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TO DEVELOP AND STUDY THE SHELF-LIFE OF AN INNOVATIVE NUTRITIOUS PRODUCT - "NUTRI FOODLES"

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The competing demands of taste and health pose a dilemma for consumers as well as the food industry. Consumers are looking for tasty, healthy food based products which might not harm, but may prove to be beneficial for their health. A nutritious innovative snack was designed for general public and for people with different conditions such as cardiovascular disease, constipation, diabetes, obesity, protein deficiency, etc. Nutri Foodles was developed with Rice flour, Moong Dal flour, Soya Nuggets flour and Wheat bran. The product provides good amount of fiber, protein and energy as well as some amount of B-complex Vitamins. Shelf-life was analyzed using the composite scoring method on characteristics such as taste, texture, shape and overall acceptability of the product. The other aspects covered in the study were Budgeting, Packaging, Nutrition labelling, etc.

Keywords: Foodles, Soya nuggets flour, Wheat bran

INTRODUCTION

Nutri Foodles is a snack of high nutritive value, enriched with fibre and protein. It also provides good amount of calories and satiety value. This product is targeted for the general crowd but can be consumed by the people with different conditions such as cardiovascular disease, constipation, diabetes, obesity, protein deficiency, etc. It is made up of rice flour, moong dal flour, and soya nuggets flour and wheat bran.

Rice flour is a form of flour made from finely milled rice. (https://en.wikipedia.org/wiki/Rice_flour) It is easy-to-digest and gluten-free flour with a mild taste. It is a good source of carbohydrates and protein. Rice flour has insoluble fiber which aids to relieve constipation. In addition, it is abundant in resistant starch which includes the development of healthy bacteria, in turn aiding in soft bowel movements. It also works best in clearing body waste products as well as toxins (http://beforeitsnews.com/health/2013/05/the-massive-benefits-of-rice-flour-2485958.html).

Moong dal is extremely light and easy to digest. It is easier to cook but lacks the fiber content of whole green moong. Compared to other dals, moong dal is one of the low carb pulses available. They are a good source of proteins (http://healthifyme.com/blog/many-benefits-moong-dal/). They are also a high source of nutrients including manganese, potassium, magnesium, folate, copper, zinc and various B vitamins (http://draxe.com/mung-beans-nutrition).

Soya Nuggets is a very good and complete source of proteins, i.e., they carry all the essential amino acids. Also, it has Isoflavones which are associated with reduction of hot flashes (flushing due to reduced levels of estradiol) in post-menopausal women (https://en.wikipedia.org/wiki/Isoflavones#Potential_health_effects) (https://en.wikipedia.org/wiki/Hot_flash). It is also found to be rich in B – vitamins and omega-3-fatty acids.

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Wheat Bran is very rich source of insoluble fiber. It also contains unsaturated fatty acids which increases good cholesterol in the body (http://health.onehowto.com/article/what-are-the-benefits-of-eating-wheat-bran-2698.html).

Therefore, one serving of this recipe will provide maximum amount of energy and other nutrients.

OBJECTIVES

- To make an innovative and standardized product.
- To study the shelf-life of a product with the help of sensory evaluations.
- To understand the marketing and budgeting aspects of the product.
- To design a nutrition label.
- To identify a cost effective packaging material.

METHODOLOGY

Many products were thought of such as Multigrain Nachos, Low calorie muffins, Khakra and Multigrain pasta. Out of which Multigrain Nachos and Multigrain pasta were prepared and a sensory evaluation test was carried out. Based on the sensory evaluation test, Multigrain pasta which we named as "Nutri Foodles" was finalized.

MATERIALS

Materials/ingredients used in the preparation of product are: Rice flour, Moong dal flour, Soya nuggets flour, Wheat bran, Oil and Water.

The Foodles made were of 2 varieties:

Product Before Standardization

Variety 1:

Ingredients	**Amount**
Wheat flour	10 gm
Moong dal flour	10 gm
Soya Nuggets flour	10 gm
Wheat bran	10 gm
Ajwain	1 tsp
Water	40 ml

Variety 2:

Ingredients	**Amount**
Rice flour	10 gm
Moong dal flour	10 gm
Soya Nuggets flour	10 gm
Wheat bran	10 gm
Water	40 ml

It was observed that Variety 1 was brittle as compared to Variety 2 and also had an aftertaste of Ajwain. It was therefore standardized and Rice flour was finalized instead of Wheat flour.

