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Development of "Multigrain Baked Sticks" for Obesity

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ABSTRACT

The "MULTIGRAIN BAKED STICKS" was developed so as to obtain the value addition to the traditional fried product such as soy sticks, Chakli like products. Innovative idea behind the development of this product as, people in now days becomes more health conscious, so intake of balanced food diet is the correct way to prevent or even remedy health problems, such as obesity, CVD, diabetes, malnutrition, and other diseases. It's ingredients like Rice, Bengalgram, Greengram, Blackgram, Chilli powder, sesame seeds, Ajowain, showed their benefits in obesity. After designing the product sensory evaluation was conducted by using a 9 point hedonic scale for analyzing the modified product. The product was standardized.

Key words: *Baked sticks, Traditional, CVD, Obesity.*

INTRODUCTION

In todays life style people prefers snack foods because of the light and quick meal that can be consumed anywhere and anytime compared to the main meal. Besides, by living in a very hectic and fast lifestyle also lead many people to consume snack foods in a way to prevent them from hunger. The demand for healthy, nutritious and safe food is growing worldwide. Intake of balanced food diet is the correct way to prevent or even remedy health problems, such as obesity, diabetes, malnutrition, cardiovascular and others, which largely originate from dietary mistakes.

Multigrain product is prepared by mixing two or more grains together. Its basic principle lies in the fact that each grain has its own nutritional profile, hence combining two or more grains may give additional nutrients. Thus multigrain product provides bundle of nutrients, which may not be sufficiently available through single grain consumption. Apart from balanced nutrition multigrain product provides variety of phytochemicals, flavors also improve the textural and sensory quality of the product. The combination of Rice flour, Green gram flour, Bengal gram flour, Black gram flour contains high amount of energy, protein with essential amino acids composition along with vitamins and minerals content, will enhance the nutrients value of homemade products which would be consider beneficial for malnourished population.

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Traditional foods play an important role in local identity, consumer behaviour, the transfer of cultural heritage for future generations, and the interaction of this heritage with the rest of the world[19]. By Keeping this view in mind we introduce traditional product in new form as "Sticks" that are produced using different combination of ingredients. Cereal sticks is popular product and at present they are mostly made from gram, rice etc.

Rice is one of the major cereal crop consumed in India. A glutelin (oryzenin) is the principal protein of rice. Rice also contains small quantities of albumin, globulin and prolamins. Bengal gram protein is the best pulse protein owing to its high net-protein-utilization value.,Bengal gram protein is the best pulse protein owing to its high net-protein-utilization value.Continue eating blackgram regularly, will prevent certain complications that may arise due to malnutrition in diabetic patients (FOODS FACTS AND PRINCIPLES by N. Shakuntala Manay).

MATERIAL AND METHODS

Developing the food product –

- Multigrain flour that consists of Rice, Bengal gram dal, Green gram dhal, Black gram dhal, Ajwain, Sesame seed, Chilli powder.
- Small amount of oil also added to get proper texture to sticks during baking.
- Sesame seeds that are rich source of calcium were also added.

FLOWCHART

Roasting of ingredients

⇩

Grinding separately

⇩

Mixing of ingredients

⇩

Addition of oil and warm water with other spices

⇩

Kneading of dough

⇩

Pass through Hand press extruder/chakli maker

⇩

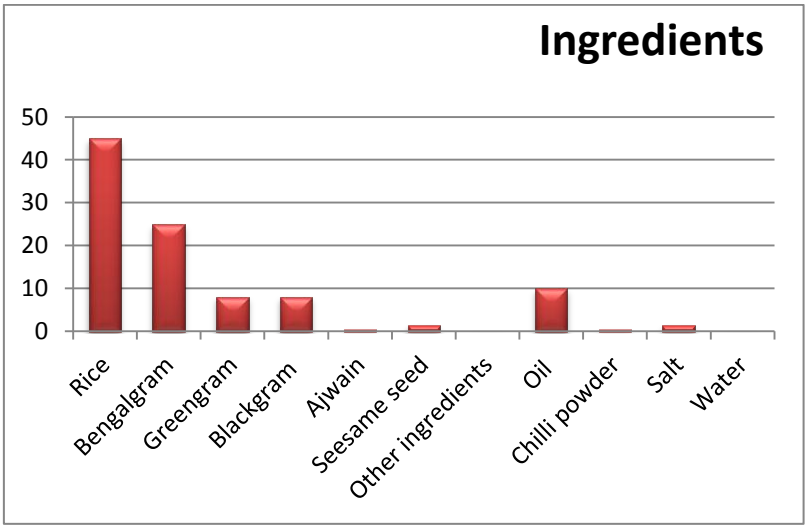
Baking (140 ^{0}C to 180 ^{0}C for 10-15 mins)

Preparation of Sticks:-

1. Take proper amount of all flours.
2. Add oil other spices and mix well to it and mix well with hands and knead the mixture with little water to make smooth dough.
3. Leave the dough covered for 20 minutes.
4. Dough is ready to make sticks.
5. Round the Sticks by hand sticks maker.
6. Bake it at 180 degree Celsius in an Oven for 10-15 mins.
7. Allow to Cool and pack it.

