

# **GulabJamun: Product description, Compositional profile and Manufacturing practice**



❖ **Gulabjamun** is a khoa based sweet popular all over India.

❖ Dhap variety of khoa having 40-45% moisture is preferred.

**Product should have brown colour, smooth and spherical shape, soft and slightly spongy body, free from both lumps and hard central core, uniform granular texture, with cooked flavour and free from doughy feel and should be fully succulent with sugar syrup with optimum sweetness.**

# BIS Specifications:

- Shall be prepared from khoa, skim milk powder, milk powder, ghee, cream, butter or other milk solids.
- May contain maida (wheat flour), citric acid and baking powder.
- Free from dirt and other foreign matter as well as insects and mold
- Manufactured and packed under hygienic conditions.
- Proportion of free syrup in a pack shall not exceed 60% of the declared net mass.



Characteristic	Requirements for Gulabjamun (IS: 11602: 1986, Reaffirmed 1997)
Moisture, % by mass, <i>Max</i>	30.0
Fat, % by mass, <i>Min</i>	8.0
Protein, % by mass, <i>Min</i>	8.0
Concentration of sugar in syrup, % by mass, <i>Min</i>	40.0
Bacterial count, per g, <i>Max</i>	3000
Coliform count, per g, <i>Max</i>	50
Yeast and mould count, per g, <i>Max</i>	50

# Requirements of sugar syrup:

- Shall be clear and light to golden yellow in colour, and conform requirements.
- Proportion of free syrup in gulab jamun pack shall not exceed 60% of declared net mass.
- Should not be excessive free fat floating in syrup or adhering to gulab jamun pieces.
- Package should not also contain broken pieces of gulabjamuns in the syrup.



Characteristic	Requirements for sugar syrup
Acidity of syrup, ml of 0.1 N <u>NaOH</u> required to neutralize 100 ml of the syrup, <i>Max</i>	6.0
Concentration of syrup, <i>Min</i>	62.4° <u>Brix</u>
Bacterial count, per g, <i>Max</i>	5000
Coliform count , per g, <i>Max</i>	50





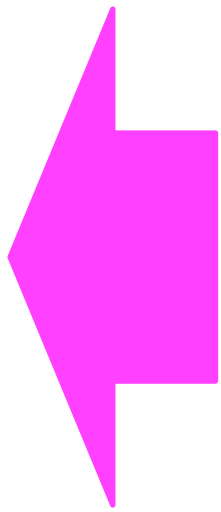
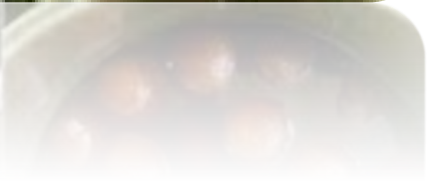
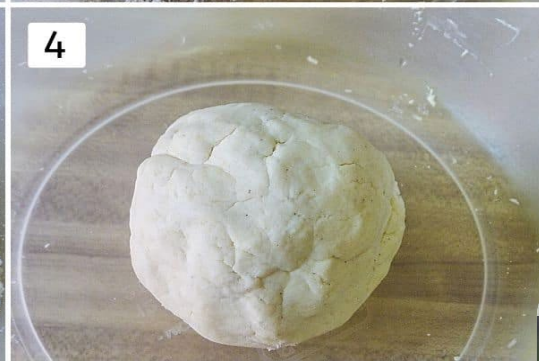
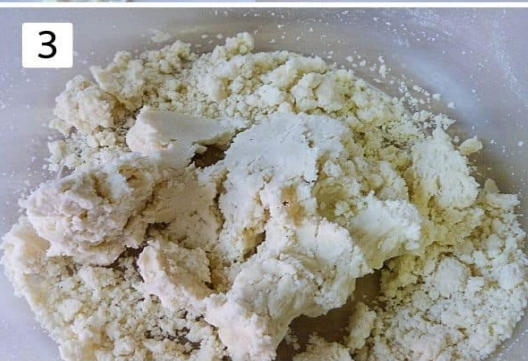
Characteristic	Percentage
Moisture	25-35
Fat	8.5 to 10.5
Proteins	6.0 to 7.6
Ash	0.9 to 7.6
Total carbohydrates (Including lactose)	43.0 to 48.0

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Ash	0.9 to 7.6
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## Chemical composition of Gulabjamun

