

Preparation of Papaya Burfi Fortified with Wet Dates

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Abstract - Papaya is one of the favorites of fruit lovers for its nutritional, digestive and medicinal properties. It is rich in various micronutrients include calcium, boron, cobalt, copper, fluorine, iron, magnesium, manganese, potassium, phosphorus, sodium, zinc which are essential. So we combine both of fruits as a confectionery product of Papaya and wet Dates delicious Burfi. The Burfi contains Carbohydrates-42.30 g, Fats-5.15 g, Protein- 1.46 g, Dietary fibers - 4.85 g, Energy-162.5 kcal, Vitamin. A-750 I.U., Vit. B6 - 0.165 mg, Vit. B9-28.5 µg, Vit. C-31.2 mg, Vit. E-0.175 mg, Vit. K - 2.65 µg, Calcium-192 mg, and Magnesium-13 mg. Papaya is rich in fiber, Vitamin A & C, antioxidants which prevent cholesterol buildup in your arteries, helps in weight loss, immunity, diabetics, eye problems, arthritis, digestion, etc. Dates fruit is sweet with a rich deep flavor and a slightly chewy texture. Papaya dates burfi gives instant energy and also is more nutritious as compared to other confectionery fruit products available in the market. It can be recommended to all age groups for maintaining the balanced diet as well as the nutritional status.

Key words: Micronutrients, Immunity, Antioxidants, Physicochemical and Cholesterol.

1. INTRODUCTION:

Papaya (*carica papaya*) is a tropical fruit having commercial importance because of its high nutritive and medicinal value. It is a rich source of three powerful antioxidant vitamin C, vitamin A, vitamin E. Papaya has a relatively high amount of pectin. Papaya contains an enzyme (**papain**). However a higher intake of papaya fruits has been shown to decrease the risk and progression of age - related macular degeneration. Wet Dates are the fruit of date palm tree, which is grown in many tropical regions of world. Wet Dates have become quite popular in recent years. Wet Dates also contain many more vitamin and minerals, but in very small amounts and not sufficient to meet your daily recommended intake.

1.1 Health Benefits:

- 1) They provide instant energy.
- 2) Beneficial for eye health (To improve eye vision).
- 3) Beneficial for digestion
- 4) To boosts your immunity

1.2 Justification:

The 'Burfi' of papaya and wet dates. The Burfi is more nutritious compared to other confectionery products available in the market. Papaya is a sweet taste, vibrant color and wide variety of health known as pawpaws. It is a rich source of three powerful antioxidant vitamin C, vitamin A, vitamin E. Papaya has a relatively high amount of pectin. Papaya contains an enzyme (**papain**). Papaya is also high in water and fiber content, both of which help to prevent and promote digestive tract. Wet Date are fairly in size & range in color from bright red to bright yellow. Wet Dates are chewy with a sweet flavor. They are also high in some important nutrients & have a variety of advantage & uses. Wet Dates and papaya have an excellent nutrition profile.

2. Materials and Methodology:

The raw materials required for the preparation of the papaya Burfi fortified with wet dates are Papaya (*carica papaya*), Wet Dates, coconut powder, sugar powder, Ghee, Pistacho, and cardamom.

2.1 Processing Equipments:

Knife, Digital weighing balance, Grinder, Spoons and plates, etc., were used for the processing of burfi.

2.2 Analyzing Equipments:

For the analysis of "papaya and wet dates burfi" at commercial level we need to choose right equipment. Selection of correct equipment will provide economy with time saving of analysis. Hot air oven, Muffle furnace, Desiccator, Soxhlet apparatus, Autoclave, Laminar air flow, Incubator bacteriological, Digital Colony counter, Glassware these equipment was use for analysis.

2.3 Product Manufacturing Process:

2.3.1 Selection of papaya and wet dates :

Select the ripe (not fully ripe), firm and sound fruits such as papaya and dates. They should be free from microbial and physical injuries. The *Taiwan* variety of Papaya which is rich in pectin and yellow color wet dates are used for burfi.

2.3.2 Washing:

Wash the fruits thoroughly under cold running water to remove blossom's, stem ends, unwanted dust & dirt.

2.3.3 Greeting:

Take washed papaya & wet dates and let it dry. The papaya and wet dates were greeted by using knife.

