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BAKED SOY SEV

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ABSTRACT

Development of innovative product was carried out to develop a healthy product and check the storage stability of snack food prepared by using processed soy flour. The main objective to use soy flour is to develop comparatively low glycemic index food for diabetic patients. Soy flour having low glycemic index was been chosen for making the product. Early studies showed that starchy carbohydrates food have very different effects on postprandial blood glucose and insulin responses in healthy and diabetic subjects ,depending on the rate of digestion. Soy bean is soaked, dried and milled in order to reduce the effect of enzymes in raw flour that affects the pancreatic functioning causing pancreatic hypertrophy. Keeping health as a major concern innovation of the traditional sev recipe is undertaken. Innovation is brought about by replacing besan with soy flour and essentially deep frying with baking.

Keywords: Soy flour, low glycemic index, innovation, baking.

INTRODUCTION

Sev is a popular Indian snack food. It is available in small pieces of crunchy noodles made from chickpea flour paste which is seasoned with turmeric and chilly powder and deep-fried in oil. These noodles vary in thickness. Ready-to-eat varieties of sev, including flavored sev are available in Indian stores. Sev is eaten as a standalone snack as well as a topping on dishes like Bhelpuri and Sev puri. This popular snack being tasty and tempting is simultaneously full of fats as it is deep fried. To enhance the taste the flour is seasoned with chilly powder, turmeric, sesame seeds and carom seeds. With growing concern of diet, weight control and general health, government bodies are recommending to the peoples and making a conscious effort to eat healthier, natural snacks such as fruit, vegetable, nuts and cereal grains while avoiding high-calorie, low-calorie nutrient junk food. In light of above discussions, a study on the development of snack foods was undertaken using soy flour.

MATERIALS AND METHODS

While developing a food product suitable for a diabetic, it should not only help in maintaining blood glucose level but also benefit in preventing cardiovascular diseases and preventing from other health complications.

BASIC PREPARATION OF SOY flOUR – DRY HEAT METHOD

- Soak the beans: Cover the soybeans with several times their volume of water and soak for 8 hours. Drain the beans.
- Bake the beans: Spread the beans in a single layer on a baking sheet and bake them at 350° F (175° C) For 15 minutes.
- Stir the beans and bake for 10 minutes longer, stirring once or twice more may also baked in a covered pan over a cooking stove.
- Grind to grits or flour: Use a grain mill, blender, or hand crusher to grind the beans coarsely or more finely into flour.

METHOD FOR BAKED SOY SEV

Dry roast the processed soy flour. Keep it aside to cool. Heat 10gm oil. Add the heated oil and all the spices into the flour and knead the dough using lukewarm water. Keep the dough aside for 10 minutes to rest. Put the dough in a sev making machine and place the sev on a greased baking tray. Place the baking tray in a pre-heated oven at 180°C for 5-6minutes depending upon the thickness. Heat the remaining oil in a wok. To the oil add red chilies, curry leaves, peanuts and baked sev. Season it with chat masala, coriander & cumin powder to it.

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.

SENSORY EVALUATION OF PRODUCTS

Prepared *sev* were subjected to sensory analysis based on 9-point hedonic scale for color, taste, texture,

flavour and overall acceptability using a panel of 10 members who are familiar with the product since childhood. Panel members were advised to use verbal descriptions and convert them into scores.

EVALUATION OF THE PRODUCT

Sensory evaluation was done to find the acceptability of the product on the basis of ranking scale with the characteristics of color, texture & aroma, concept, taste and after taste. This test was done by 14 naive panel members and 4 expert panel members. The ranks were categorized as 1 – poor, 2 – fair, 3 – good, 4 – very good and 5 – excellent.

STATISTICAL ANALYSIS

The data includes mean scores for each sample as tested by both un-trained and semi- trained panelists. The results of sensory evaluation were split by panelist type and each group was individually subjected to one way analysis of variance (ANOVA) test was used to determine the differences of the mean scores for appearance, smell, taste, consistency, and general acceptability at $P < 0.05$.

