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RESEARCH ARTICLE OPEN ACCESS

PREPARATION AND EVALUATION OF NUTRITIONAL JELLY CANDY

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ABSTRACT:

- Introduction: The current work endeavored to improve the wholesome insufficiency condition brought about by different variables. This study fundamentally incorporates development of nutritional jelly candy fusing papaya leaf juice, dragon fruit pulp, beet root squeeze and egg white which gives gain in nourishment.
- Method: The nutritional gelly candy was prepared by mixing the extrats of papaya leaves and beet root with pulp of dragon fruit and banana along with other excipients. The nutritional jelly candy were evaluated for various evaluation tests such as ph, satbility studies etc.
- Result: The nutritional jelly candy can be endorse to expand the platelets, for example, WBC and platelets and furthermore to improve iron deficient condition in the patient. The examination likewise proposed that the sweet treat can give nourishment, for example, proteins, nutrients, vitamins and minerals.
- Conclusion: It can be concluded that all drugs extract and pulp, which are used in the dose range are safe for consumption and can be swallowed without any risk of systemic side effects. It is a formulation which is more organoleptically accepted by the pediatric, geriatric and dysphasic patients.

KEYWORDS: Nutritional jelly candy, Papaya leaf juice, Dragon fruit pulp, Blood cells, Gelatin.

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INTRODUCTION:

Client mentalities and practices have moved towards wellbeing nourishments since they have more worries on expanding ecological burdens, for example, contamination and dangerous substances in nature. Ecological toxins and way of life factors initiate oxidative pressure prompting many long haul wellbeing entanglements in human, for example, diabetes, malignant growth and cardiovascular ailment [1]. Buyer enthusiasm for characteristic items is currently a worldwide pattern. is propensity shows itself in new ideas of types "practical nourishment," "Vita food," and "nutraceuticals," officially communicating the connection among diet and wellbeing. Candy is characterized as arrangements of sugar, nectar, or other regular or artificial sugars in mix with chocolate, natural products, nuts, or different fixings or flavorings as bars, among others. It was built up that one of the alternatives for nourishment security and the fight against neediness is a creating prepared to-devour food sources, including compacted bars. The bar itself is denned as a mix of fixings which invigorates the nourishment and low water content, giving a wellspring of supplements rather than confections that are expended as improved items[2] . Jelly are class of gels, in which basic intelligent framework contains high segment of fluid generally water. Jams are like adhesive just contrast from the last in having jam like consistency. "Jelly were straightforward or translucent, non oily, semisolid readiness implied for outer just as interior application". Utilized for drug, oil and some incidental applications.

Types of Jelly:

A Medicated Jelly:

Chiefly utilized on mucous film and skin for their spermicidal, local sedative and sterile properties. After vanishing of water, jams give a nearby cooling impact and leftover film gives assurance. Ephedrine sulfate jam vasoconstrictor to capture the seeping of nose. Pramoxine HCl utilized as neighborhood sedative to soothe inconvenience of pruritis hemorrhoids. Phenyl mercuric nitrate as spermicidal contraceptives.

B Lubricating Jelly:

Catheters, things electro-symptomatic gear, for example, cystoscopes and elastic gloves or finger slows down used to for rectal and different assessments require grease before use.

C Miscellaneous Jelly:

Lubricants might be sterile for articles embedded into sterile locales. These are intended for different applications like fix testing, electrocardiography. Example Lignocaine gel BP.

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❖ **Advantages of Oral Jelly:**

- Advantageous to manage.
- Treatment can be ended whenever.
- Suitable for fundamental conveyance of drug, which are vulnerable to digestion in the gut divider or liver.
- Easily taken by patients of cutting edge age and especially understanding with dysphagia.

Present work proposes about the improvement in iron deficient condition. Papaya leaf juice are currently a day increasing a heaps of prominence because of its activity increment in platelet numbers. To expansion the dragon fruit is additionally included into this plan.

❖ **OBJECTIVES:**

- To access the action of Nutritional Jelly Candy.
- To access the compatibility with the patient.
- To develop a beneficial dosage form for diabetic patient.
- To access the wellspring of vitality for the weak patient.
- Potential points of interest over other ordinary measurements structures
- Improved quiet consistence
- Rapid beginning of activity
- Oral jelly have noteworthy preferences of both strong and fluid dose structures, as they stay strong during stockpiling which help in dependability of dose forms and change in fluid like structure inside couple of moments to minute after its organization.
- Medicated Jelly has been very generally welcomed by the guardians for their utilization in youngsters with full dentition.
- The utilization of Medicated Jelly is plausible in nearby treatment of maladies of oral depression just as treatment of foundational conditions.

