

Sensory Evaluation of Yoghurt

Desirable characteristics of yoghurt

Appearance and colour

- Yoghurt appears as a jelly like coagulum and with porcelain like surface without wheying off.
- The coagulum cuts to give a clean surface.
- Yoghurt should not contain any foreign matter except flavorings (added to the flavoured yoghurt).
- However, stirred Yoghurt should be homogenous and give sufficiently stirred appearance.
- In natural Yoghurt natural milk colour should be present. Yoghurt should have fresh appearance.

Body and texture

- The body of yoghurt should be custard like with smooth texture.
- Adequate firmness without syneresis is essential for a top quality product.
- Stirred yoghurt should be creamy, viscous and non-pasty.

Flavour

- Natural yoghurt should have a pleasantly milk to light sourish taste.
- In case of flavoured yoghurt, the flavour should be typical for the flavouring used.

Acidity

- Normally 0.8 to 1.0% lactic acid is desired in yoghurt.

Sequence of observations

1. Container

Note the type and condition of container and presence of any package defects. Observe for the fullness, cleanliness and general appearance. Note any soiling of container or lid.

2.Aroma

Remove the closure of the package and observe the typical aroma by smelling the product immediately. Notice the intensity and duration of aroma.

3. Colour & Appearance

Examine for uniformity of colour and the presence of any visible foreign matter. The surface of dahi should be shining.

4. Body & Texture

Cut the curd by means of a spoon Knife and lift a portion of it. Observe the evenness of cutting. Observe the cut surface for any air pockets or free whey pockets.

5. Flavour

Place a small spoonful of curd on the tongue and observe the flavour and aroma for both intensity and duration. Note the type of taste perceived. Expectorate the sample and note the aftertaste.

Defects in Yoghurt

- **Appearance and colour**

Presence of extraneous matter, lack of uniformity, unnatural colour (colour not typical of the flavouring in case of flavoured yoghurt), surface discolouration, wheying off, fat separation, gassiness and improper distribution of additions like fruits and flavorings.

- **Flavour**

The flavour defects in yoghurt are:

- Metallic, oily, tallowy and rancid flavour arising from oxidation or rancidity of milk fat.
- Cheesy, bitter and putrid flavour associated with proteolysis.
- High acid and too sour resulting from over fermentation.
- Stale and flat flavour due to lack of specific aroma.
- Too low and too high flavour in artificially flavoured yoghurt. Feed flavour arising from the milk.
- Yeasts, fruity and malty flavours associated with the growth of contaminants.
- Burnt flavour resulting from over heating of milk.

Body and texture

- Thin and milky body due to lack of firmness of gel arising from low solids content and insufficient incubation.
- Split body which is a consequence of shaking the gel by faulty handling.
- Granular or lumpy: a defect noted with improper dissolution of milk powder and also a defect in microstructure due to very slow acidification by the starter.
- Whey separation arising from the syneresis of the gel, which may be a result of high acid formation or low solids concentration.
- Sticky, gluey, gummy and too firm body as a result of excessive addition of stabilizers.
- Ropiness associated with ropy fermentation.
- Weak body resulting as a consequence of low level of fermentation coupled with low total solid concentration.
- Presence of gas holes due to contamination with yeasts and E. coli aerogenes group of organisms

Sensory Evaluation of Shrikhand and Chakka

Soma Maji

Shrikhand

- Shrikhand is a semi-solid, sweetish-sour, wholesome, indigenous fermented milk product of western India.
- It is prepared by :
 - (a) curdling of milk and/or skim milk using lactic starter culture to obtain dahi,
 - (b) draining most of the whey from dahi to get chakka; either by suspending it in muslin cloth bag or by mechanical means such as basket centrifuge or continuous curd separator,
 - (c) addition of sugar flavouring and/or cream (80% fat) in case of skim milk chhaka,
 - (d) kneading together manually or in a planetary mixer to obtain homogeneous consistency,
 - (e) mixing of other additives such as fruits, nuts, colour etc. if desired and
 - (f) cooling it to a low temperature before (less than 10° C) it is ready for consumption.

Chemical constituents of Shrikhand

Constituents	Content
Milk fat	5-6 %
Moisture	38-40 %
Sugar	40-45 %
Lactic acidity	1.0-1.1 %

- The flavour of Shrikhand is greatly influenced by the level of the developed acidity at which curd is converted to chhaka and chhaka in its turn to shrikhand. Fat and sugar level in in shrikhand also have an influence on flavour.
- The typical consistency of shrikhand is influenced to a great extent by the moisture, fat and sugar levels in the product.

Desirable sensory Quality of Shrikhand

- **Appearance of the container:**

Desirably in good condition i. e. it should be properly sealed with surface showing no soiling.

- **Product appearance & colour:**

It shall be free from signs of free fat or syrup separation or both and uneven colour distribution.

- **Flavour:**

It shall have a clean, pleasant, sweetish-sour flavour, representing blend of added sugar and of fermented milk solids. It should be free from objectionable flavours and odours.

- **Texture and consistency:**

It shall have a typical semi-solid, uniform consistency showing a characteristic firmness and pliability and shall show smooth texture without any sign of graininess.

- **Temperature and acidity of the product:**

Desirably the product may be consumed or evaluated at a low temperature of about 10° C. It shall have optimum acidity around 1.0 -1.1 % expressed as lactic acid.