2.3.4 Grinding:

Take greeted papaya and wet dates in a grinder and grind it for few minutes in grinder. Pour the prepared pulp in bowl and measure with weighing balance for the preparation of burfi. The pulp of papaya and wet dates were blended by 70:30 proportions.

2.3.5 Heating:

Take 2% ghee in pan with papaya and wet dates pulp and pulp were stir continuously at low flame for 10-20 minutes.

2.3.6 Addition of Sugar Powder:

20% sugar powder was added in a pulp of papaya and dates and mix well and also stir continuously at low flame for 10-20 minutes.

2.3.7 Addition of Coconut Powder and Cardamom:

60 g coconut powder was added in pulp of papaya and wet dates and mix well and also stir continuous at low flame for 15 minutes then 5% cardamom powder was added and also mix well. Then burfi of papaya and wet dates was prepared.

2.3.8 Cooling:

Prepared papaya and wet dates burfi was poured in plate and the cooling of the burfi was done at room temperature.

2.3.9 Cutting:

After cooling the papaya and wet dates burfi was cut into small cubes in square shape. The shape size was 2.5x2.5cm. (cubes).

2.3.10 Garnishing:

After cutting of cubes of papaya and wet dates burfi was garnished by pistachio.

2.3.11 Packaging:

After garnishing papaya and wet dates burfi was packed in cardboard box with appropriate labeling.

2.3.12 Storage:

Stored at cool and dry place. (At room temperature and also refrigeration).

2.3.13 Processing Details:

1	Size	-2.5x2.5 cm (cubes)
2	Cooking	- Temperature: 60°C & time : 30 min
3	Addition of dates	-30 %.
4	Storage	- At room temperature and also refrigeration

3. Proximate Analysis and Quality Control:

3.1 Estimation of Protein (By Micro-Kjeldhal Method):

$$\% N = \frac{(\text{sample} - \text{blank}) \times N \text{ of HCL} \times \text{Vol. of digest} \times 0.014}{\text{Aliquot taken} \times \text{Wt. of sample}}$$

3.2 Estimation of Carbohydrate: (By Calculation Method)

Carbohydrate is evaluated by formula.

$$\% \text{ Carb.} = \frac{(\text{Weight in gram all protein} + \text{fat} + \text{ash} + \text{moisture})}{S} \text{ in to } 100 \text{ gm of sample.}$$

3.3 Estimation of Energy: (By Calculation)

$$\text{Energy (Kcal)} = \text{Protein (g)} \times 4 + \text{Fat(g)} + \text{Carbohydrate (g)} \times 4$$

3.4 Determination of Fat (By Soxhlet Method)

$$\% \text{ Fat} = \frac{\text{Sample B-C}}{\text{Sample A}} \times 100$$

3.5 Determination of Moisture (By Hot air oven)

$$\% \text{ Moisture} = \frac{100 (M 1 - M 2)}{M1-M2}$$

3.6 Determination of Ash (By Muffle Furnace)

$$\% \text{ Ash} = \frac{(W3-W1)}{(W2-W1)} \times 100$$

3.7 Determination of vitamin A (By colorimetric method)

The colorimetric method involves adding a chromogenic reagent to a volume of solulized fortified food sample.

3.8 Determination of Total Plate Count (T.P.C.)

To poured plates are prepared using a specified culture media and a specified quantity of the test sample. The

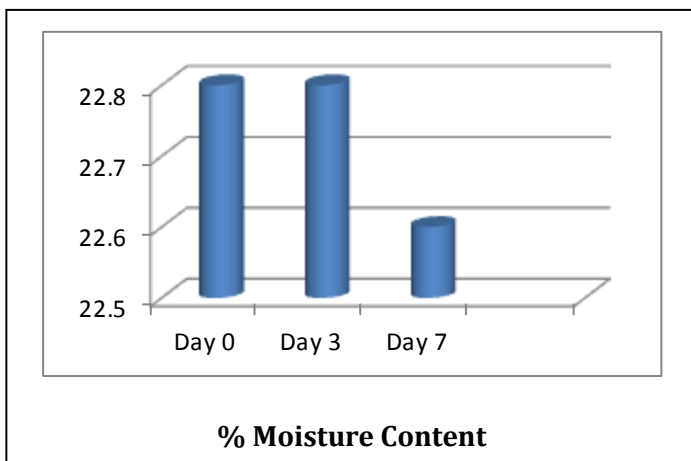
number of microorganisms per mm as per gm of sample is calculated from the number of colonies obtain on selected place.

