

Guidance Note on Safety and Quality of Traditional Milk Products

Summary

This Document intends to help Food Businesses ensure hygiene and sanitation in manufacturing and sale of milk products particularly sweets. It focuses on enhanced declaration by sellers [Shelf Life, made of ghee/vanaspati], guide test for detection of adulteration, quality assessment by observation of flavours, body texture, colour and appearance etc. It also contains suggestions for addressing adulteration and ensuring effective regulatory compliance. This document is also expected to enhance consumer awareness about safety related aspects of traditional sweets, quick home tests and grievance redressal.

Key Takeaways

- a. Ensure hygiene and sanitation in preparation and sale of sweets as well as other regulatory compliances including display of shelf life of pre-packaged as well as non-packaged milk products for consumer information.
- b. Ascertain the freshness and probability of adulteration by observing the colour, texture and flavour of milk products. There are simple tests to identify adulteration in milk products.
- c. Regular surveillance and enforcement activities on sweets by regulatory authorities.



This Guidance Note has been prepared by Mr Parveen Jargar, Joint Director at FSSAI based on FSSAI resources including Regulations, Standards and DART Book. This note contains information collected and compiled by the author from various sources and does not have any force of law. Errors and omissions, if any can be kindly brought to our notice.

Introduction

India has a rich tradition of sweets with a variety of taste, texture and ingredients. Traditional milk-based sweets are generally prepared from khoya, chhena, sugar and other ingredients such as maida, flavours and colours e.g. peda, burfi, milk cake, gulab jamun, rasgulla, rasmalai etc. In addition there are sweets containing cereal, starch or grain as the main ingredient e.g. suji halwa, moong dal halwa, jalebi, boondi laddoo, motichoor laddoo, gujiya, balusahi, soan-papdi etc. There are also sweet snacks e.g. chikki, gajak, murrunda, gudchana coated with jaggery, sugar, honey and other ingredients.

Sweets have limited shelf life. Sweets particularly those with milk products have lesser shelf life (1-4 days) and are more prone to microbial growth. Therefore sanitation and hygiene in their preparation and consumption within shelf life is of utmost importance. Moreover, there are issues of adulteration and use of sub-standard products. Concerted efforts are needed to ensure food safety of sweets by stakeholders including food business, consumers and regulatory authorities.

Challenges in Traditional sweets

There are a number of issues faced in manufacture and sale of sweets. People involved in manufacture lack adequate knowledge of regulatory compliances and good hygienic practices. The packaging and labelling requirements are often neglected. Moreover there are certain issues like use of non-permitted colour, flavour or other ingredients; use of Raw Materials of poor quality for sweet manufacturing; repeated use of oil in cooking/preparation leading to increased level of trans fat which need to be addressed.

Milk Product Survey

FSSAI had a pilot scale survey of milk products to ascertain the quality and safety of milk products sold in and around Delhi between 15th October and 7th November 2019 coinciding with the festival season. Samples were drawn from 11 districts in multiple locations across Delhi-NCR. During the survey a total of 1041 samples (438 packed & 603 loose milk products) including khoya, paneer, ghee and milk based sweets such as khoya burfi and chenna, chenna rasgulla were taken and tested at National Food Laboratory, Ghaziabad. For the first time, surveillance also focused on microbiological parameters that included process hygiene and pathogens.

The survey reveals the trend that milk product samples do not have safety issues in both chemical and microbiological analysis. The samples were found to have predominantly quality and hygiene issues with more incidences in loose samples as compared to packed ones.

