
Preparation of Sandesh by using honey

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INTRODUCTION:

Sandesh is a very popular heat-desiccated product of coagulated milk protein mass called chhana (a heat- and acid-coagulated product of milk that is analogous to cottage cheese) of West Bengal, India. Sen and Rajorhia (1990) mentioned that sandesh was also gaining popularity in other regions of India. Sandesh is prepared by continuous stirring of chhana with sugar over medium heat. Sandesh is known for its palatability, aroma and as a rich source of milk proteins, fat, sucrose and fat-soluble vitamins. It has a firm body and smooth texture (**Aneja et al. 2002**). Aneja et al. (2002) has mentioned that about 80% of chhana produced in Kolkata (West Bengal, India) is converted into sandesh. Spices (clove, small cardamom, large cardamom, saffron, etc.) have been used as flavouring and also as colouring agent in sandesh preparation for centuries.

Milk chhana is usually preferred for sandesh preparation as it produces soft body and smooth texture. In contrast, milk chhana produces undesirable hard body and coarse texture, probably due to the high protein (casein) and calcium content. At present rassogolla and sandesh are prepared and marketed in small scale by the sweet makers. Calcutta is famous for rassogolla and sandesh products. (**Sen and Rajorhia 1989**).

Though Sandesh is a delicious mouth watering sweet but it cannot be relished by all people because many people suffer from diabetes. Our present technology is competent enough to combat this problem. Keeping this in mind, the present work is conducted to prepare diabetic

Sandesh where sucrose has been substituted by low calorie sweeteners like sorbitol. (**Rai et al., 1999**).

Honey is a natural invert sugar dissolved in water with minor amounts of organic acids along with traces of minerals and vitamins that may serve as a source of dietary antioxidants. Honey is derived from the nectar of flowering plants which the honey bee collects. The source of honey determines many of the attributes of honey such as aroma, flavour, colour and composition. Due to its antimicrobial properties, honey may serve as a natural preservative.

Honey is known for a long time in the traditional system of medicine to nourish the skin, give luster to the eyes to be an effective agent for slimming. It has therapeutic properties as well. It is prescribed for both constipation and diarrhoea, strengthening muscular contraction, increasing stroke volume and cardiac output of heart, heal sore throat, asthma, bronchitis, hypnotic action for inducing sleep in infants and heals infections like wounds and burns. Owing to its multifaceted characteristics, honey can be recommended for addition as a substitute sweetener for sucrose in the preparation of sandesh along with their shelf-life.

Although honey has been added as a flavouring agent in fermented dairy products Honey yoghurt combinations are relatively uncommon. Honey is a source of carbohydrates mainly fructose and glucose. The remaining carbohydrates include maltose, sucrose and other complex carbohydrates. Research indicates that honey includes numerous compounds with antioxidant potential. Honey is a natural invert sugar dissolved in water with minor amounts of organic acids along with traces of minerals and vitamins that may serve as a source of dietary antioxidants. Honey is derived from the nectar of flowering plants which the honey bee collects. The source of honey determines many of the attributes of honey such as aroma, flavor, color and composition.

Main Honey Nutrients:

Ingredient		Amount in 100 g
Carbohydrates	kcal	300
Proteins	g	0.5
Fats	g	0
Minerals	mg	
Sodium (Na)		1.6-17
Calcium (Ca)		3-31
Potassium (K)		40-3500
Magnesium (Mg)		0.7-13
Phosphorus (P)		2-15
Zinc (Zn)		0.05-2
Copper (Cu)		0.02-0.6
Iron (Fe)		0.03-4
Manganese (Mn)		0.02-2
Chromium (Cr)		0.01-0.3
Selenium (Se)		0.002-0.01

