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SENSORY AND NUTRITIONAL STUDY OF A FUDGE WITH A TWIST PHYTO BURFI

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Abstract: This pandemic made people to think about their health and nutritional adequacy. It is important to fulfill our body's need of various nutrients which people are lacking because of the sedentary lifestyle modifications. Instead of taking expensive supplements, we can actually look for a traditional dish or a snack. Thus, the product was developed which was nutritious. It is made up of flour and mix up of jamun seed powder and watermelon seed powder which are actually a byproduct of fruit processing industry, and people might feel these seeds are useless, but these seeds are highly rich in fiber, potassium, iron, protein, vitamins, antioxidants, phytochemicals, etc [7]. The shelf life study was done for the product which included sensory evaluation by scoring method on the characteristics such as texture, appearance, color, taste, smell, aroma. The other aspects studied were nutritional labeling, packaging, budgeting and marketing of the product.

Key words: jamun seeds, phytochemicals, nutrients, fudge/barfi.

I. INTRODUCTION

Phyto burfi is a product made with all nutrients embedded with it. In this pandemic scenario, people are more concern about their health and consuming all the nutrients in a proper amount.

For those people phyto barfi can be better alternative to the various supplements that are present in the market. This phyto barfi is basically a fudge made with a twist of phytochemicals. Jamun seeds and watermelon seeds are the highly nutritional. [8, 2] The phyto barfi is made up of Bengal gram flour (besan), fat, sugar, jamun seed powder, watermelon seed powder as all ingredients can give good number of calories and rich in various nutrients. It also contains nuts such as almonds and pistachios.

Bengal gram flour is good for heart. It contains copper, magnesium, manganese, iron, phosphorus, thiamine and folate. When it comes to calorie, besan is low in calories as compared to wheat flour. It is a powerhouse of fibre, protein, sodium, potassium. [4]

The polyphenolic ingredients present in the jamun fruit play a significant role in the treatment of diabetes, heart problems, and cancer. Jamun is a powerhouse of various nutritional components. It is loaded with a broad range of vitamins including vitamin A, vitamin C, calcium, iron, fiber, magnesium, potassium, protein, carbohydrates, antioxidant capacity, tannins, anthocyanin, ascorbic acid and other essential nutrients. [1,5,6]

Watermelon seeds are known to be highly nutritional. They are rich source of proteins, vitamins B, minerals, such as magnesium, potassium, phosphorous, sodium, iron, zinc, manganese and copper and fat as well as phytochemicals. [9]

Nuts like almond, pistachios are rich in heart-healthy polyunsaturated fats and monounsaturated fats, which lower LDL or bad cholesterol, they are also a good source of phytosterols, compounds that help lower blood cholesterol. They are packed with fiber, protein, vitamins and minerals, including folate, vitamin E, potassium and magnesium. [10]

Thus the present product was designed with the following objectives:

- 1) To standardize an innovative nutritious product which cost effective and has good consumer acceptability.
- 2) To make best out of waste from part of fruit which is thrown away.
- 3) To study a shelf life of the product.
- 4) To understand about the marketing and budgeting aspects of products.
- 5) To design a nutritional label.
- 6) To search for a cost effective packaging material.

II. METHODOLOGY-

Based on the result of sensory evaluation the 'Phyto Barfi' was a final product. The sensory evaluation was done using scoring method with 8 naive panel members. The score card was consist of 5 points hedonic scale ranging from strongly dislike to strongly like. The evaluation pointers were texture, color, appearance, taste, aroma.

III. MATERIALS-

Material used to prepare this product was Bengal gram flour, finely grinded jamun seed powder, watermelon seed powder (after removing the cover), almonds, pistachios, ghee as fat source, sugar.

INGREDIENTS	AMOUNT
Bengal gram flour(besan)	150g
Jamun seed powder	30g
Watermelon seed powder	20g
Cardamom powder	1 teaspoon
Chopped almond and pistachios (for garnishing)	-
Sugar	180g
Ghee	100g

Table no. 1 trial.1

As mentioned in above table, because of the jamun seed powder its taste is less sweet and little tasteless. The texture is also rough because the hard granules of jamun seeds. so to improve the taste, standardization was done again to come out with a better taste as compared to first.