4. Results and Discussion:

4.1 Physico-Chemical Analysis:

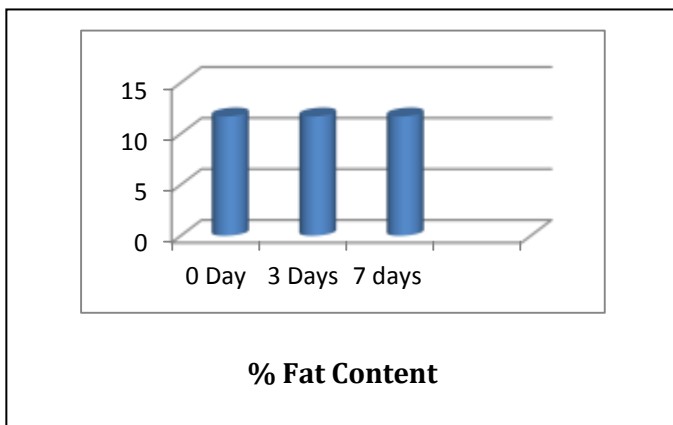
4.1.1 Moisture Content:

Sample	0 Days	3 Days	7 Days
Burfi (P-D)	22.8	22.8	22.6



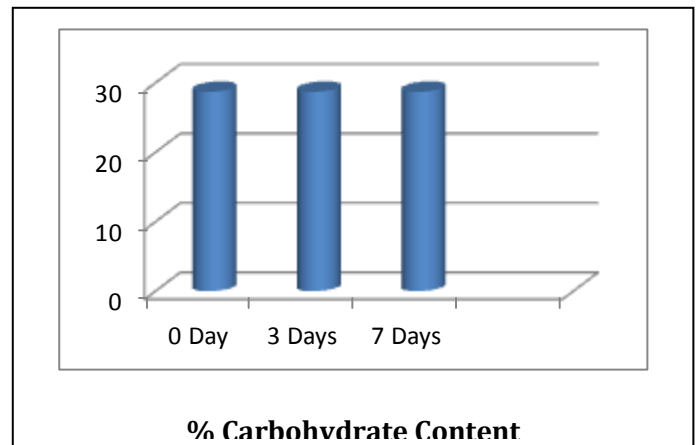
4.1.2 Fat Content: (g/100g)

Sample	0 Day	3 Days	7 Days
Burfi(P-D)	11.7	11.7	11.7



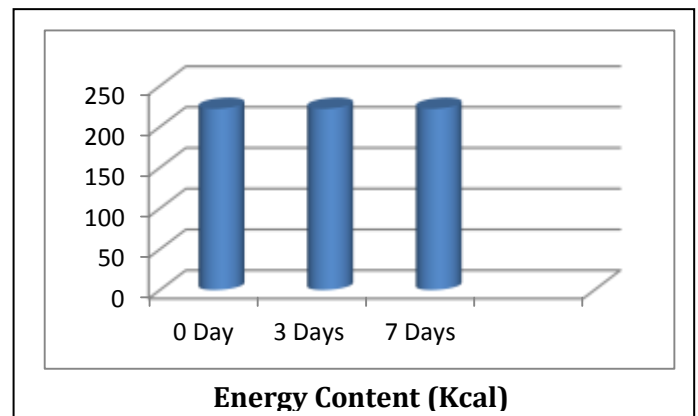
4.1.3 Carbohydrate Content: (g/100g)