Vitamins in Honey

Vitamins	
Phyllochinon (K)	ca. 0.025
Thiamin (B ₁)	0.02-0.9
Riboflavin (B ₂)	0.01-0.9
Niacin ² (B ₃)	0.10-2.7
Panthenic acid (B ₅)	0.02-1.9
Pyridoxin (B ₆)	0.01-0.32
Folic acid (B ₉)	0.01-0.7
Ascorbic acid (C)	0.1-2.5

JUSTIFICATION

Among the indigenous dairy products, Sandesh has always occupied a place in the menu chart of people especially of eastern region, mainly due to its mouth watering taste. Honey is considered as an intermediate moisture food, thus it can lower the microbial load and

improve the shelf life of sandesh. Honey in combination with milk provides an excellent nutritional value and is thus recommended as a nutritional source for children. As a ray of hope still remains mainly due to the presence of honey . The present technology is competent enough to combat this problem. Keeping this in mind, the present work is conducted to prepare herbal sandesh where honey will be substituted by sugar.

OBJECTIVES

The present study will be conducted with the following **objectives**.

1. To prepare sandesh by using honey
2. To assess the organoleptic and chemical evaluation of Honey sandesh.
3. To estimate the cost of production of Honey sandesh.

REVIEW OF LITERATURE

(Rajorhia and Sen, 1988).About 20-40 lit of cow or mixed milk is boiled in iron- karahi on a coal or fire wood chullah, cooled to about 80^oc to 85 ^oc and coagulated with sour whey by gentle and stirring with ladle until all the milk gets precipitated in lumps and settle down at the bottom with clear whey floating on top to be filtered through a muslin cloth.

(De,1980). Reported the fat content of milk has to be regulated. A minimum fat content of 4% in cow milk and 5% in buffalo milk was essential for satisfactory quality of chhana.

Chakravarti (1982). Reported the use of calcium lactate for chhana preparation

Sen and De(1984). Reported that satisfactory quality of chhana can be made from calcium lactate for sandesh preparation

Kunda and De(1972) reported that optimum temperature for buffalo milk coagulation to be 70 ^oc. As the coagulant temperature decreases, the moisture retention in chhana increases leading to softer body and smoother texture.

(Aneja *et al.* 2002). Sandesh is prepared by continuous stirring of chhana with sugar over medium heat. Sandesh is known for its palatability, aroma and as a rich source of milk proteins, fat, sucrose and fat soluble vitamins. It has a firm body and smooth texture.

(Dias and Mehta 1998) sorbitol has many merits as a constituent of food. It is a natural sweetener. It has no bitter or metallic after taste. It not only provides palatability and desirable textural properties to foods, but also acts as crystallization modifier, humectants, softening or plasticizing agent, sweetness controller viscosity modifier, rehydration aide and oxidant. Sorbitol has a number of pharmaceutical uses too. It acts as flavouring agent and vehicle in elixir sand linctuses and mixtures. It further acts as a substitute for glycerine. In India, sorbitol is permitted for use as an emulsifier and stabilizer and as a sweetening agent certain confections.

Bandhyopadhyay *et. al.*, (2006) reported that addition of beet or mint alone in Sandesh showed lower antioxidant levels than the addition of given alone. The herbs in Sandesh were also investigated using the rendoxi antioxidant lable evaluating chemical. Addition of all the herbs at final stage of Sandesh preparation showed highest antioxidant levels than addition at the initial stage of Sandesh preparation.

Sahu *et. al.*, (2008). Storage stability of Sandesh was determined in terms of its moisture adsorption isotherms by gravimetrically at 20 and 30 °c using saturated salt in the range of 11.2 and 97.2%. So decreasing moisture content at lower moisture content and approached the value of heat of vaporization of free water above 17.25% (db).

Honey, a product of symbiotic relationship between the bees and the flower and the loving devotion of the bees to the queen, is a nature's boon to entire animal kingdom.

