Preparation of Healthy and Nutritious Non-Caloric Laddoo for Diabetic Patients and Children

*Gunjan Nema[1], Arun Kumar Hazari[2] & Alok Kumar Sharma[2]
[1]Department of Biological Sciences, Rani Durgavati University, Jabalpur, (M.P.)
[2]Regional-Cum-Facilitation Centre, Central Region, Jabalpur, (M.P.)
[*]Corresponding e-mail: gunjanema2191@gmail.com

Abstract

Deficiency of the calcium, iron, protein and vitamins are common problem in children and diabetic patients. Almonds, cashew, walnuts, Coconut powder, fresh dates and stevia powder were used for the formation of ready-to-eat Indian sweet commonly known as "laddoo" with rich source of iron, calcium and protein. Dry fruits like almond, cashew, raisin, walnut and fig etc. are the essential foods for a human body requires staying healthy. Dry fruits contain all the necessary nutritious ingredients including vitamins, fibres, minerals, enzymes and protect our body from different type of deficiencies. All dry fruits are source of healthy nutritious food for diabetic patient and children. Dry fruits must be in a balanced way because they harm the human body if taken in excessive quantity. After formation of laddoos it must be packed in best quality polypropylene boxes. In this experiment it is concluded that dry fruits laddoo is best source for the enhancement of immunity power in diabetic patient and children.

Keyword: Dry fruits, Laddoo, Stevia.

INTRODUCTION

Dry fruits are type of dehydrated fruit. It is a traditional food. In past centuries scientist devans mystery, deshmane rehaman and pratik deshmukh discovered knowledge of storage of laddoo. Different types of laddoo is prepared for all festival and in some family event such as weddings, birthdays and time of birth of children or given as a prasad in many hindu temples especially at tirumala and amaranth. Laddoo is also prepared in some Muslim festivals. Laddoo is a round small ball shaped sweet, tasteful and popular food. Various type of Laddoo is found in the country that is malai laddoo, besan laddoo, basundi laddoo, khoa laddoo, nariyal laddoo, gud laddoo, suji laddoo, aata laddoo etc *[2,13].*

Stevia rebaudiana is a herb native to subtropical and tropical South America and Central America. It is known as sugar leaf, honey leaf, sweet leaf, honey yerba and candy leaf. It is 300 times sweeter than sugar and helps in reducing blood sugar level. It is also used in treatment of different diseases like carbohydrate metabolic diseases such as hyper-tension, diabetes mellitus and obesity. Stevia is safe for diabetic patient and children. Stevia is a non-caloric plant based sweetener. The stevia plant has been used in whole world for its natural sweetness. Concluded by International Food Information Council Foundation (IFIC) stevia is non-nutritive, or low-calorie sweetener. Stevia consumption in beverages and foods is a good way to reduce calories, blood sugar level and maintenance of weight *[8,11].*

Dates are edible sweet fruit. The leaves length is 13 feet with single root system and crown range is 0.7 feet. It is used as a syrup base in different snacks food. Dates are very nutritious, its nutritive value is 1.178 kcal such as vitamin 0.549 mg (vit-A, vit-C, vit-E) and minerals 0.2 mg (iron, ca, mg, p, k), protein 2.45 gm, fat 0.39 gm and carbohydrate 75.03 gm *[4,5,12].* The cashew is used in India as a nutrient supplement. It is also used in anti-allergic medicine. The nutritive value of cashew is 553 kcal such as vitamin 34.01 mg, (vit-C, vit-K, vit-E.), Minerals 5.20 mg (ca, iron, mg, p), carbohydrate 30.19gm,

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protein 18.22 gm and fat 43.85gm. The almond is used for many products like almond milk, almond butter and almond powder. Nutritive value of almond is 2.408 kcal such as vitamin 21.2 mg (vit-A, vit-C, vit-D, vit-E), minerals 3.08 mg (iron, mg, ca), carbohydrate 21.69 gm, protein 21.22 gm and fat 49.42 gm. Cardamom is an expansive and flavoured spice. It is used in different food and drink as the medicine *[6,7,9,10]* (Table-1).

Material and Method

Cashew, almonds, walnut, cardamom powder, dates, coconut powder, ghee and stevia were used in formation of laddoos. All material was purchase from the local market of Jabalpur (Madhya-pradesh).

