energy for human beings. But the main drawback is that the availability of majority of fruits is seasonal and they are perishable. Hence, fruits need to be processed and preserved which extends their shelf life and also results in value-addition.

India is a producer of many variety of citrus fruits. Hence, it is sensible if processing industries are set up near the places where the fruits are grown. States like Maharashtra, Uttaranchal, Himachal Pradesh and the North-Eastern states are high producers of many fruit varities. Assam is a major producer of fruits such as pineapple, orange, lemon, mango etc and it is grown in large quantities over here. Hence, fruit squash and cordial making activity in a small scale is highly recommended in these regions.

Definition

Squash is often colloquially known as "juice", especially when talking to young children because they might not be familiar with the term "squash". But this term is a misnomer as no squash is a pure juice. Squashes are commonly called by the name of the type of the fruit out of which they

are made. Very rarely, they might be referred to as a “fruit drink”, especially if they are ready diluted in a plastic bottle or paper carton (example fruit shoot).

Cordial, diluted juice and squash are more so similar products. But the major difference is that cordials tend to be thicker and stronger, requiring less syrup and more water to be blended. “High juice” is not a brand of squash but rather a type that contains a larger amount of juice, upto about 45%.

Squashes are measured by their content of fruit juice. The average being about 30%. “High Juice” is a squash that contains a larger amount of fruit juice. Upto half or more of the volume in juice is sold in markets as high juice.

Many squashes contain less than 20% juice and some squashes contain as less as 5 to 10% juice. The latter have a lower nutritive content in contrast with the high juice variant which are reasonably higher in nutrients. Although one downside is that it is high in sugar and does not contain fibre or minor nutrients. That goes with almost all squashes. A low juice squash may state “with real fruit juice” on the label.

Squashes are made out of fruit juice mixed with sugar syrup. Cordials on the other hand are crystal clear squashes. The process involves producing juice, which is then filtered through fine cloth or special juice filters to make the consistency crystal clear for cordials.

Sugar syrup in the concentration range of 50 – 60% is filtered and heated to 90^0c and mixed in the exact proportion with the fruit juice. Addition of hot sugar syrup to the juice decreases the time that the juice needs to be heated and the colour and flavor of the juice are better preserved this way. This method also proves to be beneficial in order to reduce the equipment costs as sugar syrup can be heated using large aluminum pan, which is much more cost effective i.e. cheaper than using stainless steel.A small stainless steel pan is then used to finish heating the juice or syrup mixture.

A very simple and easy means of calculating the amount of sugar and juice that should be mixed together (also when making jams) is to use a Pearson square. To employ this method, first a square is drawn. The juice and syrup concentrations are written on the left side and the required product concentration is written in the middle, for example, say 15%. By subtracting the smaller amount from the larger amount diagonally, the quantities that should be mixed together can be found out.

These drinks are diluted to taste with water and are therefore used a little at a time, so they may usually contain a preservative such as sodium benzoate to prevent spoilage once the bottle is opened. Although some processors make use of food dyes, these are not necessary for most of the products.

1. **Market potential**

Fruits are liked by all age groups. But the supply of fruits is limited owing to their availability limited during the particular season only which maximally lasts for a period of 3 to 4 months. Hence, squashes and cordials are becoming popular. They are sold at places such as provision stores, departmental stores, cold drink centres, restaurants etc and since they have a longer shelf life consumers prefer them. Yet another added advantage is that they are easy to prepare. They can be instantly mixed with water and served.

With the dynamic change in the pace of human activity and changing life style, the demand for easy-to-prepare drinks are also increasing. Besides being consumed in the household, these drinks are also served in restaurants, clubs, airlines, railways etc. There has been an appreciable increase in the export of processed foods which includes squashes, cordials and syrups. With the fast pace of growth in the urban sector and the increase in living standards of the Indian people reaching higher levels by the year, there is a good potential to develop this industry in the small scale sector.

Marketing strategy

With changing life styles and increase in disposable incomes, squashes and cordials are gaining more popularity. Squashes of some conventional and selected fruits are available in the market but it is worth to try some fruits grown in the regions of Assam as their tastes are palatable to the local population. This would also provide an edge over other competitors in the market.

Capital inputs

Setting up of a squash or cordial manufacturing unit does not require you to buy a piece of land or to undertake construction. Instead, a readymade shed of around 125 sq.mts is adequate. Apart from the production hall, some space for storage and packing is also required. The total cost sums upto around 2 lacs. Regulations under FPO must be adhered to.