Honey contains about 80 essential ingredients amongst which the main ones are glucose and fructose. Both of these are monosaccharide and therefore, they can be easily absorbed into our bodies. It has been estimated that 100gm of honey can provide about 330 KCal of energy. It is therefore recommended for the athletes and wrestlers. Honey is a storehouse of large

number of enzymes. These enzymes are amylase, invertase, catalase, peroxidase, lipase, etc. Other ingredients include calcium, magnesium, sodium, potassium, Iron, phosphorus and chlorine salts (Sen, 1997) A typical composition of honey has been presented in the Table 5 (Belitz and Grosh, 1991).

Table 5. Composition of Honey (%)

Constituents	Average	Range
Moisture	17.2	13.4-22.9
Fructose	38.2	27.3-44.3
Glucose	31.3	22.0-40.8
Saccharose	1.3	0.3-7.6
Maltose	7.3	2.7-16.0
Higher sugars	1.5	0.1-8.5
Others	3.1	0-13.2
Nitrogen	0.04	0.13
Minerals	0.17	0.02-1.03
Free acids	22	6.8-47.2
Lactones ^a	7.1	0-18.8
Total acids ^a	29.1	8.7-59.5
pH value	3.9	3.4-6.1
Diastase value	20.8	2.1-61.2

(^a=meq/kg)

According to PFA Rules (1954), Honey means the food derived entirely from the work of the bee operating upon the nectar of flowers and other sweet exudation of plants. It shall not contain more than a) 25% of moisture, b) 0.5% of sucrose except in the case of Carbiacallosa and Honey dew where the maximum sucrose content shall be 10% The minimum reducing sugar content (expressed as invert sugar) shall be 65% except in the case of Carbiacallosa and Honey dew where it shall be 60% Fructose or Glucose ratio shall not be less than 0.9% Fiehe's test should ordinarily be negative (Ram and Sukhadev. 1976).

Owing to its multidimensional properties its description is found in the ancient Indian also. It has immense therapeutic value. It can ease bowl action of intestine, heal sore throat, cure allergy, induce sleep by hypnotic action, etc. It also acts as an excellent nutrient for skin. It nourishes skin, gives luster to the eyes and also aids in slimming. (Rai et al, 1999).

MATERIAL AND METHODS

The experiment “**Preparation of Sandesh by using Honey**” will be carried out in the lab of Student Training Dairy Plant, **Warner School of Food and Dairy Technology**, Sam Higginbottom Institute of Agriculture, Technology & Science, and Deemed to be University, Allahabad (U.P.).

This chapter deals with various materials including raw milk, Honey, Citric acid, packaging material, etc. Aswell as various manufacturing and analytical techniques employed for the analysis of chemical and sensory quality of the sweets.