Table-1 Ingredient proportion for Multigrain baked sticks

	Ingredients	Quantity (gm)
1	**Rice**	45
2	**Bengalgram flour**	25
4	**Greengram flour**	8
5	**Blackgram flour**	8
6	**Ajwain**	0.5
7	**Seesame seed**	1.5
8	**Other ingredients**	
	Oil	10
	Chilli powder	0.5
	Salt	1.5
	Water	
	Total	**100.00g**



NUTRITIONAL ANALYSIS

The nutritional evaluation of supplementary foods i.e. moisture content, fat content, protein content, ash content, crude fiber, was carried out by A.O.A.C method.

SENSORY ANALYSIS

Sensory analysis is a scientific discipline that applies principles of experimental design and statistical analysis to the use of human senses sight, smell, taste and touch for the purposes of evaluating consumer products. It requires panels of human assessors, on whom the products are tested, and recording the responses made by them. By applying statistical techniques to the results it is possible to make inferences and insights about the products under test. Most large consumer goods companies have departments dedicated to sensory analysis

Sensory evaluation of the sample was carried out by students and staff of the department of K. K. Wagh College of Food Technology using nine point's hedonic scale. Attributes like taste, colour, texture, flavour and overall acceptability was scored based on its intensity scaled. 9-Point Hedonic Scale has been used the purpose. The sensory score given by the panel have been evaluated for the sensory result.

Sensory Evaluation Card: (9–Point Hedonic Scale)

Average of sensory analysis data-

Score between 1-9 as per liking

9-Like very much 8-Like much

7-Like moderately 6-Slightly like

5-Neither like, nor dislike 4-Slightly dislike

3- Dislike moderately 2- Dislike much

1- Dislike very much

NUTRITIONAL ANALYSIS

The nutritional evaluation of supplementary foods i.e. moisture content, fat content, protein content, ash content , crude fiber, fatty acid was carried out by A.O.A.C method.

RESULTS AND DISCUSSION

Sensory evaluation was done to find the acceptability of the product on the basis of ranking scale with the characteristics of colour, texture, aroma, concept, taste and after taste.

Table-2 Sensory evaluation card

Organoleptic score						Remark
Colour	Taste	Flavour	Texture	Appearance	Overall accep-tability	
8.0	8.5	8.5	8.0	8.5	8.3	Like much

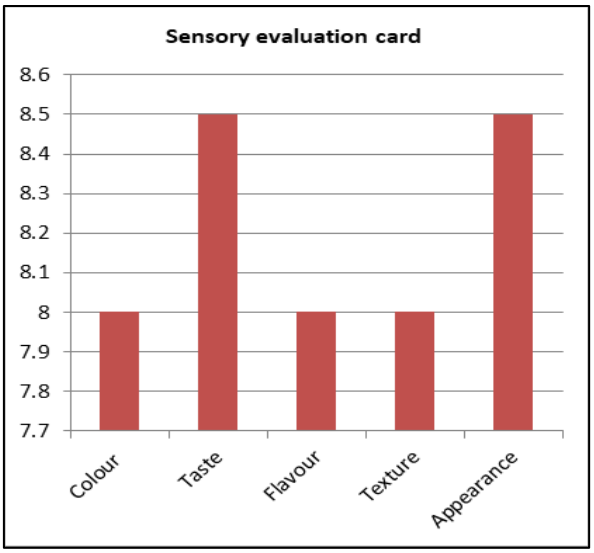
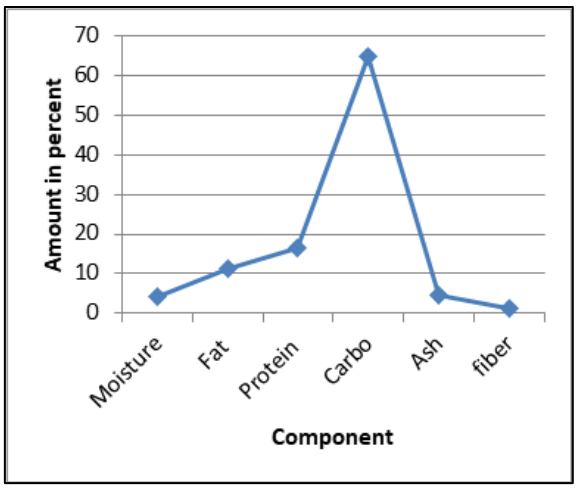


Table- 3 Nutritional composition of product

Sr. No.	Particulars	Results (%)
1	Moisture Content	4.1
2	Fat Content	11.4
3	Protein Content	16.6
4	Carbohydrate	64.9
5	Ash content	4.5
6	Crude fiber	1.07



The multigrain Baked sticks are good source of Carbohydrates, Protein. The product is protein rich because of the major ingredients of the product are Pulses and pulses are rich in protein. It contain less amount of Fat, due to that the product is helpful for obeys persons.