METHODS:

- **Collection of Sample:**

The plant leaves i.e Papaya leaves were collected from Patil Hitech Nursery for Papaya plants and Sugarcane Seeds Supplier, Vasagade, Taluka - Palus, Sangli, Maharashtra.The fresh fruits such as Dragon fruit, Banana and vegetable like Beet root were collected from the local market at Maruti Road, Sangli, Maharashtra. Gelatine were collected from Maharashtra Shop, Near Bus Stand, Miraj, Maharashtra and remaining solvent and ingredients were collected from College.

- **Preparation of Extract:**

a) **Papaya leaf juice preparation**:

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For extraction purpose, the leaves of papaya are collected and cleaned properly. Small pieces of leaves are made and grinded properly in a mixer. The juice is obtained by passing the mixer through sieve or cloth.

b) **Beet root juice preparation**:
The juice is prepared by grinding the pieces of beet root into a mixer and squeezing the juice by the help of cloth.

- **Preparation of Nutritional Gelly Candy:**

a. Nutritional jelly candy bar was prepared by using standard jelly preparation procedure with some modifications.
b. First mixture of papaya leaf juice, dragon fruit pulp and beet root juice are prepared according to the prescribed quantity.
c. To this mixture add banana pulp and egg white with continuous stirring at room temperature.
d. Then add honey as per the given quantity. Now prepare gelatin solution by dissolving gelatin with warm water (70^0c).
e. To the gelatin solution add sugar slowly with continuous stirring till the sugar gets completely dissolved in the solution.
f. This gelatin solution is poured into the above mixture and mixes it thoroughly.
g. Place the mixture in the jelly candy bar mould and make sure to remove the air bubbles.
h. Freeze it under 5 to 10^0c temperature for 30 minutes.

Table 1: Formulation of nutritional jelly candy bar.

COMPOSITION	WEIGHT
Papaya leaf juice	4ml
Dragon fruit pulp	2.07 gm
Beet root juice	3.16 ml
Banana pulp	3 gm
Gelatin	5 gm
Honey	3.8 ml
Egg white	4 gm
Sugar	2 gm
Water	2 ml

- **Evaluation of Nutritional Gelly Candy:**

1. Appearance
2. Stickiness and grittiness
3. ph
4. Viscosity

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5. Spreadability
6. Stability studies

1. Appearance:

The prepared nutritional jelly candy was evaluated visually for the colour, consistency , texture and clarity for the better patient compliance.

2. Stickiness and grittiness:

Texture of nutritional jelly in terms of stickiness and grittiness had been evaluated by visual inspections of the product after mildly rubbing the jelly sample between two fingers.

3. pH:

The ph of the jelly was determined by using digital ph meter. The 0.5 gm of jelly was dissolved in 50ml of distilled water and ph was noted. The ph of the nutritional jelly candy was found to be 6.3

4. Viscosity:

The determination of viscosity was been carried by using Brookfield viscometer, DV – I+. The spindle no 4 (LV4) is used during the process. Viscosity was measured for 2 min T 1.3 rpm and three conservative readings were taken at room temperature (24^0c).

The viscosity was calculated by following relation.

Factor = 20 M
M = 1000
Viscosity in centipoises = Dial reading × Factor

5. Spreadability:

Spreadability of the formulations was determined by the apparatus suggested by Multimer, which was fabricated and used for study. It consist of wooden blocks provided with two glass slide. Lower slide fixed on wooden blocks and upper slide with a one end tide to a glass slide and other end tied to weight pan. Jelly quantity 2.5 gm was placed between two slides and 1000gm weight was placed over it for 5 min. to press the sample to uniform thickness. Weight 80 gm was added to pan. The time in second required to separate two slides were taken as a measure of spredability. Sorter time interval to cover the distance of 7.5 cm indicates better spredability.