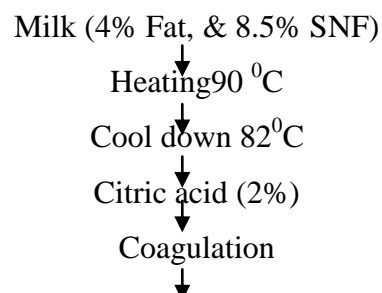
1. Sources of Raw Materials

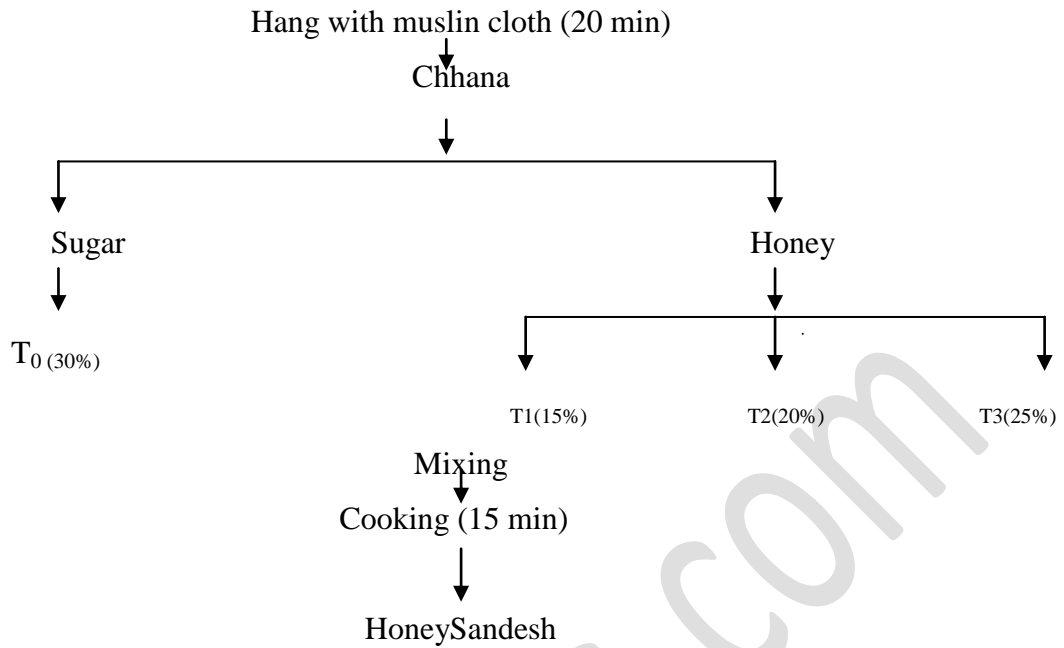
2. Milk: Should be collect from the student training dairy plant.
3. Cane sugar: It will be procured from the local market of Allahabad.
4. Honey: It will be procured from the local market of Allahabad.
5. Citric acid: Citric acid to be collected from the Department lab.

Treatment

1. T₀- Chhana + 30% Sugar
2. T₁ - Chhana + 15% Honey
3. T₂ - Chhana + 20% Honey
4. T₃ - Chhana + 25% Honey

Plan of work





Chemical composition of Sandesh from Cow milk

Constituent	Sandesh
	Cow milk
Moisture	25.50
Fat	19.89
Protein	18.48
Sugar	34.47
Ash	1.66

Chemical Analysis:

1. Moisture %
2. Fat %
3. Protein %
4. Carbohydrate %
5. Ash %

Sensory evaluation

1. Body & Texture
2. Colour & Appearance
3. Taste & Flavour

Statistical Analysis:

1. No of replication. 5
2. No of treatment. 4
3. No of trial. 20

References:-

- i. Rajorhia, G. S. and Sen, D.C.(1988).**Technology of chhana- A Review. Indian Journal of Dairy Science **41**,(2), 141-148.
- ii. Sen, D. C. and De, S.(1984).**Studies on calcium lactate as chhana Coagulant. Journal of Food Science & Technology.**21**,(4), 243-244.
- iii. Chakravarti,R.N.(1982).**Dietary Position of some Bengal sweets. J.Inst Chemists(India).**54**,(7), 149 -150.
- iv. Aneja R P, Mathur B N, Chandan R C and Banerjee A K (2002) .**Heat-acid coagulated products. In *Technology of Indian Milk Products*, pp 150–155. Delhi, India: A Dairy India Publication.
- v. Dias, F.F. and Mehta, D. (1998).**Nutritive sweeteners from starch. India Fd. Ind. **17**, (3), 112-120.
- vi. Rajorhia, G.S. and Sen, D.C. (1989).** Present status of dairy sweeteners. Dairy Guide. 11, (7-9), 23-29
- vii. Sen, D.C. and Rajorhia, G.S. (1997)** enhancement of self life with sorbic acid 261-267
- viii. BandhyoPadhaya , Mukherjee, R.S.and Chakraborti, R. (2006)** Indian dairy man, 58,9,2006
- ix. Sahu, JK. And Jha.Alok.(2008).**“Storage stability of Sandesh – an Indian milk swee” the CIGR.E Journal manuscript FP.08010.vol .October, 2008.