World markets

Some of the major manufacturers of squash and cordials include Britvic (under the Robinsons and MiWadi brands), Hamdard (under the Rooh Afza brand in India, Pakisthan and Bangladesh), Nichols (under the Vimto brand), Suntory (under the Ribena brand) and Coca-Cola (under the Kia – Ora brand). Australian brands include Cottee’s, Bickford’s and P & N Beverages and Golden Circle cordials. Indian brands include Kissan and Rasna. In Isarael, fruit squashes are produced by companies such as Assis, Prigat and Primor.

Advertising

Many types of advertising strategies are employed by companies manufacturing squashes and cordials. This is done mainly to encourage their products to be appealing to customers. Advertising may include pictures of children picking fruit (such as the picture on Robinson’s squash) or anthropomorphic fruit (picture on Ribena), behind the label “fruity fun” such as word

searches, crossword puzzles, word scrambling etc. Advertising may also include tickets to experiences such as film tickets, football or other sports event tickets, weekend breaks, new film releases or theme park trips.

2. Preparation of squashes and cordials

Squash is prepared by combining one part fruit concentrate with four or five parts of water. The water used may be carbonated water or still water.

Double strength squash and traditional cordials, which are thicker in consistency are made with two parts concentrate.

Some squash concentrates are quite weak, and these are sometimes mixed with one part concentrate and two or three parts of water.

Squashes and cordials taste best when prepared using cold water, but old fashioned cordials are often made with warm water.

In convenience stores and in supermarkets, readily diluted squash is sold in cases, cartons and plastic bottles.

Squash must be mixed with a certain amount of water or carbonated water before drinking. As a drink mixer, it may be combined with an alcoholic beverage to prepare a cocktail or mocktail.

Citrus fruits such as orange, lime and lemon or a blend of fruits and berries are commonly used as the base of squash.

Popular blends used in the preparation of squashes and cordials include blackcurrant, raspberry with pomegranate, orange or peach with mango etc.

Less popular single fruit squashes are also produced. The fruits usually employed in these include pineapple, pomegranate, raspberry and strawberry. Barley water is also sometimes considered as a type of squash.

Traditional squashes are usually flavoured using ginger, chokeberries (often with added spices), elderflower and sometimes orange or lemon is also made use of.

Squashes and cordials are highly popular in the United Kingdom, Argentina, Bangladesh, Malta, Pakisthan, Ireland, India, Indonesia, Israel, Denmark, Norway, Sweden, South Africa, Kenya, Australia, Cyprus, New Zealand and Hong Kong.

Squashes and cordials are not available generally in the United States. When it is available there, it is quite expensive. Some Americans and even Indians prepare squashes and cordials at home. The process of making squashes and cordials at home involves boiling water and sugar together on a low heat, then adding fruit juice and lemon juice or citric acid. Plant extracts may also be added sometimes.

Low sugar squashes

Squashes labeled “no added sugar” are artificially sweetened usually with sweeteners such as aspartame, acesulfame K, saccharin or sucralose, which is much cheaper for the manufacturers than both HFCS and natural sugar.

Low sugar squashes are very low in calories. Sometimes they may contain as low as 4 calories per 100 ml diluted. These squashes are marketed towards families who seek low calorie alternatives.

They tend to be very low in their fruit juice content. This is because fruits contain natural sugars and so they usually contain natural or artificial flavorings such as isoamyl acetate for pear or bananas or mixed with malic acid to makean apple-like flavor, ethyl methylphenylglycidate for strawberry, octyl acetate for orange, allyl hexanoate for pineapple etc to make up for the lack of fruit juice taste.

Squash and cordial in the British culture

Squashes and cordials make up a major part of the beverage diets of children in the United Kingdom. Besides fizzy drinks, sweetened juice-based drinks such as cranberry drink and pulp-free fruit juices. In the event of parties, play dates, day care centres, pre schools and excursions, low-sugar squashes and cordials are usually the only preferred option served to children alongside plain water.

3. Serving

When ordering squash in restaurants, people are often asked by their server whether they would like it “strong” or “weak”. It is usually served cold, most often with ice. But in the case of traditional cordials, it is often served warm in winter, just as beverages such as tea or coffee would be served.

The most common squash to be served warm was spiced berry. This variant is almost out of trend now but it is still made by some companies specializing in traditional cordials. Nowadays, the market for spiced berry cordial has been taken over by cheaper companies manufacturing modern flavors of squash such as lemon, orange, apple and blackcurrant squash.

Peppermint squash is usually served warm. It is traditionally consumed while having an upset stomach.