Procedure of making dry fruits laddoo

All ingredients were measured by the weigh balance. All dry fruits cutting in small size and roasted 30-40 minutes with low flame in a pan. Dates were grinded in mixer with little amount of water. Then put a pan on the flame and take little amount of ghee in pan. Paste of dates with cardamom powder and stevia powder added in the pan and fry for 10 minutes in low flame. Now let it cool. Then all dry fruits were mixed well in date Paste. Then make round shaped small balls of mixture by hand process. Once the laddoo are made, coat the laddoo with coconut powder. So that the dry fruits laddoo stay safe for a long time. And due to coconut powder, the texture of laddoos starts to look good. After preparation of laddoos it is packed in best quality polypropylene boxes. Prepared laddoo must be kept in room temperature for drying. The preparation of laddoo is constant for all material in L1 sample (100:50:50:50:25). For formation of perfect laddoos this proportion is used. Laddoos were prepared good in texture, taste and flavour by this proportion. When various proportions of dates, dry fruits and coconut powder, laddoos were taken the prepared laddoos not found well and good in taste. Other proportion like that L2 (80:60:60:60:30), L3 (60:50:50:50:20), L4 (120:70:70:70:30). Proportion of stevia powder, cardamom powder and ghee was constant for all preparations (Table-3).

Analysis of nutrient

In this present experiment laddoo was analysed for protein, fat, crude fibre, ash, moisture and carbohydrate were estimated by different methods. *[1,3]* Analysis of nutrients was made ones.

Storage

Best accepted laddoos was stored in polyprophylene bags for 2 months at room temperature. microbial and sensory characteristics were observed at intervals of 20 days, 40 days and 60 days.

Results and Discussion

Dry fruits and dates are ancient fruit that is consumed in whole world in different form. Dry fruits and dates are used in pharmaceutical, nutraceuticals and industrial products. Dates have a history in Ayurvedic medicine, used to treat various diseases like adolescent, dysentery, diarrhoea, sores, ear infection, dermatitis, child malnutrition, deficiency of calcium and iron and indigestion. Dry fruits, dates and coconut laddoo is used for many festivals like Diwali, rakshabandhan, holi, ramjan, eid etc and family functions like bithdays, time of birth, weddings etc for meal by indian people. Indian people usually prepare various types of laddoo in any season. Non-caloric dry fruits laddoo acts as antioxidant, appetite stimulant, enhance child malnutrition, power enhancer and increase good cholesterol and used to improve health and height of child. To improve the weakness and health of children, diabetic patients. Formation of best quality of laddoo the quantity

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of material recommended is cashew-500g, almonds-500g, walnut-500g, cardamom powder -50g, stevia powder-5 g, coconut powder-250g and ghee-10 g or 2 table spoon.

Determination of physico chemical properties of laddoo

Non-caloric dry fruits laddoo contains chemical properties fat, crude fibre, protein, moisture, carbohydrate and ash. In the analysis of contents in laddoo following result were observed, moisture 9.69% and fat 15.00%. Carbohydrate 49.00%, ash 4.35%, protein 12% and crude fibre 13.00% was found in non-caloric dry fruits laddoo respectively (Table- 2). In the it was concluded that non-caloric dry fruits laddoo can be stored for two months atroom temperature (20-30°C) without affecting parameters and quality. The quality of non-caloric dry fruits laddoo has no effect for 60 days while after two months its quality starts to deteriorate gradually. And its texture, flavour, colour, taste and moisture were also decreased. There was no evidence of microbial spoilage. Sugar, preservatives and chemicals were not used in laddoos.

Table 1: Nutritional Value of Some Dry Fruits

S. No.	Dry fruits	Quantity	Calories	Proteins	Fats	Fibre
1	Cashews	100g	553	18 g	44g	3.3g
2	Almonds	100g	529	20 g	45g	11g
3	Walnuts	100g	654	15 g	65g	7g
4	Dates	100g	562	20 g	45g	10g

Table 2: Biochemical Estimation of Non-Caloric Dry Fruits Laddoo

S. No.	Parameters	Value/range
1	Moisture	9.69±0.73g
2	Protein	(N×6.25) 12±1.9g
3	Fat	15±0.89g
4	Fibre	13±0.83g3
5	Ash	4.35±3.28g
6	Carbohydrate	49.00±2.6g

Table3: Different Proportion of Non-Caloric Dry Fruits Laddoo.

S. No.	Dry fruit	Treatments			
		L1	**L2**	**L3**	**L4**
1	Dates	100	80	60	120
2	Cashew	50	60	50	70
3	Almonds	50	60	50	70
4	Walnuts	50	60	50	70
5	Coconut powder	25	30	20	30

(All samples are taken in grams).

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Conclusion

In winter, Dry fruits and dates are very beneficial for health. Grinded dry fruits consumed with warm milk is great source of nutrition. L1 proportion is the best proportion for formation of non-caloric dry fruits laddoo. The content of moisture (%), protein (%), fibre (%), ash (%) and nutritious activity were decreased significantly in non-caloric dry fruits laddoo after three months of storage. In this study concluded that non caloric dry fruits laddoo is best source of nutrition and safe for diabetic patient and children. This product is having enrichment than other marketed products. Non-caloric dry fruits laddoos fulfil all the deficiency of nutrition and vitamins for human body.

Acknowledgement

The authors are thankful to Professor and head Department of Plant Physiology and Department of Food Science College of Agriculture, JNKVV, Jabalpur for providing facilities and support.

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