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A STUDY ON FORMULATION AND STANDARDIZATION OF GREEN GRAM COOKIES

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Abstract

Cookies are popular snacks widely consume all over the world by all age group people. The major attraction of cookies is that it is produced in wide variety. Green gram is also rich in vitamin A, B1, B2 and Niacin, Vitamin C, calcium, phosphorous. Our study was focused on utilization of green gram in cookies could avail the consumers a protein rich food products. Refined wheat flour, Green Gram flour, sugar, olive oil, baking powder were used for prepared the Green gram flour was produced and make a different ratio 50 percent C1 and 75 C2 percent green gram flour mixed with wheat flour. The ratio of C1 is more acceptable than C2 on the basis of sensory evaluation. It can be concluded that Green Gram bean cookies is good option for supplementation of protein.

Keywords: Cookies, Green gram, malnutrition, Sensory evaluation,

I INTRODUCTION

green gram is one of the important pulse crop in India. It has been reported that Green gram has been cultivated in India since ancient times.. It i nes.. It is believed that Green gram is a native of India and Central Asia and grown in these regions since prehistoric times. It is widely cultivoordat vietnam, the Asia, including India, Pakistan, Bangladesh, Sri Lanka, Thailand, Laos, Cambodia, Vietnam, Indonesia, Malaysia, south China, and Formosa. In Africa and U.S.A. it is probably recent. Green gram is a protein rich staple food. It contains about 25 percent protein, which is almost three times that of cereals. It supplies protein requirement of vegetarian population of the country. It is consumed in the form of split pulse as well as whole pulse, which is an essential supplement of cereal based diet. The moong dal Khichdi is recommended to the ill or aged person as it is easily digestible and considered as complete diet. Roti with Moong dal and Moong dal chawal is an important ingredient in the average Indian diet.

The biological value improves greatly, when wheat or rice is combined with Green gram because of the complementary relationship of the essential amino acids. It is particularly rich in Leucine, Phenylalanine, Lysine, Valine, Isoleucine, etc. In addition to being an important source of human food and animal feed, Green gram also plays an important role in sustaining soil fertility by improving soil physical properties and fixing atmospheric nitrogen. It is a drought resistant crop and suitable for dryland farming and predominantly used as an intercrop with other crops

Pulses, or grain legumes in general, are an essential source of supplementary protein. They provide energy, protein, essential minerals, vitamins and several compounds considered beneficial for good health. Their cultivation enriches soil by adding nitrogen and improves the physical, chemical and biological properties. They are also well suited to diverse environments and fit in various cropping systems owing to their wide adaptabilty, low input requirements, fast growth, nitrogen fixing and weed smothering ability.

Their short growing period and photoperiod sensitivity make them suitable for crop intensification and diversification. Notwithstanding their high production potential, their productivity is generally lov as they are cultivated on poor lands, with no or little inputs, and are susceptible to several abiotic an biotic stresses. Green gram (Vigna radiata L.) also known as Mung bean and Ndengu in Kiswahili one of the potential food and cash crop pulses that have been observed to perform well in the ar regions of Kenya. The crop is commonly grown in central, south Nyanza, eastern and coastal region The grain is characterized by good digestibility, flavour, high and easily digestible protein and absen of any flatulence. Its seed contains contain approximately 374 Kcal, 23.9% protein, 1.2% fat, 16.3 dietary fiber, 4.5-5.5% ash, 63% carbohydrates on dry weight basis. It is also a crucial source vitamins A and B complex.

It also contains generous amounts of micro-nutrients such as iron and zinc which are deficient in di among the poor, particularly pregnant women and children in Africa. Green gram in Kenya is main grown by smallholder farmers, where it is often cultivated in unfavourable conditions and w minimum inputs. The production is severely constrained by low yielding varieties, disease and ins pests, variable climatic and soil conditions, lack of access to improved varieties, long maturing varie and poor crop management practices.

This manual will help address some of these challenges by providing information on improved vario and appropriate crop management practices aimed at increasing production in the country. The mar is intended to help farmers, extension personnel, researchers and other stakeholders in Kenya to g green gram more sustainably and profitably

II MATERIALS AND METHODS

This chapter deals with the materials and methods adipoed for studying "Standardization and Formulation of Green gram incorporated with cookies". The study was conducted in the Department of Food Science and Processing Management, Subbulakshmi Lakshmipathy College of Science (Autonomous), Madurai. The Nutrient analysis was done in the Excellence laboratory,

MATERIALS

PROCUREMENT OF RAW MATERIALS

The raw materials such as Green Gram, Fat, Jaggery, and Water were purchased from Departmental stores in madurai.