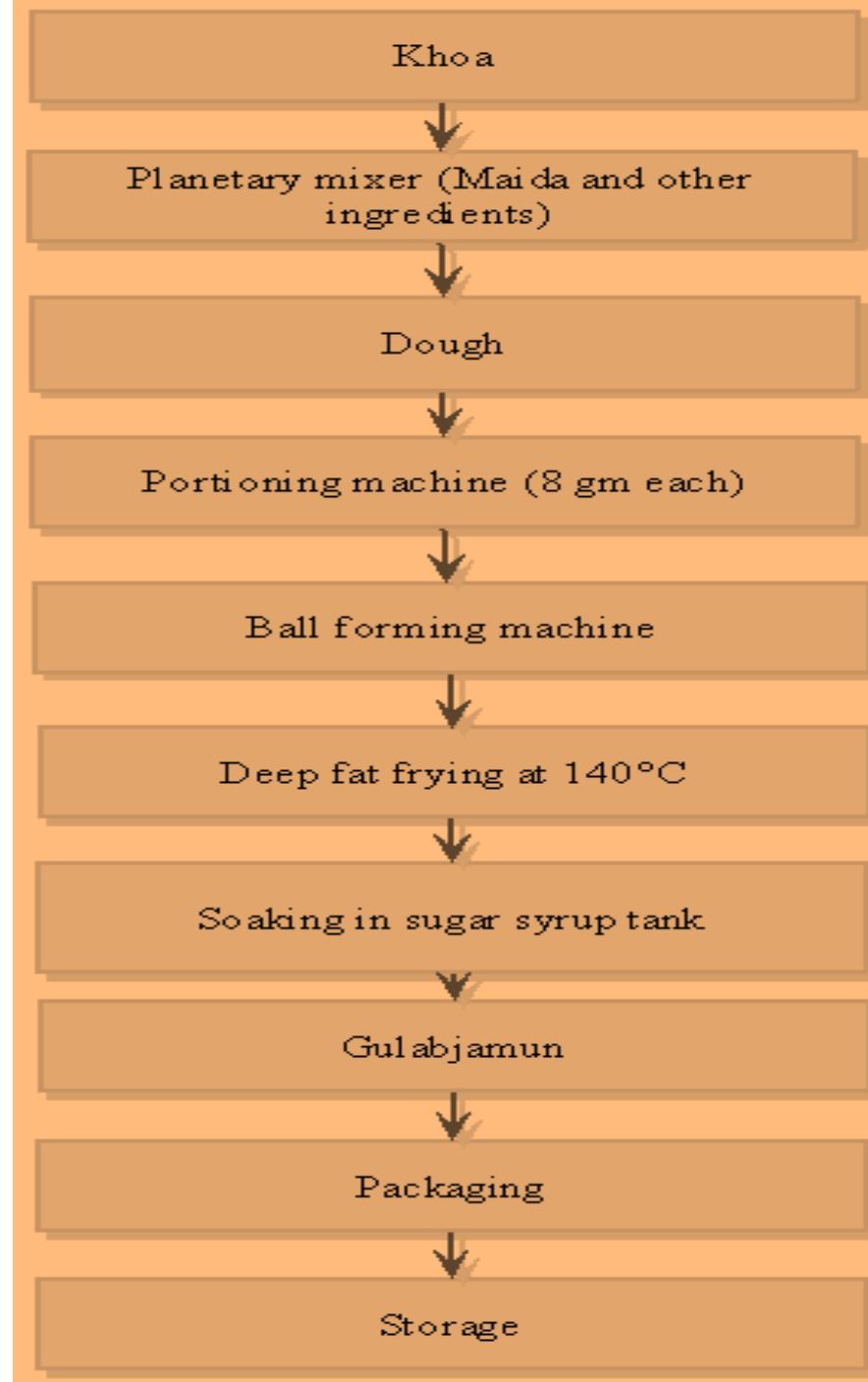
## **Method of Preparation:**

- **Dhap variety of khoa, maida and baking powder (750 g khoa, 250 g maida and 5 g baking powder) are blended to form homogenous and smooth dough.**
- **Small amount of water can be added in case of hard dough and if it does not roll into smooth balls.**
- **Mix should be prepared fresh every time.**
- **Balls are then deep fat fried at 140° C to golden brown colour and transferred into 60% sugar syrup maintained at 60° C.**
- **Takes about 2 h for balls to completely absorb sugar syrup.**



## **Mechanized Production::**

A mechanized semi-continuous system, developed by NDDDB, for manufacture of Gulabjamun from khoa employs meat ball forming machine and potato chip fryers.





# Preparation of Gulabjamun from instant jamun mix:

- Existing method of preparation is suitable for cottage scale and cannot be adopted for large scale production.
- During summer months and festive seasons, khoa in required quantities may not be available to prepare Gulabjamuns.
- To meet khoa shortage and to produce Gulabjamun on a commercial scale, instant Gulabjamun mix was developed by Central Food Technology Research Institute, Mysore long back using spray dried skimmed milk powder, maida, vanaspati, citric acid, tartaric acid and baking soda.
- A complete Gulabjamun mix was also formulated in National Dairy Research Institute, Karnal based on roller dried skimmed milk.

## Formulation of Gulabjamun mix from roller dried skimmed milk

Ingredient	Percentage
Roller dried skimmed milk	43.4
<i>Maida</i>	25.0
<i>Suji</i>	15.0
<i>Vanaspati</i> /Butter oil/ghee	15.0
Baking Powder	1.5
Cardamom Powder	0.1

- Traders prefer to use spray dried skimmed milk powder as it is readily available in larger quantities.
- The formula from spray dried skimmed milk powder will carry higher amounts of maida and lower quantities of skimmed milk powder.
- This formula contains no suji and is a trade secret of each company.

**BIS standards for Gulabjamun mix (IS 12220-1987)**

Parameter	Requirement
Moisture, percent by mass, Maximum	8
Acid insoluble ash ( on dry basis ), percent by mass, Maximum	0.1
Total protein ( on dry basis ) ( N x 6.25 ), percent by mass, Minimum	15
Fat (on dry basis ) percent by mass, Minimum	12
Carbohydrates, percent by mass, Maximum	60
Leavening index, Minimum	1.25
Coliform count per gram	Nil
Staphylococcus count, per gram	Nil



## Yield and Shelf-life:

- ❖ Yield of gulabjamun is expressed in terms of drained weight. In general, **1 litre buffalo milk is expected to give 1 kg gulabjamun.**
- ❖ Shelf life of Gulabjamun at ambient temperature, in sugar syrup is 5-7 days which can be extended to 3 weeks by hot filling in polystyrene tubs and adding 0.1% potassium sorbate as a preservative.
- ❖ Product is filled hot in previously sterilised metal cans after running through a steam chest for 7-8 min and sealed.
- ❖ This process is expected to give shelf life of 6 months at room temperature.

