



## Sensory and quality attributes of “Fasting Gulabjamun” from Shingada, Sabudana and Sweet Potato

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### Abstract

Gulabjamun is the traditional sweet originated in India and popular in Indian Subcontinent. It is made up from Maida and Khoa and dip in sugar syrup. Eating Maida raises bad cholesterol (LDL) resulting many health issues like constipation, weight gain, high blood pressure. Also people suffering from celiac disease not consume Maida as it contain gluten. Also Maida not consumed during Fasting Days.

So in fasting Gulabjamun we replace Maida and khoa with Sweet Potato, Shingada flour, sabudana flour. it is rich source of fiber, antioxidant, vitamin a & c and good for eye, heart and mental health. fasting gulabjamun not contain any Chemical preservative. After designing the product sensory evaluation was conducted by using 9 point hedonic scale for analysing the notifies product. Finally product was standardised.

**Keywords:** traditional, fasting Gulabjamun, Maida, bad cholesterol, sweet potato, Sabudana, Shingada

### Introduction

Gulabjamun is a milk-based sweet popular in India. It is generally prepared from the cow or buffalo milk khoa by kneading with wheat flour (Maida) and baking powder to form smooth dough, portioning the dough, rolling them into balls of spherical shape, deep frying the balls in oil till they turn golden brown in colour and soaking them in the sugar syrup for overnight (Nalawade *et al.*, 2015) <sup>[14]</sup>. Gulabjamun is traditionally prepared from the khoa by kneading with wheat flour (Maida) as a binding material. The main function of binding material is to give the binding effect and helps to prevent the disintegration of gulabjamun balls during frying. Maida has good water binding properties because of starchy nature and its use in the gulabjamun mix provides the product with firmness. In gulabjamun ready mixes, maida content varies from 25-35%.

Consumption of wheat and wheat products including maida has been associated with celiac disease. Celiac disease is defined as a permanent intolerance to gluten (gliadins and the related prolamins from rye barley and oats) causing characteristic damage to the small bowel mucosa (Marsh, 1992) <sup>[12]</sup>. Some research workers have used alternative binding agents like maize flour, arrowroot powder, cassava flour, soy flour, moraiyo, wheat bran etc. However, in literature there is no work cited on use of potato starch as binder in gulabjamun. There is scanty information on use of sago and sweet potato starch as binding agents in gulabjamun. Use of Sago flour prepared from fresh and soaked tubers at the rate of 15% in the gulabjamun preparation showed significant improvement in appearance, texture and overall acceptability of gulabjamun on organoleptic evaluation. It was also found that, flour prepared from soaked tubers could be used up to 20% in the gulabjamun preparation and found acceptable on organoleptic evaluation (Agarkar *et al.*, 2004) <sup>[2]</sup>.

The Sanskrit word for fast is ‘upa-vaas’, which means

staying close to God. Faraali food is basically food that is permissible on fasting days. Therefore, Gulabjamun which is prepared using maida as an ingredient is not suitable for people suffering from celiac disease for people who are fasting. In India sago, potato starch, dehydrated potato and amaranth are permitted during fasting. These ingredients are rich in starch and have good binding properties. Moreover, these ingredients are gluten free. Sago is a processed edible natural starch marketed in the form of small globules or pearls. There are several sources of sago especially the sago palm (Metroxylon sagus or Metroxylon rumphii) and palm fern (Cycas circinalis). Moreover, tapioca is reported as non-GMO and non-allergic (Kuntz, 2006) <sup>[10]</sup>. From processing standpoint it gives a more-stable end product with a uniform consistency and a better flavour profile.

According to American Diabetes Association (2012) <sup>[3]</sup> tapioca and sweet potato and shingada are classified as gluten-free. Development of technology for manufacture of gulabjamun using gluten-free products such as amaranth, potato and tapioca will benefit persons who are fasting and gluten sensitive persons. Therefore, the present project is contemplated to evaluate the effect of selected binder’s viz. sago and sweet potato starch in the formulation of acceptable quality gulabjamun with a view to develop a gluten-free gulabjamun which would also be suitable as a fasting recipe.

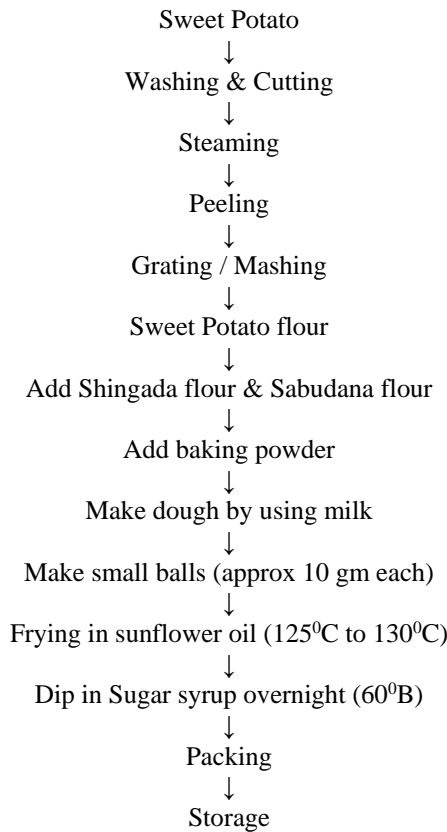
### Materials and Methods

#### Developing the Food Product

Fasting Gulabjamun consist of Sweet potato, Shingada (water chestnut) flour, Sabudana (sago) flour, Baking Powder, Milk, Sunflower Oil, Sugar, Water.