RESULTS AND DISCUSSION

Table 1 and table 2 showed the difference between the prepared soy sev and commercial soy sev. Traditional recipe is higher in fats than modified product. The fats in the traditional recipe are more of saturated fat as it is deep fried. Soya bean contains good amount of complete protein therefore the product contains good amount of protein, total dietary fiber (TDF) and low sodium as compared to the traditional recipe. Deep frying was essentially replaced by baking reducing its fat content

thereby preventing from development of further complications.

Table 1 –Sensory evaluation report

Characteristics	Naive panel members (average)	Expert panel members (average)	Out of
Color	4	4	5
Texture & aroma	4	3.5	5
Concept	4	4.5	5
Taste	4	4	5
After taste	3.5	3	5
Total	20	20	5
Percentage	80%	80%	100%

Table 2 – soy sev Sensory evaluation report

Characteristics	Naive panel members (average)	Expert panel members (average)	Out of
Color	5	5	5
Texture & aroma	5	5	5
Concept	5	5	5
Taste	5	5	5
After taste	5	5	5
Total	25	5	25
Percentage	100%	100%	100%

Table 3 - Nutritive value of the baked soy sev

Ingredients	Amount (gm)	Energy (Kcal)	CHO (gm)	Protein (gm)	Fat (gm)	TDF (gm)	Na(mg)
Soya flour	100	330	38	47	1	17	20
Caraway seeds (*ajwain*)	6	28	3	1	1	2	1
Sesame seeds	6	22	1.25	0.9	2.16	0.85	
Groundnuts	5	28	1.30	1.26	2	0.55	-
Chana dal	7.5	28	4.5	1.56	0.42	1.14	5.47
Flaxseeds	5	27	1.5	1	1.9	1.37	-
Salt	2	-	-	-	-	-	775
Oil	10	90	-	-	10	-	-
Total		**553**	**49.5**	**52.7**	**18.1**	**22.9**	**801.47**

Table 4- Nutrient comparison between Besan sev and Baked Soy Sev

Sr. No	Nutrients	Units	Besan sev	Baked soy sev	RDA for men	RDA for women
1	Energy	Kcal	634	553	2320	1900
2	CHO	Gm	61	49.5	-	-
3	Proteins	Gm	23	52.7	60	55
4	Fat	Gm	33	18.1	25	20
5	TDF	Gm	19	22.9	25	38
6	Na	Mg	2390	801.4	1.5	1.5

NUTRITIONAL COMPOSITION OF BAKED SOY SEV FOODS

Compositions of the formulated soy sev foods were given in Table 3. The amounts of various staples (cereals) and supplements (legumes) were calculated to provide 292 kcal and raise the protein level to 8% NPE as one third infants energy and protein requirement per day (Dewey and Brown, 2003). Nutrient comparisons between besan sevand soy sev were depicted in table -4. Compare with besan sev soy sev contain less carbohydrate, more protein (52.7g), low in fat content, and high dietary fibre and sodium content.

DISCUSSION

Flaxseeds are not only high in α linolenic acid (ω-3 fatty acids) but also in fiber, lignans and micronutrients. Meta- analysis consisting 28 studies including flaxseeds intervention concluded that whole flaxseeds lowered serum total and LDL cholesterol especially in postmenopausal women with high cholesterol levels at baseline *(Pan et al., 2009).*

Sesame contains high levels of natural antioxidants like sesamin, sesamolin and sesamol which prevent it from oxidative free radical damage to a great extent. Sesame is rich in ω-6 poly unsaturated fatty acids. Sesame ingestion improved blood lipids and antioxidant status. Subjects consuming sesame seed powder for 5 weeks showed a significant reduction in plasma total cholesterol, LDL cholesterol, LDL to HDL cholesterol ratio, reactive substances in oxidized LDL *(Wu et al, 2006).*

CONCLUSION

The product was well rated based on the appearance and taste of the food product. The product which was modified taking diabetic patients into consideration was highly appreciated and accepted by diabetic patients' as well healthy and fit patients. The product was ranked "very good" during the first sensory evaluation test. Furthermore improvements were done and sensory evaluation ranked the product "excellent" by both the panel members and the product was then standardized.

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