Table no. 2 trial.2

INGREDIENTS	AMOUNTS
Bengal gram flour(besan)	150g
Jamun seed powder(finely grinded)	20g
Watermelon seed powder	20g
Cardamom powder	1 teaspoon
Chopped almond and pistachios (for garnishing)	-
Sugar	180g
Ghee	100g

Table no. 2 trial.2

IV. PREPARATIONS-

- Take a pan, and melt ghee on a medium flame.
- Add a Bengal gram flour in a melted ghee and roast it on a low flame till gets golden brown color. Continuous stirring is important to avoid clumps and being burnt.
- After that roast a jamun seed powder (finely grinded) and watermelon seed powder (without the outer covering) in melted ghee on low flame, for 5-10min.
- Take sugar and dissolve it, in a 2 cups of water. And cook the mixture to make a sugar syrup of one thread consistency.
- After the sugar syrup is ready, mix all the roasted material and add it into sugar syrup.
- Mix all the mixture continuously.
- Take a plate, and on butter paper put some ghee and pour all the mixture in the plate.
- Let it set for 1hour.
- Sprinkle the almond and pistachios pieces on top of the plate.
- Lastly, cut them into a pieces.

V. RESULTS OF SENSORY EVALUATION.

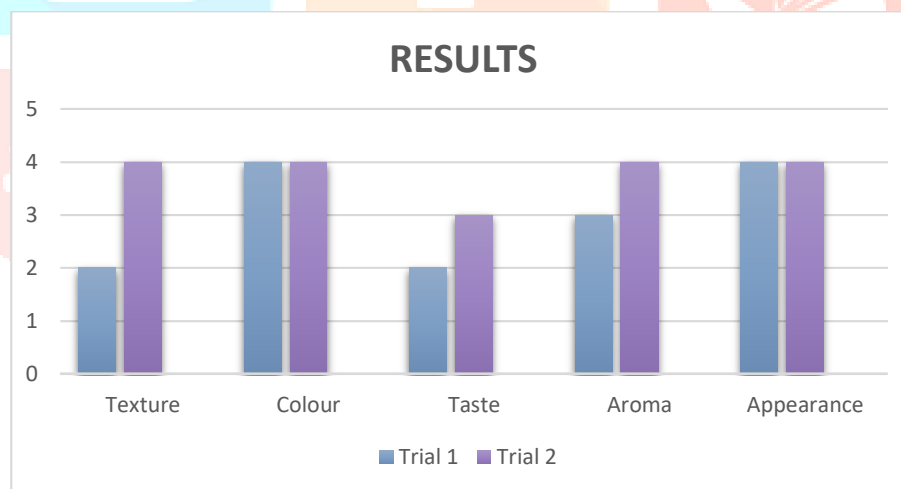


Fig.1- Result of sensory evaluation for the 1st and 2nd trial

RATING CHARACTERISTICS-

Sensory evaluation was done on 8 naive panel. All the members are untrained. The scoring method was used. The 5 pointer scale used on attributes such as texture, color, appearance, taste, and aroma. The result was noted down after the sensory evaluation. On the bases of first trial the changes were made in the product in terms of texture, taste and aroma. Thus the sensory evaluation is done to know the consumer preference and acceptability.