Guidance for Food Businesses

- a. The general hygiene and sanitary requirements as specified under Schedule IV of FSS (Licensing and Registration of Food Businesses) Regulations 2011 should be scrupulously complied with.
- b. In case of pre-packaged milk products, the list of ingredients and the date of manufacturing and best before or use by date should invariably be mentioned as prescribed under the FSS (Packaging and Labelling) Regulations, 2011.
- c. In case of non-packaged/loose sweets, the container/tray holding the items at the outlet should display the following information:

- i. Best before or use by date.
- ii. Whether Oil/ghee/Vanaspati used
- d. The record of source of dairy based products should be maintained.
- e. FSSAI License/Registration should be prominently displayed at the unit.
- f. Use of non permitted colors and repeated use of oil should be avoided.
- g. For sale of savouries, sweets or other articles of food, the notice board should indicate whether articles which have been cooked in ghee, edible oil, vanaspati and other fats for the information of the consumers.
- h. Training and capacity building of the manufacturers will help in the basic understanding of hygiene, sanitation, handling and storage. They may get training under Food Safety Training and Certification (FoSTaC) programme of FSSAI.
- i. Get the samples tested from NABL accredited FSSAI notified laboratories at regular intervals and display the same on display boards at their respective outlets.

Suggestive Logo for Shelf life

The food business may use the following logos to indicate the shelf life of products for information of consumers:



Shelf life of sweets

The Indian sweets use a variety of ingredients such as khoya, ghee, flours, dry fruits, sugar etc. The shelf life of sweets depends upon the ingredients used. For example, the Khoya Burfi has shorter shelf life than Boondi Ladoo. In this regard, an illustrative list of sweets with their shelf life is given below:

Shelf-Life

Item

a) Very Short Shelf Life- Same day

To be kept at room temperature and consumed on the same day

Kalakand and its variants such as Butterscotch Kalakand, Rose Kalakand, Chocolate Kalakand.

b) Short Shelf Life- 2 days

To be kept in refrigerator and consumed within 2 days from date of manufacturing

Milk Products and Bengali Sweets such as Badam milk, Rasgulla, Ras Malai, Rabri Rasmalai, Shahi Toast, Rajbhog, Cham Cham, Sandesh, Malai Roll, Bengali Rabri, Hiramani, Gur Sandesh, Hari bhog, Anurodh, Anarkali, Madhuri, Pakiza, Raskadam, Gur Kaccha Gola Sandesh, Ras Katta, Kheer Mohan, Gur Rasmalai, Gur Rabri, Gur Rasgulla

c) Medium Short Life-4 days

To be consumed within 4 days from date of manufacturing

Ladoo and Khoya Sweets such as Milk Cake, Mathura Peda, Plain Burfi, Milk Burfi, Pista Burfi, Coconut Burfi, Chocolate Burfi, Safed Peda, Boondi Ladoo, Coconut Ladoo, Lal Ladoo, Motichor Modak, Khoya Badam, Mewa Batti, Fruit Cake, Khoya Til Fruit Cake, Kesar Coconut Ladoo, Small Malai Ghewar, Vrat Kesaria Coconut Ladoo, Small Mewa Ladoo, Pink Burfi, Til Bugga, Rewari Rurfi, Dry Fruit Til bugga, Shahi Ghewar, Khoya Kesar Badam Roll, Til Bati, Kheer Kadam, Kheera Beej Burfi, Khoya Coconut Burfi, Moti Pak.

d) Long Shelf Life-7 days

To be consumed within 7 days from date of manufacturing

Sweets with ghee and dry fruits such as Dry fruit ladoo, Kaju Katli, Ghewar, Sakkar Para, Gur Para, Shahi Ladoo, Moong Burfi, Aata ladoo, Dry fruit Gujia, Moti Boondi Ladoo, Kaju Kaser Burfi, Kaju Baked Gujia, Badam Laung, Balusahi, Badam Burfi, Kaju Anjeer Roll, Kesar Big Malai, Chandrakala, Chhak Mitthi, Kesar Gujia, Maida Gujia, Kaju Khazoor, Pista Laung, Small Kesar Ghewar, Kesar Chandrakala, Anjeer Cake, Kaju apple, Kaju Gujia, Kaju Honey Dew, Kaju Kalash, kaju Kesar, Kaju Ladoo, Kaju Roll, Kaju Samosa, Dil Khushal Burfi, Kaju Rose Katli, kaju Baked gujia , Kaju Ladoo, Besan Burfi, Kaju Rose Katli.

e) Very Long Shelf life- Around 30 days

To be consumed within 30 days from date of manufacturing

Atta Ladoo, Besan Ladoo, Chana Ladoo, Chana Burfi, Anzeer Khajur Burfi, Karachi Halwa, Sohan Halwa, Gajjak, Chikki.