Product After Standardization

Ingredients	**Amount**
Rice flour	10 gm
Moong dal flour	10 gm
Soya Nuggets flour	10 gm
Wheat bran	10 gm
Water	40 ml

Method of Preparation

Mix all the flour together

↓

Add water to it and form it into a dough

↓

Grease the extruder with little oil and fill the dough in it

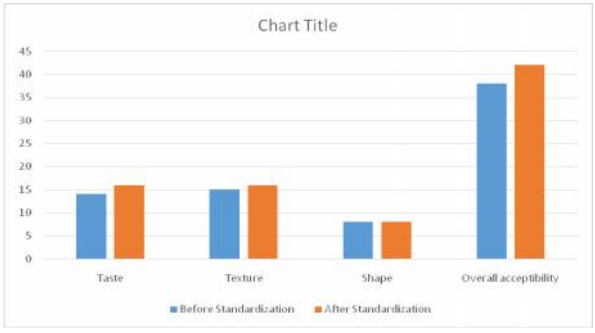
↓

Extrude the dough into desired shape and allow it to sun dry for at least 1 day (till they completely dry)

↓

Boil it in water for 5-10 minutes and serve it with any sauce or gravy of your choice

Figure 1: Result of First Sensory Evaluation Before and After Standardization of Foodles



Rating Characteristics

Sensory evaluation was carried out by 15 semi trained panelists. It was done by score card method. The product was evaluated for its four characteristics namely; taste, texture, shape and overall acceptability.

A composite scorecard was prepared:

Taste – 20 marks

Texture – 20 marks

Shape – 10 marks

Overall acceptability – 50 marks

Result was thus noted after the sensory evaluation. From the Figure 1 it can be seen that the scores of the standardized product were much higher and so it was finalized.

Sensory evaluation helped in finalizing the product before selling.

Figure 2: Result of Second Sensory Evaluation of Foodles

Rating Characteristics

Sensory evaluation was carried out by 12 semi-trained panelists. It was done by composite score card method. The product was evaluated for its four characteristics namely; taste, texture, shape and overall acceptability. There was no changed observed in the product even till the end of 1 month and therefore the packet was labelled as beset before 1 month.

Nutrition Label

Nutrition labelling is information found on the labels of prepackaged foods. These give you information about the nutritional value of a food. You can use this information to make healthier food choices and achieve overall good health. All of the information in the Nutrition Facts table is based on an amount of food. This amount is always found at the top of the Nutrition Facts table (https://en.wikipedia.org/wiki/Hot_flash).

Nutrition Facts

Serving Size 1/4 cup (50g)

Amount Per Serving	
Calories 190	Calories from Fat 3
	% Daily Values*
Total Fat 0g	**0%**
Saturated Fat 0g	**0%**
Trans Fat 0g	
Sodium 0mg	**0%**
Total Carbohydrate 35g	**12%**
Dietary Fiber 7g	**28%**
Sugars 0g	
Protein 14.92g	**30%**

*Percent Daily Values are based on a 2,000 calorie diet.

A nutritional label was designed which contained all the major nutrients present in the product along with the Net weight of the product (or serving size). Also the packet had the Logo of the product, Manufacturing date, Best before, Vegetarian mark and the Method of Preparation.

Packaging Material Used

Polypropylene (PP) was used as the packaging material for packing Nutri Foodles.PP known as polypropene, is one of

Figure 3: Packaging Material Used

Figure 3 (Cont.)

those most versatile polymers available with applications, both as a plastic and as a fibre, in virtually all of the plastics end-use markets. PP does not present stress-cracking problems and offers excellent electrical and chemical resistance at higher temperatures (http://cdn.intechopen.com/pdfs-wm/37229.pdf).

Budgeting

Materials	**Amount (in Rs.)**
Rice Flour (½ kg)	Rs. 22
Moong Dal Flour (½ kg)	Rs. 90
Soya Nuggets Flour (½ kg)	Rs. 50
Wheat bran (½ kg)	Rs. 10
Oil (10 gms)	Rs. 10
Plastic Packets (30 nos.)	Rs. 10
Nutrition Label – 2 types = 60 nos.	Rs. 90
Gas, Electricity charges	Rs. 20
Total	Rs. 302

30 samples were prepared and were sold at Rs. 15/- each (total Rs. 450). The profit made was Rs. 148/- in the sale of our product. Budgeting helped us to know more about financing the contents of our product in order to make a good business.

CONCLUSION

Thus, a multi-nutrient innovative snack was developed and other aspects such as sensory evaluation techniques, budgeting, packaging, nutrition label designing were studied. A positive feedback was received from the consumers.

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