



DEVELOPMENT AND QUALITY EVALUATION OF PROTEIN RICH BURFI WITH SOYA CHUNKS AND WHEAT FLOUR

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ABSTRACT

Present study was framed to formulate development of vegan meat by soya bean protein and wheat flour. Soya bean protein is an important nutrient in the human diet. Soya chunks are the best protein sources and also contain good sources of minerals, fibers, and vitamins. Due to good fiber content, it helps to fight diabetes and control obesity. Soya powder and wheat flour are taken in the respective quantities Product A, B and C were (25:75) (50:50) (75:25) for each blend. Sensory analysis showed Product A with highest score and overall acceptance. The analysis report of soya chunks burfi product A showed carbohydrates (63.58%), the protein content (10.40%), the moisture content (15.51%), the Ash content (1.73%), the fat content (8.78%) and Dietary fiber (0.68%).

KEY WORDS: soya chunks, protein rich product, sensory evaluation, Nutritional evaluation, microbial evaluation.

INTRODUCTION

In the last few years, the vegetarian diet has been gaining popularity as many people are looking for alternatives to non-vegetarian foods Soybean has received the status as one of the most important edible plants known for its seed as a source of protein, oil and nutraceuticals. Soya beans are rich sources of high-quality protein, unsaturated fatty acid, fibre and bioactive compounds that are beneficial for different nutritional needs.

The efforts made by National Research Centre for Soybean, Indore while working with the rural/tribal and urban women brings out that though the people hesitant initially to give entry to soybean in their kitchen, are convinced on its value as food/functional food and are revealing their acceptance for soy-processed products.

Soy protein is generally regarded as stored protein held in discrete particles called "protein bodies" estimated to contain at least 60% to 70% of the total protein within the soybean germinates, the protein will be digested and the released amino acids will be transported to locations of seedling growth. Soya bean also contain biologically active or metabolic proteins, such as enzymes, trypsin inhibitors, hemagglutinins and cysteine proteases. Carbohydrate Soybeans are relatively low in carbohydrate (35%) and nearly all the carbohydrates in soy are fibres and oligosaccharides. The principal soluble carbohydrates

of raw soybeans are the disaccharide sucrose, the trisaccharide raffinose, and the tetra saccharide stachyose (Anders 2013).

Soy beans are nutrient- dense, fibre rich and are high- quality sources of protein. Protective and therapeutic effects of both dry bean an soybean intake have been documented. Soybeans are unique source of the Isoflavones, genistein and daidzein, which have numerous biological functions. Soybeans and soy foods potentially have multifaceted health- promoting effects, including cholesterol reduction, improved vascular health, preserved bone mineral density and reduction of menopausal symptoms. The availability of legume products and resources is increasing, incorporating dry beans and soy foods into the diet can be practical and enjoyable (Anderson et al., 1999).

Wheat is the most important staple crop in temperate zones and is in increasing demand in countries undergoing urbanization and industrialization. In addition to being a major source of starch and energy, wheat also provides substantial amounts of a number of components which are essential or beneficial for health, notably protein, vitamins (notably B vitamins), dietary fiber, and phytochemicals. Of these, wheat is a particularly important source of dietary fiber, with bread alone providing 20% of the daily intake in the UK, and well-established relationships between the consumption of cereal dietary fiber and reduced risk of cardiovascular disease, type 2 diabetes, and forms of cancer like colorectal cancer (Shewry and Hey, 2015). Hence the present study



was framed to Development of Protein Rich Burfi with Soya Chunks and Wheat Flour.

MATERIAL AND METHODS

Raw Materials: The raw materials include Soya chunks, wheat flour, jaggery, peanuts, sesame Seeds, ghee and milk were procured from the local market.

Table 1: Composition of Soya-Chunks with different treatments

Product	Soya powder	Wheat flour
Product -A	25gm	75gm
Product -B	50gm	50gm
Product -C	75gm	25gm

Procedure

Soya powder and wheat flour are taken in the respective quantities (25:75) (50:50) (75:25) for each blend type that is for product-A, B and C. Soya flour and wheat flour are roasted in ghee, then add 100gm of jaggery, 50 gm of roasted peanuts and 15gm of Sesame seeds to the above prepared mixture. To the roasted soya powder and wheat flour add jaggery, peanuts add sesame seeds and mix all the in together using milk (15 ml) to form desired consistency. Spread the mixture flat using a rolling pin and diamond shaped mould. Prepared products made into burfi and sensory evaluation is performed using hedonic scale.

Sensory Evaluation

Sensory evaluation is an essential component of product development. Sensory evaluation is used to measure, analyses and interpret human reactions to meet sensory characteristics through sight, smell and touch.

