

Standardization and Development of Nutricookie

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Abstract

Cookies are a major part of the snack industry. Cookies are convenience foods consumed by any section of the population. A standard cookie was stuffed with peanuts and flaxseeds to prepare NUTRICOOKIE to increase the nutrient content. Nutricookie prepared with equal proportions of peanuts and flaxseeds did not affect the sensory parameters and was accepted as a standard cookie.

Keywords—Cookie, peanuts, flaxseeds, Nutricookie.

I. INTRODUCTION

A cookie is a baked product or cooked food that is small, flat, and sweet. It usually contains flour, sugar, and some oil or fat. It is a snack item served at room temperature. In most English speaking countries except for the United States and Canada, crisp cookies are called BISCUITS. Chewier biscuits are called as COOKIES. Some cookies may also be named by their shapes, such as bars or squares. There are different types of cookies available in the market. Cookies are the principal source of convenience, variety, and healthy nutrition components in the modern lifestyle. Cookies have a much longer shelf life than bread, cake, and other baked foods.

NUTRICOOKIE is a stuffed cookie. The cookie is stuffed with flaxseeds, peanuts, and jaggery. Peanut (*Arachis hypogea*) is an important crop grown worldwide. Peanuts contain functional compounds like proteins (20 amino acids with the highest amount of arginine), vitamins, minerals, fibers, polyphenols, and antioxidants. Peanuts have been used as the main source to eliminate malnutrition among many African countries (Guimon and Guimon, 2012). Peanuts are consumed throughout the world in different forms. Especially in India, Peanuts are consumed as the main snack item. Peanut flour is also used for making composite flours with nonwheat cereals or in the formulations of protein-rich foods. Since peanuts provide all the basic nutrients, it is selected in preparation of NUTRI COOKIE.

Flaxseed (*Linum usitatissimum*) was native of India. It has gained nutritional importance since it is rich in alpha-linolenic acid, dietary fiber, and high quality

Protein (Oomah, 2001). The flaxseed composition is presented in Table-1 (Morris, 2007; Gopalan et al., 2004; Payne, 2000). Flaxseed protein is rich in arginine, aspartic acid, and glutamic acid, while lysine is limiting (Singh et al., 2011; Chung et al., 2005). Flaxseeds are also a good source of minerals (Morris, 2007) and vitamins. Now the day's public is showing interest in maintaining good health. So they are more concerned about a diet that meets the nutritional needs. This resulted in trying the NUTRI COOKIE.

Table no.1: Nutrient composition of Flaxseeds for 100g

Nutrients	Nutritive values
Energy	534kcal
Protein	18.29g
Fat	42.16g
Carbohydrates	28.8g
Fiber	27.3g
Iron	5.73g
Calcium	255g

II. MATERIALS AND METHODS

A. Raw materials

All the ingredients such as maida, butter, sugar, peanuts, flaxseeds, jaggery, and baking powder were procured from the local market.

B. Methods

PROCESSING OF INGREDIENTS

Peanuts and Flaxseeds are roasted separately for 10-15 minutes to eliminate the raw taste and anti-nutritional factors and add crispy texture. Flax seeds and peanuts contain antinutrients that may have an adverse influence on health. Cyanogenic glycosides are the significant antinutrients found in flaxseeds, about 250-550mg/100gm (Singh et al. 2011). Phytic acid and trypsin inhibitors are also present in flaxseeds. Peanuts contain goitrogens, which inhibit the iodine absorption by the thyroid gland. Antinutrients are heat liable and easily destroyed by processing. The roasted peanuts and flaxseeds are allowed to cool. The skin of the cooled peanuts is removed by rubbing the peanuts between the two palms. The peanuts are then crumbled by allowing them to grind for just 1-2 seconds.



Jaggery is taken in a vessel, melted under a low flame by stirring continuously until the syrup reached a softball stage at a temperature of 118-120°C. Roasted flaxseeds and peanut crumbles are added into the syrup and cooled to room temperature.

C. Product Development

Using good quality raw materials like maida, butter, sugar, and baking powder, cookies were prepared as detailed in Table-2.

The dough is prepared with maida, sugar powder, and butter. The dough is kneaded properly. Kneaded dough is taken into two equal proportions, and one balance is made into a round ball and flattened on a clean marble with the help of hands. Stuff prepared with jaggery syrup is placed over 1st layer of dough evenly. Now, the 2nd proportion of kneaded dough is flattened in the

same way and placed on the dough's stuffed first layer. The stuffed dough is molded into a round shape with cookie molds placed on a greased baking plate and kept in the oven. Temperature is set at 160°C and baked for 18-20 minutes. Cookies are taken out and exposed to room temperature.