UTENSILS

Stainless steel vessels, mixing bowls, glass, spoons, and plates were med for preparing ind serving the developed products.

ENERGY SOURCES

Oven is used for beating and batter is used for grinding

WEIGHING BALANCE:

An electronic weighing balance machine with 0.1 accuracy is used to determine the sample's weight and raw material's weight.

METHOD

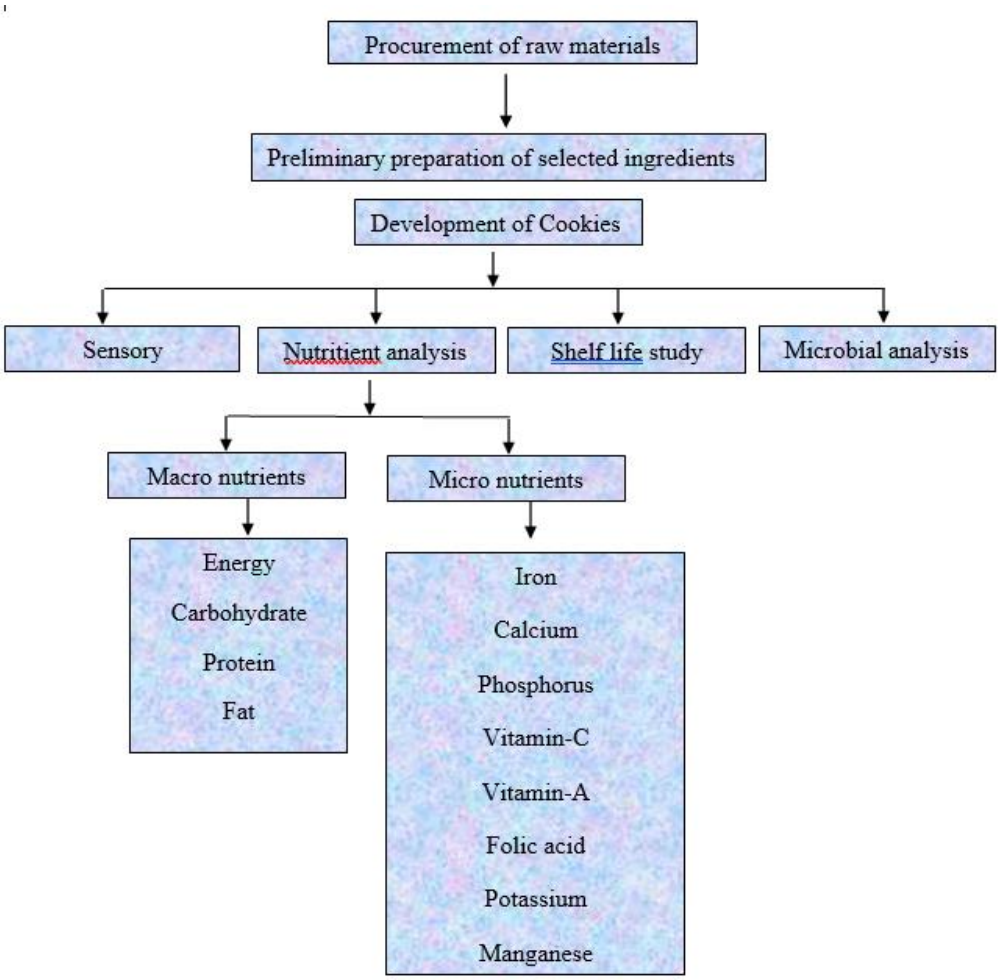
The weighed green gram was cleaned to remove forign material. Then it was soaked in water for 30 mins. The tamarind and banana were ground to make pulp. The Green Gram Cookies was prepared by dough, and jaggery according to different proportions. These palps were thermally processed at 180° C for 20 mins. Aller heating the cookies were spread in a tray containing butter sheet. Then the cookies were cutter into round shape.

Table 1 The proportion of ingredients used to prepare and its variations

S.NO	INGREDIENTS	QUANTITY		
		Control	GGC1	GGC2
1.	Green Gram flour	100g	75g	50g
2.	Jaggery	200g	200g	200g
3.	Fat	-	25g	50g
4.	Venila essence	5ml	5ml	5ml
5.	Wheat flour	5g	5g	5g
6.	Egg	10g	10g	10g

- GGC 1 (Sample A) - 75% Green Gram incorporated Cookies
- GGC 2 (Sample B) - 50% Green Gram incorporated Cookies