For sugar syrup Sugar of 250 g was put in 300 ml of boiling water for 5 minutes and stir to make sugar syrup of 60 °Brix concentration. Sugar syrup was filtered through muslin cloth to remove the impurities present in it. The total solid of

sugar syrup was determined by using hand refractrometer.



**Table 1:** Ingredient Proportion for Fasting Gulabjamun

Ingredients	Sample
Sweet potato	28 g
Water chestnut(Shingada) flour	8 g
Sago (Sabudana) flour	4 g
Milk (for making dough)	10ml
Baking powder	0.2 g
Sugar Syrup	60 g
Vegetable (Sunflower) oil	10 ml

**Sensory Analysis**

Sensory analysis is a scientific discipline that applies principles of experimental design and statistical analysis to the use of human senses sight, smell, taste and touch for the purposes of evaluating consumer products. It requires panels of human assessors, on whom the products are tested, and recording the responses made by them. By applying statistical techniques to the results it is possible to make inferences and insights about the products under test. Most large consumer goods companies have departments dedicated to sensory analysis. Sensory evaluation of the sample was carried out by students and staff of the department of K. K. Wagh College of Food Technology using nine point's hedonic scale. Attributes like taste, colour, texture, flavour and overall acceptability was scored based on its intensity scaled. 9-Point Hedonic Scale has been used the purpose. The sensory score given by the panel have been evaluated for the sensory result.

Sensory Evaluation Card: (9-Point Hedonic Scale) Average of sensory analysis data Score between 1-9 as per liking 9-Like very much and 1-dislike very much.

**Nutritional Analysis**

The nutritional evaluation of supplementary foods i.e.

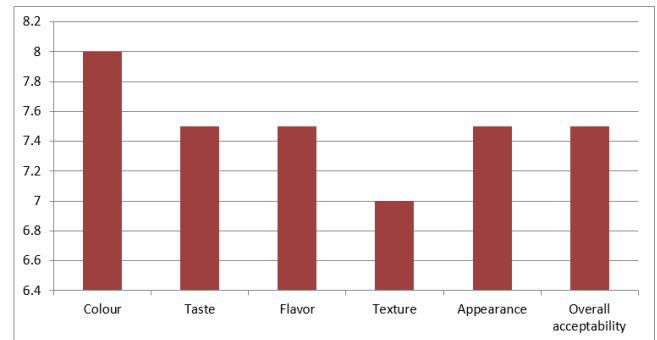
moisture content, fat content, protein content, ash content, crude fiber, was carried out by A.O.A.C method.

**Results and Discussion**

Sensory evaluation was done to find the acceptability of the product on the basis of ranking scale with the characteristics of colour, texture, aroma, concept, taste and after taste.

**Table 2:** Sensory evaluation card

Attribute	Colour	Taste	Flavour	Texture	Appearance	Overall acceptability	Remark
Sample A	8	7.5	7.5	7	7.5	7.5	Like much



**Fig 1**

**Table 3:** Nutritional Composition of Product

Sr. No.	Particulars	Value (%)
1.	Energy Value (Kcal)	246.16
2.	Protein	5.1
3.	Carbohydrates	50.5
4.	Fat	2
5.	Ash	1.4
6.	Moisture	35
7.	Crude fiber	6

The Fasting Gulabjamun are good source of Carbohydrates, Protein. The product is protein and fiber rich. It contain less amount of Fat, due to that the product is helpful for obeys persons.

**Conclusion**

The Fasting Gulabjamun was developed so as to obtain the value addition and replacement of maida and khoa from traditional Gulabjamun. Innovative Idea behind the development of this product as people in now a days become more health concious So intake of balanced food diet is the correct way to prevent or even remedy health problems such as obesity, cardio vascular diseases (CVD), constipation, malnutrition, mental problems, muscle problems and other diseases.

The sample contain main ingredients sweet potato, shingada flour, sabudana flour. The selected sample we found Moisture 35%, Fat 2%, Protein 5.1%, Carbohydrates 50.5%, Ash 1.4% and Fibers 6%. Microbial analysis was carried out and we got the results that product kept at room temperature has shelf life of 10 days.

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