CONCLUSION

The "MULTIGRAIN BAKED STICKS" was developed so as to obtain the value addition to the traditional fried product such as soy sticks, Chakli like products. Innovative idea behind the development of this product as, people in now days becomes more health conscious, so intake of balanced food diet is the correct way to prevent or even remedy health problems, such as obesity, Cardio Vascular Diseases (CVD), diabetes, malnutrition, and other diseases.

The Samples main ingredient contains Rice flour, Green gram flour, Bengal gram flour, Black gram flour with varying proportions. The selected sample we found Moisture: 4.1 %, Ash: 4.5%, Protein: 16.6 %, Fat: 11.4%, Carbohydrates: 64.9%, Crude fibre: 1.07%. Microbial analysis was carried out and we got result that product kept at room temperature had shelf life 30 days.

REFERENCES

1. Jukanti, A. K., Gaur, P. M., Gowda, C. L. L. and Chibbar, R. N., Nutritional quality and health benefits of chickpea (Cicer arietinum L.): A review. *British Journal of Nutrition* **108:** S1, Pages S11-S26 (August 2012).
2. Yasmeen, A., Yaseen, T., Nasreen, Z., Ali, S., Usman, S. and Nazir, S., Development of health foods from black gram (mash), *Sky Journal of Agricultural Research* **4(3):** pp. 042 – 046 (2015).
3. Marotirao, C. P., Thesis on Development Of Process Technology For Nutritional Multigrain Bar And Storage Studies, College Of Food Technology Vasantrao Naik Marathwada Krishi Vidyapeeth Parbhani - 431 402 (M.S.) India (2017).
4. Verma, D. K. & Shukla, K., Nutritional value of Rice their importance, *Indian Farmers Digest*, **44(1):** PP 21-23 (19 May 2014).
5. Food Facts and Principle by *N. Shakuntala Manay*.
6. Gopalan, C., Rama Sastri, B. V. and Balasubramanian, S. C., Nutritive Value of Indian Foods, National Institute of Nutrition, ICMR, Hyderabad (2004).
7. Kavya, N., Kavya, B., Ramarao, V., Kishore Kumar, R. and Venkateshwarlu, G., Nutritional and therapeutic uses of mudga [vignaradiata]: a potential interventional dietary componentArticle in *International Journal of Research in Ayurveda and Pharmacy* (2014).
8. Rosy, K., *et al.* Development and sensory optimization of low cost micronutrient rich nutritious product by using locally available food resources-ISSN 2320 -7876 *International journal of food and nutritional sciences* **5(1):** (2016).

9. Maynard, A. G., Method in food analysis, Academic press New York pg. no.176 (1970).
10. Ofuya, Z. M., Akhidue, V., The Role of Pulses in Human Nutrition: A Review, *J. Appl. Sci. Environ. Mgt.* **9(3):** 99 – 104 (2005).
11. Gaur, P. M., *et al*. Nutritional quality and health benefits of chickpea (Cicer arietinum L.): A review.) Article in *The British journal of nutrition* DOI: 10.1017/S0007114512000797 Source: PubMed (2012).
12. Prabha, R., Chaudhari, Tamrakar, N., Singh, L., Tandon, A. and Sharma, D., (Rice nutritional and medicinal properties: A review article), *Journal of Pharmacognosy and Phytochemistry* **7(2):** 150-156 (2018).
13. Dahiya, P. K., Nout, M. J. R. and Martinus, A., van Boekel Nutritional characteristics of mung bean foods, Article in *British Food Journal* · DOI: 10.1108/BFJ-11-2012-0280 (May 2014).
14. Golhani, R., Thesis on Standardization Of Instant Chakli Mix Using Kutki And Different Pulses, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur. PP 1-4 (2015).
15. Kamboj, R. and Nanda, V., Proximate composition, nutritional profile and health benefits of legumes – A review, *www.arccjournals.com/www.legumeresearch.in*, DOI: 10.18805/LR-3748 (2017).
16. Rohman, A., Helmiyati, S., Hapsari, M. and Setyaningrum, D., Rice in health and nutrition, *International Food Research Journal* **21(1):** 13-24 (2014).
17. Saiyed, S. and Sengupta, R., Multigrain baked sticks for obesity e-ISSN 2320 – 7876 *International journal of food and nutritional sciences* **3(3):** (2014).
18. Patekar, S. D., More, D. R. and Satwadhar, P. N., Studies on Preparation and Nutritional Quality of Sorghum-Fingermillet Chakli, *International Journal of Current Microbiology and Applied Sciences* ISSN: 2319-7706 **6(7):** pp. 1381-1389 (2017).
19. Sarangam, S., Chakraborty, P., Chandrasheker, G., Development of Low Fat Multigrain Murukku - A Traditional Savoury Product, *International Journal of Research in Agriculture and Forestry* – **2:** PP 15-24 (2015).
20. Taylor, C., Wallace Robert Murray and Kathleen M. Zelman The Nutritional Value and Health Benefits of Chickpeas and Hummus (2016).
21. Verma, A., An analysis of multigrain testing for their nutritional availability *The Pharma Innovation Journal*; **6(8):** 77-80 (2017).
22. http://www.livestrong.com/article/505486-green-gram-dal-healthbenefits/
23. www.pulseaus.com.au