



PREPARATION OF PROTEIN RICH COST EFFECTIVE WEANING FOOD BY FORTIFYING SOYBEAN SPROUT FLOUR WITH PIGEON PEA AND COWPEA SPROUTS FLOUR

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Abstract

Powder was prepared from soybean, red gram and black gram sprouts which helps to maintain the protein and carbohydrate concentration in human body for daily intake. Fortification increased protein and carbohydrate quantities by 2%-3%. Sensory evaluation for appearance, colour, texture and flavour was carried out and scores were compared favourably with that of normal soybean sprouts powder. Red gram and black powder sprouts powder with added pineapple flavour gave the powder desired after taste and flavour.

Keywords: Sprout Powder, Fortification, Soy Bean, Red Gram, Black Gram

1] Introduction:

Soybean sprouts is the basic ingredient and making powder which contains about 38.1% protein and carbohydrates 30.4% (1). Further the powder has been fortified with red gram and black gram sprouts to improve the nutritional properties.

Red gram is used as supplement carbohydrate and also protein (2). High carbohydrate source such as black gram is also used (3).

2] Material and Method:

(A) Sprouts and Flour:

The sprout powder was prepared in the pilot plant of Sau. Vasudhatai Deshmukh College of Food Technology, Amt. Good quality pulses were purchased from local market of Amravati. Other food grade ingredients were added as per the recipe.

(B) Fortification:

In first batch "A" the black gram flour was fortified with soybean and red gram. In second batch "B" 50% of red gram with respect to 30% black gram and 20% soybean. In third batch "C" all the three flours were taken at equal quantities. This sample was treated as control sample. While in fourth batch "D" 70% of soybean is taken and 20% black gram with 10% red gram was taken. The selection of proper quantity of soybean flour is done on the basis of sensory evaluation results and quantity of protein we are getting out of it.

(C) Preparation:

Powder were must prepare manually on domestic scale. Firstly the pulses, that is soybean, black gram, red gram are allowed to soak overnight and then kept for sprouting.

Then these sprouted pulses were dried using sun drying process and then flour is prepared. Soybean sprout flour is fortified with different sprout concentration of black gram flour and red gram flour. Flour was then hand mixed.

(D) Sensory Evaluation:

A ten member panel evaluated the powder for colour, texture, appearance and flavour preferences. All the panellists were asked to indicate preference on 9 point 'Hedonic Scale' and also to rank powder and order to overall preferences. The Sensory properties of powder were measured using 9 point hedonic scale method (6).

(E) Proximate Analysis:

Proximate analysis was carried out by standard AOAC (1997) method (7) for all samples including control protein, fats, Crude fibre, moisture, ash were evaluated.

A. Moisture

Moisture content of fortified and control powder was measured by modified vacuum oven method 925.09 (7).

B. Fat

Fat content was estimated by method 920.85 (7) extract with petroleum ether for 16 hours, which gave fat content profile.

C. Total ash

5 gm. of sample were kept in muffle furnace at a temperature 525 degree C for 6 hours. Desiccated ash was weighed as per 100 gm. sample weight (7).

D. Crude Fibre

Crude fibre content was evaluated by ceramic fibre filter method 920.86 (7).

E. Carbohydrates

Carbohydrate concentration was estimated by subtracting other solids (ash+fat+protein+fibre) from 100 g/100 g.

F. Protein

Protein percentage was determined using modified Kjeldhal procedure with nitrogen -to-protein conversion factor of 6.25 (method 960.52). 250 mg of sample was digested with concentrated H2SO4 and digestion mixture.

$\% \text{ Protein} = \% \text{ Nitrogen} * 6.25.$

score of each and every sample containing 30% red gram and various percentages of black gram flour (50, 30, 33, 20%) were analysed with respect to their attributes.

(B) Proximate analysis

Proximate analysis of overall accepted and control powder was carried out and result obtained is presented in table 2.

Particular	E(%)	A(%)
Moisture	1.27	0.92
Fats	16.02	13.16
Total Ash	0.19	0.20
Crude Fibre	1.00	0.30
Protein	13.24	15.31
Carbohydrates	68	70.02

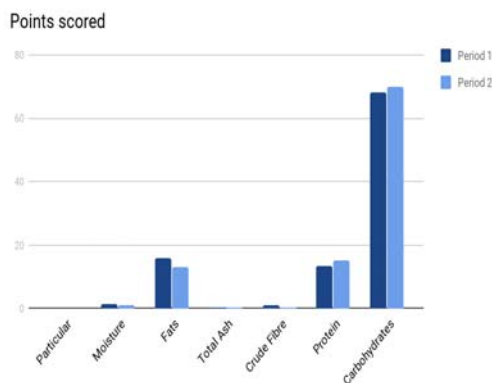
3] Results and Discussions

(A) Sensory Evaluation

Table:

Sample	A	B	C	D
Attribute				
Appearance	5.2	5.4	6.2	7.0
Colour	5.8	5.5	6.5	6.9
Texture	6.0	5.9	5.9	6.6
Flavour	5.9	6.0	6.3	7.2
Overall Acceptability	5.7	5.7	6.2	6.9

The selection of 30% of red gram by weight was done on the basis of sensory evaluation of all the sample of red gram per cent as 20%, 50%, 33%, 30% from the sensory scores, it was observed that as the per cent of red gram flour increased the 30% red gram sample got maximum scores (6.9) from the panel member so it was selected for the final fortification. The sensory evaluation



From this comparison it can be clearly observed that powder fortified with black gram and red gram sprouts flour is superior in the nutritional quantities. Quantity of protein is increased by 2% and quantity of carbohydrate increased about 2%.

4] Conclusion:

Soybean is a rich source of protein while red and black gram provides carbohydrates for fortification to produce powder which is high in carbohydrates and proteins.

Daily intake of this will provide high protein and carbohydrate content, which will be beneficial for growing children. With all the above merits we can conclude that these sprouts

flour is low cost diet supplement for growing children.

5] References:

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