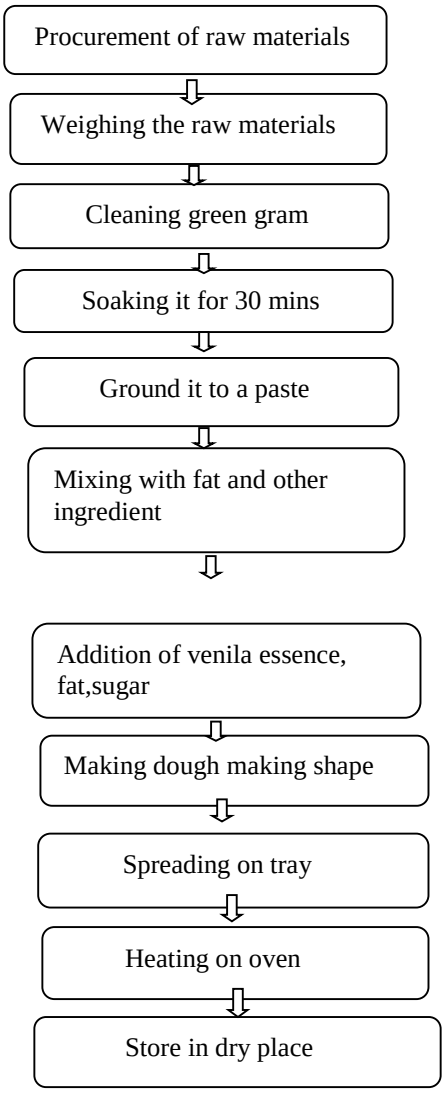
Figure 1 Flow chart for the Green Gram Cookies



Procedure:

The weighed green gram was cleaned to remove forign material. Then it was soaked in water for 30 mins. The tamarind and banana were ground to make pulp. The Green Gram Cookies was prepared by dough, and jaggery according to different proportions. These palps were thermally processed at 180° C for 20 mins. Aller heating the cookies were spread in a tray containing butter sheet. Then the cookies were cutter into round shape. The cookies was prepared as mentioned in the flow diagram.

figure 2 Preparation of Moringa leaves powder



III.RESULT AND DISCUSSION

ORGANOLEPTIC OR SENSORY EVALUATION

The Institute of Food Technologies (IFT) defines sensory evaluation as a. “Thescientific discipline used to evoke measure, analyze, and interpret those reactions to characteristics of food and raw materials as perceived through the senses of light, smell, taste,touch and healing.

When the quality of a food product is assessed by means of human sensory organs, theevaluation is said to be sensory or subjected or organoleptic evaluation. Sensory quality is a combination of different senses of perception coming in choosing and eating a food. Appearance, flavour and mouth feel decide the Acceptance of the food.

The developed food product along with its variation was evaluated by the trained, semi-trained and consumer panels by using 5-point hedonic scale rating**.**

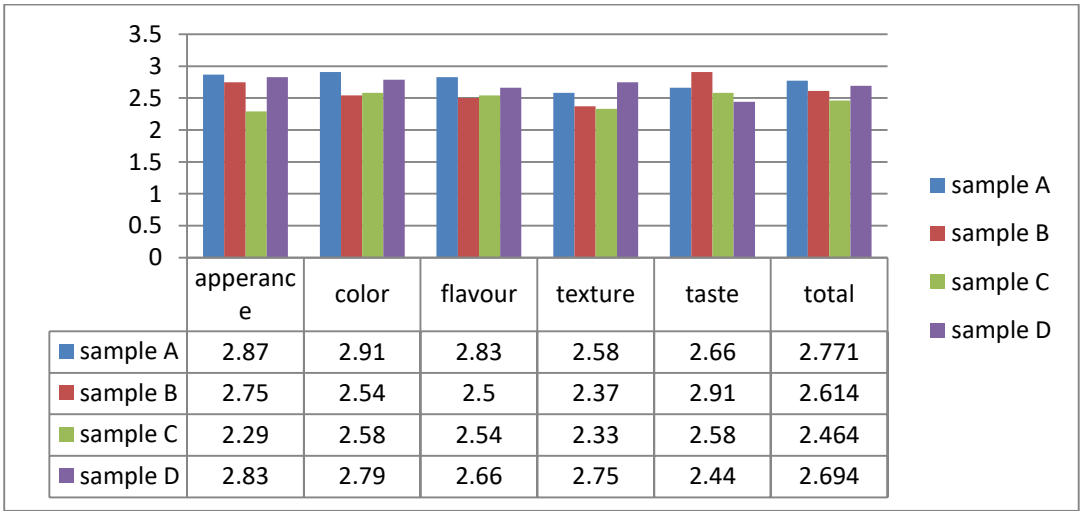
Table 2 Mean score obtained for the overall acceptability of Green Gram Cookies

Characteristics	Sample A	Sample B	Sample C	Sample D
Appearance	2.87	2.75	2.29	2.83
Colour	2.91	2.54	2.58	2.79
Flavour	2.83	2.5	2.54	2.66
Texture	2.58	2.37	2.33	2.75
Taste	2.66	2.91	2.58	2.44
Total	2.771	2.614	2.464	2.694

Sensory Evaluation was conducted between 30 members with trained, semi-trained, anduntrained panelmembers.Among that Sample D which is the control scored a high rating of 2.75 in texture.