TABLE-2 Composition Of Standard and Nutri Cookies

INGREDIENTS	STANDARD COOKIE	NUTRI COOKIE S	NUTRI COOKIE II
Maida	40grams	30grams	30grams
Butter	20grams	20grams	20grams
Sugar	40grams	10grams	10grams
Jaggery	-	10grams	10grams
Flaxseeds	-	15grams	20grams
Peanuts	-	15grams	10grams

Fig:1 FLOW CHART OF STANDARD COOKIE Fig:2 FLOW CHART OF STUFF PREPARATION

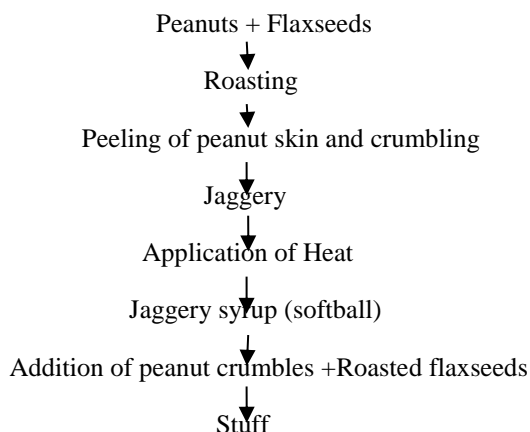
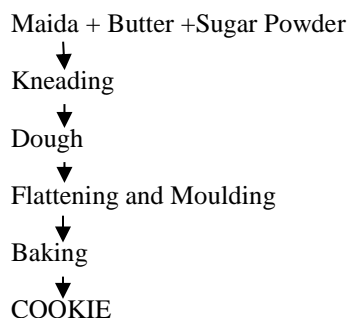
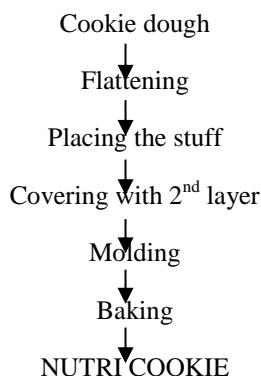


Fig:3 FLOW CHART OF NUTRI COOKIE



Standard Cookie preparation and Nutri Cookie development are given in figures-1, 2 & 3.

D. Organoleptic Evaluation

The cookies that were prepared were subjected to sensory evaluation. A panel of 10 judges evaluated the samples. Various characteristics like Taste, Flavour,

Texture, Appearance, and General acceptability were assessed using 9 points Hedonic Scale of Excellent=9, Very good=8, Good=7, Below good and Above Fair=6, Fair=5, Below Fair and Above poor=4,

Poor=3, Very poor=2 & Extremely Poor=1. (IS: Indian Standard 6273-1971).

E. Evaluation Of Proximate Composition

Based on the organoleptic evaluation, the Nutri cookie's proximate composition was calculated using the Nutritive value of Indian foods (Gopalan et al., 2014).

F. Statistical Analysis

The data obtained through sensory evaluation was statistically analyzed using means and standard deviations.

III. RESULTS AND DISCUSSION

A. Proximate Composition Of Food Mixtures

The proximate composition that was calculated with the help of the Nutritive value of Indian foods is shown in TABLE-3. The data indicate that consumption of 100gm of Nutricookie gives 9.98gm of protein and 493.9kcal of energy.

Table-3 Proximate Composition of the Selected Cookie

S.no	Ingredients	Quantity (g)	Energy (kcal)	Carbohydrates (g)	Protein (g)	Fat (g)
1.	Maida	30	104.4	22.17	3.3	0.27
2.	Butter	20	145.8	-	-	16.2
3.	Sugar	10	39.8	9.94	0.01	0
4.	Jaggery	10	38.3	9.5	0.04	0.01
5.	Flax seeds	15	80.1	43.8	2.7	6.3
6.	Peanuts	15	85.5	4.05	3.93	5.97
	Total	100	493.9	89.46	9.98	28.75

B. Organoleptic Evaluation Of The Cookies

The sensory scores data indicated that there was no considerable difference for colour, flavor, appearance, and overall acceptability between the

standard cookie and Nutri cookie. Stuffing with flaxseeds and peanuts did not affect the sensory parameters of the cookies. Cookie-1 was found to be more acceptable than Cookie-2.

Table-4 Sensory evaluation of Nutri cookie

S.no	Sensory attributes	Nutricookie-1	Nutricookie-2	Standardized Cookie
1	Appearance	6.87	5.89	6.89
2	Texture	6.62	7.56	6.35
3	Taste	8.89	6.32	8.11
4	Flavour	8.56	5.28	7.89
5	Overall acceptability	8.67	7.22	8.44

IV. CONCLUSION

The Nutricookie that was developed is beneficial to every age group as it is more nutritious than a standard cookie. It makes it easy for a mother who struggles to feed her children healthy food. Nutricookie is a new formulation because it is stuffed with flaxseeds and peanuts, which possess good nutritional benefits.

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