Squash in the diluted form is often used as a base in the preparation of cocktails and mocktails and also as a flavoring agent or sweetener. Gin can be mixed with diluted squash to make a cocktail similar to a gin and juice.

4. Requirements for making squash and cordial

Fruit squashes shall be prepared from fresh, pure pulp or juice obtained from ripe fruits picked at the proper stage of maturity. The fruits which are to be used for the preparation has to be free from damage caused by insects and diseases and should also be free from any signs of fermentation.

Other substances such as sugar, invert sugar or liquid glucose and water may also be added to squash or cordial. No artificial sweetening agents should be used in the preparation of fruit squash and cordials.

The only type of additives that may be used in fruit squashes are ascorbic acid, citric acid, permitted artificial coloring matters peel oil, fruit essences and flavours.

Preservatives that may be used in fruit squash and cordials are sulphur dioxide or any other suitable sulphite or benzoic acid or its water soluble salts. The content of sulphur di oxide (SO_2) content should not exceed 350 parts per million when tested according to the method prescribed in Appendix B of IS: 4624-1968 or benzoic acid content should not exceed 600 parts per million when tested according to the method prescribed in Appendix B of IS: 3S:1966t.

The fruit content in squash or cordial should not be lesser than 25 percent by weight on as-is-basis. The fruit squash or cordial which is to be sold in the market should possess a uniform color. It should be free from defects and should have normal characteristic taste and flavor and should score at least 80 points or more.

The squash or cordial should not contain any poisonous metal in trace or in excess quantities.

5. Ingredients

The ingredients used in the preparation of squashes and cordials have evolved over the years. A traditional cordial contains the following ingredients:

- Sugar
- Juice or plant extract
- Some water

It may also contain an acidifier such as citric acid. In very old-fashioned cordials lemon juice is added. Sometimes spices such as cinnamon or cloves may be added.

Recreations of these traditional preparations often contain a preservative especially sulphur di oxide. Sugar can also go a long way in keeping the squash or cordial preparation fresh for a long time.

The preparations of modern squashes are much more complicated and the preparation of sugar-free squashes is even more complicated. The ingredients in such preparations are usually water, sweetener such as aspartame or sodium saccharin, juice in a low quantity (typically about 5 – 10 %), large quantities of flavoring agents, preservatives and sometimes a coloring agent such as anthocyanin.

In between these are the ordinary squashes, which contain sugar, water, a larger volume of juice, preservatives, coloring agents such as anthocyanin and sometimes a small amount of flavoring agent.

Coloring agents such as Allura Red AC and Sunset Yellow FCF are occasionally used in the squash preparation. Most British companies are gradually aiming to use naturally derived colors such as beta carotene or anthocyanins and natural flavorings.

Traditional squashes may be flavored with elderflowers, lemon, pomegranate, apple, strawberry, chokeberry (often with spices such as cinnamon or cloves added), orange, pear or raspberry.

Modern squashes usually have simpler flavors such as orange, apple, summer fruit (mixed berries), blackcurrant, apple and blackcurrant, peach, pineapple, mango, lime or lemon.

Summary

- Squashes are made out of fruit juice mixed with sugar syrup. Cordials on the other hand are crystal clear squashes. The process involves producing juice, which is then filtered through fine cloth or special juice filters to make the consistency crystal clear for cordials.
- With changing life styles and increase in disposable incomes, squashes and cordials are gaining more popularity.
- Some of the major manufacturers of squash and cordials include Britvic (under the Robinsons and MiWadi brands), Hamdard (under the Rooh Afza brand in India, Pakisthan and Bangladesh), Nichols (under the Vimto brand), Suntory (under the Ribena brand) and Coca-Cola (under the Kia – Ora brand).
- Squashes and cordials are highly popular in the United Kingdom, Argentina, Bangladesh, Malta, Pakisthan, Ireland, India, Indonesia, Israel, Denmark, Norway, Sweden, South Africa, Kenya, Australia, Cyprus, New Zealand and Hong Kong.

- Fruit squashes shall be prepared from fresh, pure pulp or juice obtained from ripe fruits picked at the proper stage of maturity. The fruits which are to be used for the preparation has to be free from damage caused by insects and diseases and should also be free from any signs of fermentation.
- Other substances such as sugar, invert sugar or liquid glucose and water may also be added to squash or cordial. No artificial sweetening agents should be used in the preparation of fruit squash and cordials.
- The only type of additives that may be used in fruit squashes and cordials are ascorbic acid, citric acid, permitted artificial coloring matters peel oil, fruit essences and flavours.