Sample	0 Day	3 Days	7 Days
Burfi (P-D)	28.7	28.7	28.7



4.1.4 Energy Content: (Kcal)

Sample	0 Day	3 Days	7 Days
Burfi (P-D)	222	222	222



4.2 Microbial Analysis:

4.2.1 TPC count: (Colony Count)

Sample	0 Day	3 Days	7 Days
Burfi (P-D)	65.5	65.5	65.5

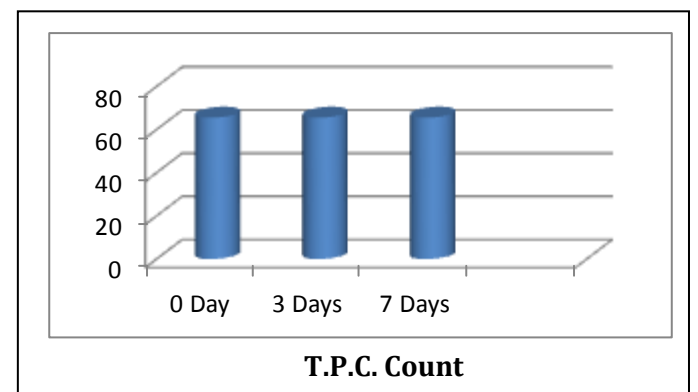
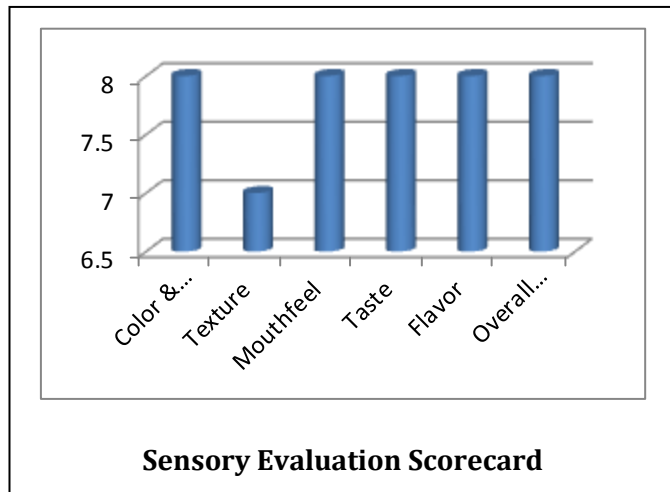


Table -1: Sample Table format

Characteristics	Color and Appearance	Texture	Mouthfeel	Taste	Flavor	Overall Acceptability
Score	8	7	8	8	8	8

4.3 Sensory Evaluation of Burfi (Papaya and Dates):



4.4 Quality Control:

Quality of the food may be defined as the composite of those characteristics that differentiate the individual unit of the product and have significance in determining the degree of acceptability of that unit by the buyer.

4.4.1 Raw material Control:

Before buying raw materials in bulk, food manufacture generally examine buying sample to make sure that it fulfills the factory’s specifications. Raw materials examined for different parameters and it varies with nature and type of ingredients.

4.4.2 Process Control:

All treatments given during processing are standardized, ingredients used in correct amounts, accurate method of preparation and mixing are employed, and checks are made on the containers used to make sure that they are sound. Satisfactory hygienic conditions are also maintained during processing.

4.4.3 Inspection of Finished Product:

It is carried out to determine to what extent the desired quality specifications have been achieved. Some tests are performed to check certain properties which are related to palatability and acceptability of product. GMP, HACCP are also important aspects of quality control.

4.4.4 Packaging and Labeling:

4.4.4.1 Packaging:

Packaging can be defined as a socio-scientific discipline which operates in society to ensure delivery of goods to the ultimate consumer of these goods in the best condition intended for their use. The most common material used in packaging are; Plastics, Paper/Board, Metals, Glass, Wood. Commercially available cardboard box is made from cellulose or wood fiber. We select cardboard box as packaging material for burfi.

Objectives of Packaging:

They provide physical protection, Barrier protection, Information transmission, Convenience.

4.4.4.1 Labeling:

Labeling is most important to attract consumers. It play important role in marketing of product. It should be attractive, colorful, having lots of graphics, picture with label. Labeling contains the following information:

Logo, Brand Name, Product Name, Nutritional information, List of ingredients, Net weight (when packaged), Max. Retail price (MRP), Manufactured by, Date of Mfg., Expiry Date.

5. Conclusion:

The papaya and wet dates fortified burfi can be successfully prepared with all the essential nutrients mentioned in this work. Along with the major nutrients, it also contains vital micro nutrients like , Phosphorous, Sodium, Zinc. Dietary fibers – 4.85 g, Energy-162.5 kcal, Vitamin. A-750 I.U., Vit. B6 - 0.165 mg, Vit. B9-28.5 µg, Vit. C-31.2 mg, Vit. E-0.175 mg, Vit. K – 2.65 µg, Calcium-192 mg, and Magnesium-13 mg. As the burfi is prepared with all the natural sources, it does not have any adverse effect on dietary functions of adults as well as small age groups. The Burfi can be well packed and stored in the HDPE (Primary Packaging) and Paper Cardboard sheet (Secondary Packaging). The formulation is unique and can be maintained in good and sound condition upto 7 days, if stored at refrigeration temperature.

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