

JUDGING OF DAIRY PRODUCTS





B. Tech. (Dairy Technology) ► DT-8 ► Resources ► Lesson 16. DESIRABLE AND UNDESIRABLE CHARACTERISTICS OF FERMENTED MILKS, SENSORY EVALUATION OF CHAKKA, SHRIKHAND, LASSI AND OTHER FERMENTED DRINKS

Module 6. Fermented milk and milk products

Lesson 16

DESIRABLE AND UNDESIRABLE CHARACTERISTICS OF FERMENTED MILKS, SENSORY EVALUATION OF CHAKKA, SHRIKHAND, LASSI AND OTHER FERMENTED DRINKS

16.1 Introduction

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.

On the basis of organoleptic evaluation, most desirable Shrikhand should have 5-6% milk fat, 38-40% moisture, 40-45% sugar and 1.0-1.1% lactic acidity. 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*. The typical consistency of *shrikhand* is influenced to a great extent by the moisture, fat and sugar levels in the product. The last two factors also have an influence on flavour.

16.2 Desirable Sensory Quality of *Shrikhand*

16.2.1 Appearance of the container

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

16.2.2 Product appearance & colour

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

16.4.1 Procedure

Place the *shrikhand* container on a table or a platform and examine it for the appearance.

Cut open and inhale its aroma, note the surface of the content and the temperature and also evaluate its colour and appearance.

Pick-up a spoonful of the product and allow it to drop back noting its consistency, body, firmness and falling behavior of the product.

Take the product into the mouth and note its tactual and taste sensation. 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.

In order that the sensory panelists are made aware of the desirable and undesirable characteristics of *shrikhand*, they need to be exposed to various types of *shrikhand* and trained to identify good quality product.

Training is very vital in the successful adoption of sensory evaluation as an instrument of quality control. For accurate judging and grading it is necessary that the judge has the awareness of different defects and their intensities. This would enable him to identify and discriminate against a defective product.

Some of the **common defects observed in *shrikhand*** can be simulated as given below:

Table 16.1 Common defects observed in *shrikhand*

Flavour Defects	
Cooked	Burnt / cooked flavour can be obtained by overheating milk intended for <i>shrikhand</i> making.
Salty	If <i>shrikhand</i> 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 <i>chhaka</i> 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 <i>chakka</i> .
Lacks	Add less quantity of sugar i.e. 60-70% by weight of <i>chhaka</i> .

sweetness	
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.
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.

Table 16.2 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						

Table 16.3 Suggested score deductions for *shrikhand*

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

For computing the final score - total for all attributes, the products may be assigned a suitable grade as shown below:

Table 16.4 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

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DT-8