VI. SHELF LIFE ANALYSIS OF THE PRODUCT-

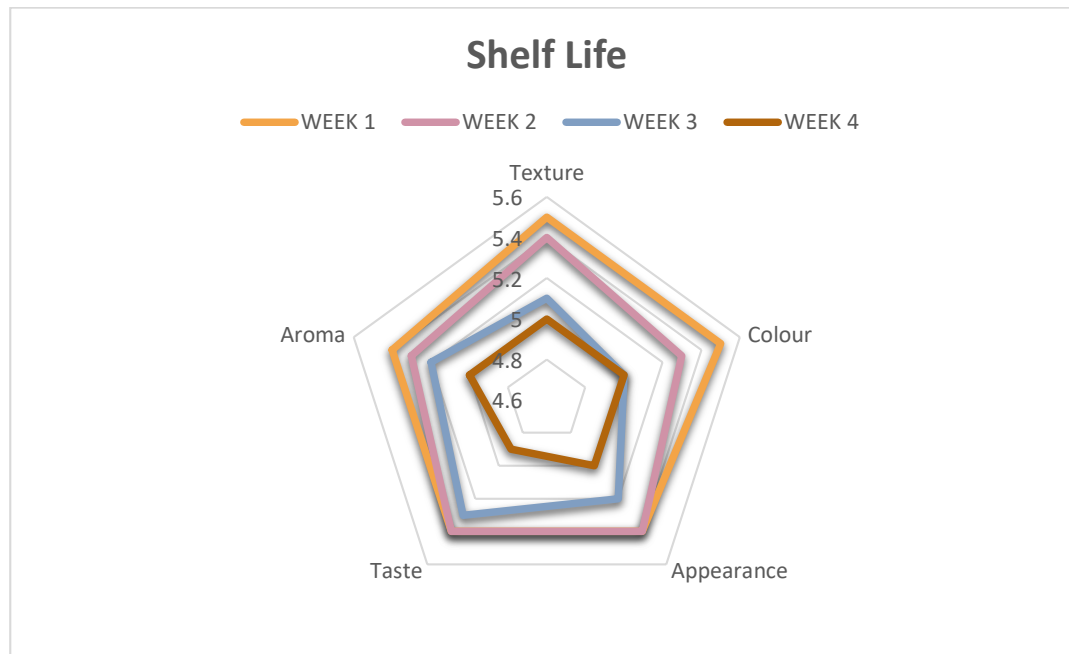


Fig.2- Sensory evaluation for the 4 weeks

RATING CHARACTERISTICS-

The shelf life study of the product was done. The panel members were asked to rate the product on 5 points scale, on the certain characteristics. During 1st week, no changes were observed. During 2nd week, some changes were observed, in terms of aroma, color, and texture, but it is still acceptable. During 3rd week, it drops down its qualities, regarding color, texture and appearance. The color was faint golden yellow as compared to first week and texture was rough. During 4th week, the taste was changed, it as a rubber like texture and become hard and aroma also went off.

VII. NUTRITINAL LABEL

The nutritional label was made to aware the nutrients present in the product and the calorie count. The label also contains the ingredients of the product, nutritional facts, added chemicals and preservatives, manufacturing date, expiry date, net weight, and any special precaution or recommendation. [3, 4]