The organoleptic characteristics of the soya chunk burfi's were determined using sensory study adopting 5- point Hedonic scale method. Sample size of 10 members was taken and were served with the product. They were asked to rate the quality attributes namely aroma, appearance, texture, taste, mouth feel and overall acceptability through sense organs. The overall acceptability of cookies was Evaluated using 5- point Hedonic scale ranging from (1 dislike very much to 5 like very much).

Nutritional Analysis

In the developed nutritional analysis was analyzed for protein, fat, fiber, carbohydrates, ash and moisture using standard estimation techniques in the food analysis lab.

Parameters	Method
Carbohydrates	IFSH/SOP/C/TE/142
Protein	IS:7219-1973
Fat	AOAC:922.06
Dietary fiber	IS10226 PART 1:1982
Ash	FSSAC manual of cereal & cereal product
Moisture	AOCA:925.10 21st edition

Shelf life

Shelf life of soya chunks burfi kept for 30 days and perform total bacterial count by method IS5402:2012.

Statistical Analysis

The data was obtained from the sensory analysis were subjected to mean and standard deviation and it was statistically analysed by one -way ANOVA by using a significance is 1.9.

RESULT AND DISCUSSION

Sensory Evaluation of Soya Chunks Burfi

In the present study three types of products were developed were named product-A, B and C. These products were sensory evaluated by a group of people. The scores obtained on various attributes like aroma, appearance, texture, taste, mouth feel and overall acceptability were recorded using 5 point Hedonic scale.

Table 3: Sensory Evaluation of Soya Chunks wheat incorporated Burfi

Attributes	Product - A	Product - B	Product - C
Aroma	4.7±0.41	2.8±0.49	1.6±0.58
Appearance	5±0.18	2.8±0.29	2.02±0.58
Texture	4.6±0.43	2.5±0.42	1.4±0.33
Taste	4.2±0.33	2.7±0.41	1.2±0.49
Mouth feel	4.2±0.34	3±0.29	1.2±0.46
Overall acceptability	4.7±0.29	2.6±0.24	1.5±0.37

Sensory-evaluation for the attribute aroma ranges between 1.6 to 4.7. The above table shows that the product- A has highest mean value 4.7. whereas it is observed that product -C has the lowest mean value 1.6. The colour of the product became darker with increasing ratio of soya. Appearance was observed in the product-A followed by product -B and C with mean values 5, 2.8 & 2.02. The texture rating of product -A burfi was 4.6 followed by 2.5 and 1.4 for products B and C respectively. Taste for product- A, product-B and product-C were 4.2, 3.0 and 1.2respectively. In case of mouth feel the mean value of product -A product-B and product -C was 4.2;3 and 1.05 respectively. The mean score of overall acceptability was found to be highest for product-A ,4.7. Indicating that it was most liked ratio of other two blends. Product -B and product-C had relatively lower mean score of 2.6 and 1.5 respectively. Statistical analysis shows a different blends of soya powder and wheat flour have significantly affected the overall likeness of the soya burfi. On the basis of overall acceptability, it can be concluded that the highest acceptable and liked product is product-A with a combination of Soya powder weighing 25gm and wheat flour weighing 75gm.

Nutritional Analysis of Soya Burfi

Nutritional analysis is a process which determines the nutrient content of food. The product with highest acceptability (product-A) was selected for Nutritional Analysis. The proximate component namely, carbohydrates, protein, fat, dietary Fiber



analyzed for development product (Soya and wheat incorporated burfi).

Table 4: Nutritional analysis of soya burfi.

Parameters	Result	Units
Carbohydrates	63.58	g/100g
Protein	10.40	g/100g
Fat	8.78	g/100g
Dietary fiber	0.68	g/100g
Ash	1.73	g/100g
Moisture	15.51	g/100g

The carbohydrate content of soya burfi was found to be 63.58% in 100 g of the product. Total protein content of the product was determined to be 10.40% in 100 g of product. The fat content of the product was 8.78%. The dietary fiber of soya burfi was 0.68% per 100 g. Moisture content of soya burfi was found to be 15.51% in 100 g.

Shelf life studies

Shelf life of soya chunks burfi kept for 30 days and perform total bacterial count, after 30 days soya chunks burfi didn't form any bacteria growth. The results show for Total plate count of soya chunks burfi was 1700 Cfug, which is acceptable level.

CONCLUSION

The soya chunks burfi is made from soya chunks flour and wheat flour, jaggery, peanuts, ghee and milk with better protein quality and low availability of carbohydrates and physiological energy almost same as control would be better alternative to diabetic, malnutrition patients whereas it also effectively used as supplementary foods. The overall acceptability of the product was very good.

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