Guidance for Consumers

First approach for a consumer to prevent an encounter of any adulterated product is to avoid purchase of loose products, as the probability of adulteration increases. The right flavour, body and texture, colour and appearance of milk products determine the quality and freshness of the milk product. Table below gives flavour, body, texture, colour and appearance of some sweets and other milk products.

Quality Check

S.NO.	Product	Flavour	Body and texture	Colour and appearance
1	Khoa	A typical mildly cooked flavor similar to that of boiled milk is most acceptable. The taste is preferably sweet.	Soft and uniform body with granular texture is most desirable. Pindi khoa has smooth, compact, homogenous texture with very fine grains. Dhap khoa has granular texture and slightly soft body. In Danedar khoa, presence of big grains with brown colour is desirable.	Cow milk khoa is pale yellow with a tinge of brown having moist surface, whereas buffalo milk khoa is white with a tinge of brown having slightly greasy/oily surface.
2	Peda	Cooked to slightly heated flavour with sweet taste.	Soft, greasy to dry body with grainy texture.	White to brown colour with absence of burnt particle
3	Burfi	Mildly caramelised and pleasant flavour with sweet taste.	The body characteristics of burfi may range from very loosely compacted to close-knit body. The texture could also vary from smooth to granular and crisp to chewy.	The colour may range from offwhite to creamy or light caramel, depending upon the type of milk solids used as base material and also the extent of heat desiccation during preparation. It should be free from burnt particles,
4	Kalakand	Fresh, clean, pleasant caramel sweet flavour.	Cohesive body with granular close knit texture.	Off white to light brown with absence of burnt particles.
5	Gulab Jamun	Typical heated fresh aroma, tastes moderately sweet, free from doughy feel and fully saturated from syrup.	Soft and thin crust, smooth granular texture, soft and spongy, free from lumps and hard central core.	Lightly to yellowish brown, uniform, round/ elongated shape, smooth, glossy, moderate size.
6	Basundi	Pleasant caramelized flavour	Creamy consistency and viscous body with soft textured flakes uniformly suspended throughout the product.	Cream to light caramel colour.
7	Rabdi/Rabri	Pleasant caramelized flavour	Creamy consistency and viscous body containing several layers of clotted cream with a chewy texture.	Creamy white to light caramel in colour.
8	Kheer	Sweet, nutty, pleasant flavour	Thick, viscous mass with uniformly distributed rice.	White to slightly brownish. A rich

9	Chhana	Mildly acidic smell and pleasant sweetish taste are considered desirable.	Moderately soft body and uniform texture, with slight springiness. It should yield round ball of even surface and no cracks. It should not release fat on kneading/working.	creamy shade is preferred. Uniform yellow (from cow milk) to whitish colour (from buffalo milk). Slightly moist surface. Absence of burnt particles.
10	Paneer	A characteristic blend of flavour of heated milk and acid, that is pleasant, mildly acidic and sweet (nutty).	It should be sufficiently firm to hold its shape during cutting yet tender enough not to resist during mastication/chewing. Compact, smooth, velvety and close-knit texture.	Uniform yellow (from cow milk) to whitish colour (from buffalo milk).
11	Sandesh	Typically cooked and heated aroma; sweet, fresh, creamy taste.	Soft grade is cohesive, smooth and little grainy. Hard grade is crumbly, smooth and has fine grains.	White colour, round shape, smooth moderate size.
12	Rasgulla	Pleasant flavour, moderately sweet, free from doughy feel and fully saturated with syrup.	Soft body and maximum sponginess, free from lumps and hard centre.	White colour, round shape, smooth moderate size.
13	Dahi	Pleasant sweetish aroma of diacetyl and clean acid taste.	A weak gel like junket, a creamy layer of fat if whole milk is used. Homogenous body, while cut surface is trim and free from cracks and gas bubbles.	Creamy yellow for cow milk and creamish white for buffalo. It should have smooth and glossy surface with no whey separation.
14	Shrikhand	A clean, pleasant, sweet-sour flavour representing blend of sugar and fermented milk solids.	Typical semi-solid uniform consistency showing a characteristic firmness and shall show a smooth texture and no graininess.	Uniform colour and glossy appearance and devoid of free fat and syrup separation.
15	Mishtidoi	Pleasant sweet fermented flavor.	Firm consistency with smooth texture.	Uniform cream to light brown colour.
16	Ghee	A natural sweet, pleasant, nutty, slightly cooked/caramelised aroma and an agreeable taste.	A good textured ghee requires large and uniform grains with very little liquid fat. A greasy texture is objectionable.	When melted, it should be clear; transparent and free from sediment and uniform throughout. It should be bright yellow for cow and white with greenish tinge for buffalo milk.
17	Lassi	Sweetish rich, aroma and mild to high acidic taste, flavoured either with salt or sugar depending on regional preference.	Homogenous and viscous liquid.	White to creamy white.