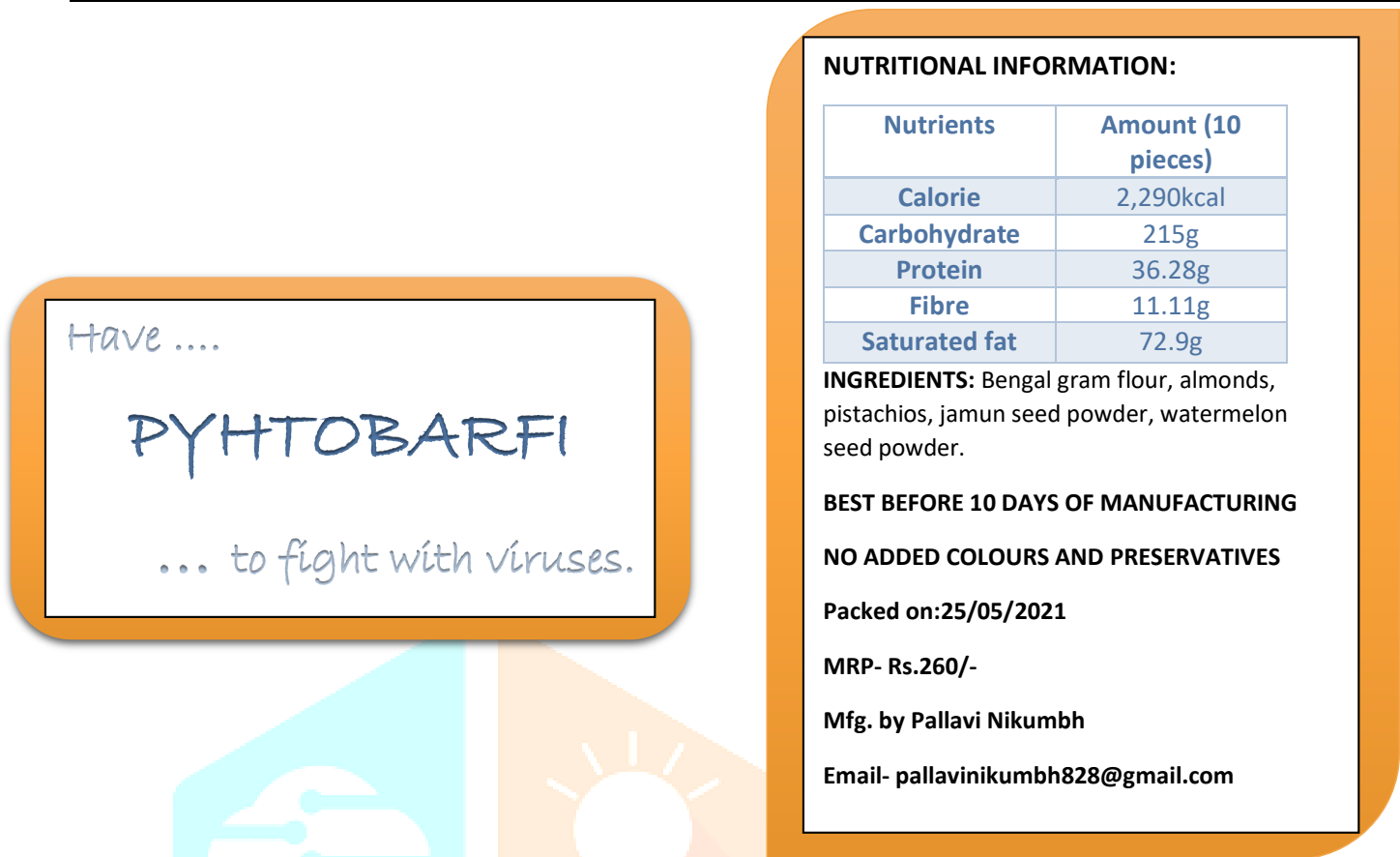


Fig .3- The front part of packaging material and Nutritional label

VII. PACKAGING MATERIAL-

Packaging material was used to store and sell the product. It protects the product from a microbial, chemical and physical damage. The packaging material were used was a box made up of cardboard sheet. It is lightweight and environment friendly, easy to dispose. The product can be store at room temperature.



Fig.4- Packaging material

VIII. BUDGETING-

Budgeting is necessary to market the product in a cost effective manner. The ingredients were bought from wholesale market to manage the intake and expenditure. The cost of the product should be affordable to the all level of economy.

Materials	Amounts
Raw ingredients	Rs.120
Packaging material	Rs.100
Nutritional label	Rs.20
Others (electricity, cooking gas)	Rs.20
Total	Rs.260

Table no. 3- cost sheet

So the total cost of 1 box of phyto barfi is Rs.260.

IX. MARKETING-

The product was marketed on the social media. As it is a nutri product, it is available for all the age groups. To make aware people about the different benefits of the fruit seeds, and its nutritional value different marketing skills were used.

X. CONCLUSION

The phyto barfi gives various nutrients such as carbohydrates, protein, vitamins, minerals and fibre. It is a bucket full of nutrients which fulfill partly, a person's nutritional needs for the day. As it is a nutri barfi, it can be given to all the age groups.

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