Desirable sensory Quality for Chakka:

Appearance and Colour:

Chakka when properly made should be free from any signs of fat or water seepage or both and moldiness. It shall be white to pale yellow and no extraneous colour shall be added.

Odour and Flavour:

Chakka shall have pleasant yoghurt (dahi) like flavour. It shall be free from objectionable flavours and odours.

Texture and Consistency:

- Chakka shall be of good texture and consistency.
- It shall be free from coarseness.
- It should be manufactured and packed in equipment and premises maintained under hygienic conditions.
- It shall also be stored and distributed under hygienic conditions.

Condition of judging room

- Preferably in a well-furnished sensory laboratory trained judges judge shrikhand for its quality.
- Usually panel of 6-8 persons is selected on the basis of duo-trio test.
- For preference testing (involving actual consumers) the panelists may be asked to judge the intensities or to specify in some way their preferences using the nine point hedonic scale.
- For discriminating testing, highly trained evaluators are provided with score card indicting the maximum and minimum score for each of the sensory attributes of the product, along with the suggested score deductions for defective samples is expected to help the judge in proper organoleptic evaluation.
- As far as possible not more than six samples should be served at a time for the evaluation.

Techniques for Shrikhand grading

1. Place the shrikhand container on a table or a platform and examine it for the appearance.
2. Cut open and inhale its aroma, note the surface of the content and the temperature and also evaluate its colour and appearance.
3. Pick-up a spoonful of the product and allow it to drop back noting its consistency, body, firmness and falling behavior of the product.
4. Take the product into the mouth and note it's tactual and taste sensation.
5. Judge the product for its smoothness and uniformity by swallowing the secondary taste reaction, the taste beyond sweet and sour, will have been experienced, expectorate the sample and register if an after taste persists.



Flavour defects in Shrikhand

Cooked	Burnt / cooked flavour can be obtained by overheating milk intended for shrikhand making.
Salty	If shrikhand is made from 30% total solids (TS) condensed milk, it will give salty taste. It can also be simulated by adding 0.2% sodium chloride to milk.
Malty	Use malty cream as a fat source with skim milk chhaka or add few drops of malt extract to the product.
Fruity	Add few drops of dilute ethyl butyrate and ethyl caproate solutions to the products.
Too sweet	Add sugar at the rate of 120 - 240% weight of chakka.

Flavour defects in Shrikhand

Flat	Prepare shrikhand using only skim milk chhaka without fat, the product will be flat in flavour.
Too strong / harsh / coarse	Add few drops of diacetyl or acetaldehyde to the product and milk it properly. If any artificial / natural flavouring is added, add it in excess.
High acid / sour	Add few drops of dilute lactic acid solution to shrikhand and mix it well.
Fermented	Allow chhaka to develop acidity up to 3 - 3.5% lactic acid this can be accomplished by introducing lactobacilli in the culture.
Oxidized	Use the oxidized cream as the fat source with skim milk chhaka. Alternatively cream can be oxidized by adding few drops of 1% copper sulphate solution to pasteurized, unhomogenized cream and storing it for 24 h at refrigerated temperature.

Flavour defects in Shrikhand

Rancid	Homogenize a part of cream (40 % fat) at 32°C and allow to stand still until defect of desired intensity is developed (15 to 30 min) Mix this cream with remaining cream, pasteurize and use for shrikhand making with skim milk chhaka.
Bitter	Add few drops of dilute (0.08%) quinine hydrochloride solution to the shrikhand while kneading.
Unnatural	Use sweet cream buttermilk added with 2% skim milk powder for shrikhand manufacture.
Unclean	Use unclean milk and / or allow the curd to be formed in improperly sterilized equipment.
Yeasty	Add yeast culture to chakka and store at 20 - 25°C for few hours.
Mouldy	Leave shrikhand at ambient temperature, in presence of air till mouldy flavour develops.

Sensory evaluation card for *shrikhand*

Sensory evaluation card for shrikhand							
Name :		Date :			Time		
A. Score the sample for different sensory attributes. Indicate the degree of defect and deduct accordingly from the attribute score.							
Attribute	Maximum Score	Minimum Score	Sample No.				
			1	2	3	4	5
Package	05	03					
Colour & appearance	15	09					
Body & texture	30	18					
Flavour	50	30					
Total	100	60					

Suggested score deductions for shrikhand having different intensities of defects :

Attribute	Defect	Intensity of defect		
		Slight	Definite	Pronounced
Package	Soiled surface / improperly scaled	01	02	03
Colour and appearance	Unclean / mouldy / dull	02	05	10
	Wet look / too dark	01	03	05
	Too light / dull	01	03	05
Body and texture	Leaky / free whey	03	05	08
	Grainy	04	07	12
	Weak / hard	03	06	09
	Gummy / pasty / sticky	03	07	11
	Lack of smoothness	03	06	09
Flavour	Cooked / unclean	02	04	06
	Salty / malty / fruity	03	07	10
	Too sweet / lacks sweetness	04	08	12
	Flat	04	08	12
	Too strong / harsh / coarse	05	10	15
	High acid / sour / fermented	05	10	15
	Oxidized / rancid	05	10	15
	Bitter / unnatural	05	10	15
	Yeasty & mouldy	06	12	15

Score card for *shrikhand*

Score	Quality of shrikhand	Grade
90 or more	Excellent	A
80 - 89	Good	B
60 - 79	Fair	C
59 or less	Poor	D

Thank you