Quick Tests to detect adulteration

Consumers can test common adulterants in the milk products using Quick Tests as given below.

S.NO.	Name of Food Article	Adulterant	Simple Method for detection of Common Adulterants
1	Ghee, cottage cheese, condensed milk, khoa, milk powder etc.	Coal Tar Dyes	Add 5 ml of dil. H ₂ SO ₄ or conc. HCl to one teaspoon full of melted sample in a test tube. Shake well. Pink colour (in case of H ₂ SO ₄) or crimson colour (in case of HCl) indicates coal tar dyes. If HCl does not give colour repeat once after dilution with water.
2	Ghee/butter/SweetCurd	Vanaspati or Margarine	Take a teaspoon of sample in a test tube. Add 10 drops of hydrochloric acid. Mix the contents by shaking the test tube gently. After 5 minutes, examine the mixture. Red colouration indicates the presence of Vanaspati in the curd.
3	Rabri	Blotting paper	Take a teaspoon of sample in a test tube. Add 3 ml of hydrochloric acid and 3 ml of distilled water. Stir the content with a glass rod. Remove the rod and examine. Presence of fine fibres on the glass rod will indicate the presence of blotting paper in rabri.
4	Khoa /Chhana/ Paneer/Ghee	Starch	Boil a small quantity of sample with some water, cool and add few drops of Iodine solution. Formation of blue colour indicates the presence of starch

Consumer Grievance Redressal

FSSAI has various interfaces where consumers can register their grievances. These interfaces are listed below:

- e-mail - compliance@fssai.gov.in
- Whatsapp - 9868686868
- Facebook Page - FSSAI
- Twitter - @fssaiindia
- FSSAI concern web portal –Food Safety Connect
<https://foodlicensing.fssai.gov.in/cmsweb/>
- Toll- Free No. –1800112100
- Application – Food Safety Connect (android)

Guidance for Food Safety Regulatory Authorities

Food Safety Commissioners of States/UTs should ensure compliance and food safety for milk products. Special drive should be conducted frequently to ensure freshness and quality of sweets sold in retails including sweets shops, halwai shops etc.

- a. Surveillance activities should be undertaken regularly, and the data so obtained should be analysed to identify the hot spots which should be intensely targeted. There should be intensive surveillance during festive seasons when demand of milk and milk products increase.
- b. Regular inspections should be carried out to ensure that FBO is maintaining food safety and hygiene as per Schedule 4 requirements given in as per Food Safety and Standards (Licensing and Registration of Food Businesses) Regulations, 2011 and meeting other regulatory requirements.
- c. A vigil should be maintained on sweet shops to eliminate the chances of adulteration particularly in milk products. In case any violation is found, stringent action should be taken as per the provisions of FSS Act, 2006 and Rules/Regulations made there under.
- d. Generate local intelligence regarding the malpractices. The supervising officer must take action to ensure neutrality.
- e. Consumer awareness programme should be conducted to apprise consumers about common malpractices, train them in performing quick tests, inform about avenues to file their grievances

References

- i FSSAI Regulations and Standards
- ii FSSAI Resources
- iii www.fssai.gov.in