Spreadability was calculated by using following formula;

$S = M \times L/T$
Where, S = spreadability,
M = weight tide to upper slide,

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L = length of glass slide (7.5cm),

T = time taken to separate two slides

6. Stablity Studies:

The stability study was assessed according to ICH rules, the examples were kept at various temperature(0-8^{0}C)and at room temperature for 3 months. The sample of jelly were watched for pH, thickness, and appearance at time period month. All the estimations were performed in the wake of permitting the sample to be equilibrated at 250C for 2hr[16-18].

RESULT:

- Evaluation of Nutritional Jelly Candy was evaluated for different evaluation test and the result of same are shown in table:

Table No. 2: Evaluation Tests for Nutritional Jelly Candy:

Sr. No	Evaluation Test	Result
1	Appearance	Dark green Thick Smooth Transparent
2	Stickiness and grittiness	No Sticky No Gritty
3	pH	6.3
4	Viscosity	624000 cpc
5	Spreadability	23.7 sec

6	Stability Studies					
	Sr. No	Storage Condition	Months	General Apperance	pH	Viscosity
	1.	0 – 8 ^{0}C	1	No Change	6.3	624000 cpc
			2	No Change	6.29	623000 cpc
			3	No Change	6.25	623000 cpc
	2.	25 ^{0}C	1	No Change	6.3	624000 cpc
			2	No Change	6.27	623000 cpc
			3	No Change	6.2	621000 cpc

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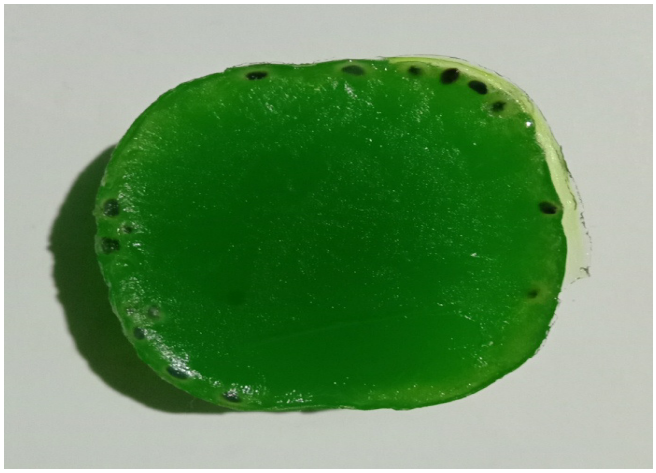
The Texture of Jelly was found to be smooth and exhibiting thick consistency. The nutritional jelly candy was found to be non sticky and non gritty. Viscosity study was conducted for the formulation and the viscosity was found to be 624000 cpc along with pH 6.3. The short term stability was conducted for three months with the help stability camber shows various changes into the pH, Viscosity. It also showed no change in the appearance. It is recommended to store at the temperature 25 ^{0}c.

Fig no. 1 Nutritional Jelly Candy



DISCUSSION:

Drying the papaya leaves at 50°C was the ideal drying condition for additional examinations on impact of the crude concentrate on properties of nutritional jelly candy. Increments in pH estimation of the concentrates brought about reductions in healthy benefit in all drying treatment. It was recommended that acid hydrolysis of gelatin added to diminish the gel quality of gelatin. Sensory assessments of nutritional jelly candy confections rewarded with the diverse procedure temperatures and levels of the crude concentrate were performed on 2 unique characteristics, for example, toughness and color. Results indicated the inclination of including more the crude concentrate could bring about reduction in toughness and cause change in the color of the jelly candy. It was noticed that utilizing the crude concentrate at the least level in the nutritional jelly candy was suggested.

CONCLUSION:

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The present study demonstrates the herbal extract and pulp of Papaya leaf, Dragon fruit, Beet root and Banana were successfully formulated in the jelly formulations. All drugs extract and pulp, which are used in the dose range are safe for consumption and can be swallowed without any risk of systemic side effects. The formulation of Nutritional jelly is an easy and time saving process. It is a formulation which is more organoleptically accepted by the pediatric, geriatric and dysphasic patients. The prepared formulation will be a substitute over the other preparation available in the market in near future. The prepared jelly formulation showed good nutritional property and it is also recommended to carry out further chemical study of the formulation such as Thermogravimetry (TG) and Differential Scanning Calorimetry (DSC), etc.

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ABBREVIATIONS:

Hydrochloric acid = HCl

British Phamacopoiea = BP

Thermogravimetry = TG

Differential Scanning Calorimetry = DSC

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