



A Study of Healthy Hoppers - A Modified Food Product

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ABSTRACT

A modified product Healthy Hoppers, was developed for sedentary adult women. Hopper is the Sri Lankan name given to a South Indian traditional recipe "Appa", made of rice and Phaseolus mungo (black gram dal). The modified recipe was made with keeping the main ingredients intact, with an addition of Phaseolus aureus (green gram dal), Eleusine

Coracana (ragi), Triticum aestivum (semolina) has high amounts of calcium, which is required for adult women, being more vulnerable to osteoporosis, it has fair amounts of iron. Green gram dal has good amounts of protein, required for the repair of body tissues and functioning of antibodies resisting infection. Semolina is also a good source of protein and it has been added to this product to give crispness. Flaxseeds have beneficiary effect to improve serum triglycerides, cholesterol levels, hemoglobin levels and are a good source of calcium. Sesame seeds have anti glycaemic effect, is rich in protein, calcium, fiber and also plays an important role to reduce BP. The vegetables used are good sources of Vitamin A and Vitamin C and are also rich in fiber.

The hoppers were served with green chatni, which was enriched with antioxidants and iron content. This delicious accompaniment provides fair amounts of iron, protein and vitamin C. It is helpful in improving the appetite and bowel functions. A wellknown dessert "Kharvas" was served as the dessert which is a very rich source of proteins.

KEYWORDS :

Introduction:

In India, protein, iron and calcium deficiency among women constitutes a major public health problem. When the calorie need itself is not adequately met, even the small amount of protein available is utilized for energy needs resulting in inadequacies of these nutrients.¹ At the same time in the global scenario, India has a prime position in pulse production. Very recently, attempts have been made to incorporate *Eleusine Coracana* (ragi) at various levels in several indigenous preparations of India.³

Considering all the above factors, an innovative recipe "Healthy Hoppers" was prepared to fulfill the nutrient needs of women, also meeting the palatability requirements. Healthy Hoppers are a modification of the traditional South Indian recipe "Appa".

All the ingredients used, have functional properties useful for nutrient deficient people.

Objective:

1. To develop entrepreneurship skills.

2. To study the acceptability through sensory evaluation.
3. To standardize a food product.
4. To provide the consumer, an innovative and healthy product.⁴

Materials and Methods:

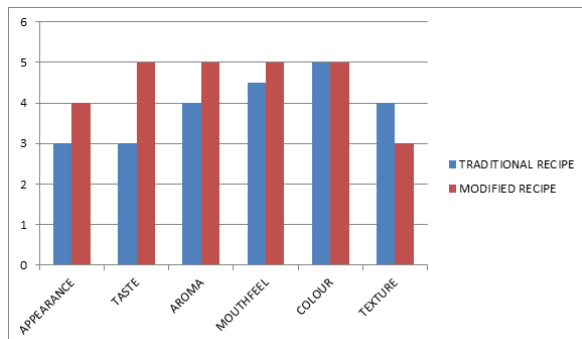
The Masters course in Dietetics and Food Service Management provides a platform to inculcate entrepreneurial skills in the students under the subject Entrepreneurship and Food Service Management. As there was a plan to develop a modified fermented food product, Healthy Hoppers were selected, considering protein, iron and calcium deficiencies in the target group sedentary adult women.

Sensory evaluation was done by 20 naive panelists using Scoring test. Attributes to be considered were appearance, taste, aroma, mouth feel, colour and texture; and scored out of 5, where

0 = very poor

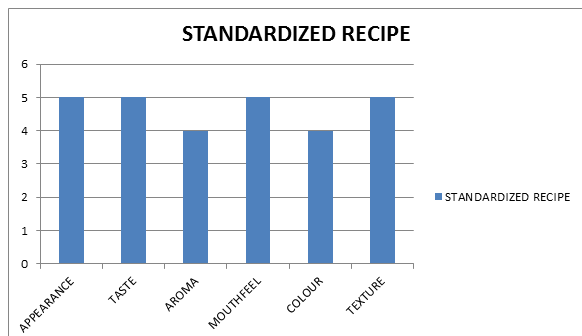
1 = poor

- 2 = average
- 3 = good
- 4 = very good
- 5 = excellent



The product was first made without the use of *Triticum aestivum*¹(semolina), but the acceptability was found to be less because of the less crispness. After the use of *Triticum Aestivum*¹(semolina) the sensory evaluation was re-conducted on 20 naive panelists, using same attributes and scores, where easily accepted by the panelists.

The recipe Healthy Hoppers was standardized and again sensory evaluation was done, using scoring test, by 20 naive panelists, using same attributes and scores.



From the above figure, it can be observed that the texture scored the highest, i.e. very good, appearance and taste was also very good; while aroma, mouth feel and colour were found to be good. Therefore, it was found that the product was acceptable and hence, it was finalized for the study. The product was made in bulk for further marketing.

Comparison between the traditional and modified product:

NUTRIENTS	T R A D I T I O N A L PRODUCT	MODIFIED PRODUCT
Energy	171Kcal	258Kcal
Protein	6g	9g
Iron	0.8mg	3mg
Calcium	24.03mg	85.5mg

Standardized recipe:

INGREDIENTS	AMOUNT(g)
<i>Oryza sativa</i> (rice)	15
<i>Phaseolus mungo</i> (black gram)	5
<i>Phaseolus aureus</i> (green gram)	5
<i>Eleusine coracana</i> (ragi)	10
<i>Triticum aestivum</i> (semolina)	5
Carrot	25
Cabbage	25

Onion	25
Flaxseed	5
Sesame seeds	5
Oil	5

Method:

1. Soak rice, black gram dal and green gram dal for 5-6 hours. Grind them into a paste. Mix ragi and semolina to the paste and allow it to ferment overnight.
2. Grate carrot, cabbage and chop the onions. Add them to the batter.
3. Heat oil in a pan, add mustard seeds, jeera and sesame seeds. Add this to the batter. Add salt for taste.
4. Now put a little oil in the Appe pan, add flaxseeds to it. then put the batter and let it cook for 10-15minutes. Turn on the other side and let it cook for 5 minutes.
5. Serve with green chatni.

Budgeting:

Budgeting is establishing a planned level of expenditures, usually at a fairly detailed level. It helps in providing insight to where your money is being allocated and how to most effectively manage it. It helps in achieving the target and to gain maximum profit. For bulk production, all the ingredients were bought from a wholesale shop. Budgeting was done for 65 pieces (1kg).

Total 65 pieces were made of Rs.0.84 each, which were sold at Rs.1.50 each considering the profit.

EXPENDITURES	PRICE
Raw ingredients	Rs.400
Labour charges	Rs.50
Electricity	Rs.20
Gas supply	Rs.10

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