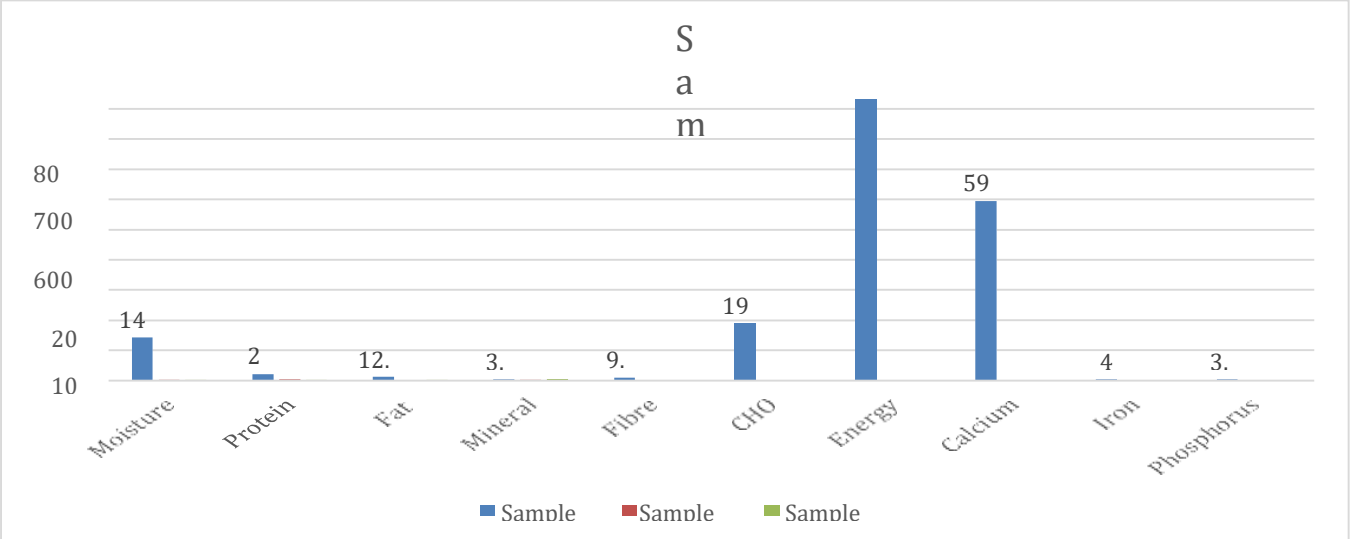
Sample A scored a high rate of in appearance, 2.87 in colour,2.91 in flavor 2.83 and2.66 in taste. Overall acceptability was scored by the sample A of ratings 2.771 which contains 100g green gram and 70 g normal sugar

Figure 3 Sensory Attributes of Green Gram Cookies (sample B)



	apperance	color	flavour	texture	taste	total
sample A	2.87	2.91	2.83	2.58	2.66	2.771
sample B	2.75	2.54	2.5	2.37	2.91	2.614
sample C	2.29	2.58	2.54	2.33	2.58	2.464
sample D	2.83	2.79	2.66	2.75	2.44	2.694

Figure 4 Nutritive value for Green Gram l (Sample B)



IV. Nutrient analysis of the standardized Cookies

Energy present in Green Grans Cookies is 957.62. Protein present in Green Gram Cookies in2.781. Fat present in Green Gram Cookies is 3.516. Mineral present in Green Gram is 2.687. Fibre present in Green Gram Cookies is 2.301. CHO present in Green Grunt Cookies 228.511. Calcium present in Green Gram Cookies is 219.15. Phosphorous present in Greet Gram Cookies is 139.3. Iron present in Green Gran Cookies is 9.6145. Carotone present in Green Gram Cookies is 73.5. Thiamine present in Green Gram Cookies is 0.0435. Riboflavin present in Green Gram Cookies is 0.0825, Niacin present in Green Gram Cookies is 0.574 Vitamin C present in Green Gram Cookies

CONCLUSION

The Formulation and Developed Green Gram Cookies is more nutritious snack for the children this study consider, the Green Gram Cookies was organized in three different extent to assess the generally adequacy of the Green Gram Cookies. Five-point hedonic scale rating is rating is utilized for the assessment reason.supplement substance of the standardized item were assessed.

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