

## PREPARATION OF SOY BLENDED PRODUCTS AND THEIR ORGANOLEPTIC EVALUATION

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In the present nutrition scenario when the condition is being worsened everyday with increasing population and price tags of protein, Soy products come in as a relief to the malnourished hearts. However say products due to their be any flavour are less acceptable except for such processed products as soy flour etc.

This academic endeavor therefore encompassed use of soyflours. That was subjected to various levels of processing and refinement. Studies done earlier a soybeans have shown improvement in the sensory qualities of soybeans upon processing. Sensory results revealed that the chapatti made up of 10% soyblend, Ladoo made up of 5% and mathari, povidge Halwo and made up of 20% are more acceptable than made up of other connection of soy flour. Unblends as soy flour increase in concentration simultaneously protein and fat also increase. The over all composite of nutritional and sensory assessment makes these products a good source of protein and fat. These can go along way in alleviating malnutrition and improving the nutritional status of teeming millions of impoverished under nourished kind.

**Introduction**—The increasing evidence that the proper diet is linked to good health the prevention of disease, some of them life threatening, has led consumer to demand products that can help them develop healthful diets with more nutrients, less fat, cholesterol and calories Food processor interested in satisfying consumer demand are looking at healthful ingredients to develop such food products. One source for healthful ingredients is the “SOYABEAN” from which variety of soy foods can be derived. Soybean has healthful nutritional profile the availability of nutrients various with the fame of soy food. Soybean and Soybean products are used in a variety of foods and can be easily incorporated into the diet. Started that malnourish is more prevalent among the poor sections of society due to restrictions of diet imposed upon them by their poverty. As due to poverty they can't purchase costly foods. Which are the richest source of protein such as meat mutton, fish, egg, poultry milk etc. they depend only on locally produced food to fulfill their protein requirements and eventually full prey to PEM. The only way to combat

malnutrition is to give adequate well balanced diet rich in the entire essential nutrient which include soybean, meal milk and egg. The fact that soy foods are nutrition's versatile and can easily be in corporate into a varied diet. This study was undertaken to make easily consumable and economically affordable high energy and nutrient dose diets from soybean that can not only be used as weaning diet but also of value in cases of adult malnutrition. Consequently food product development has to be undertaking using whole processed soybean flour, with wheat flour. Such products are expected to home high nutritive quality due to additive effects of the two commodities. The product to be developed may include Chapatti, Halwa, Ladoo, porridge and mathei which can be easily adopted at both rural and urban house hold level.

**Objectives:-** (1) To process Soybean for the removal of undesirable odours and antinutritional properties. (2) To standardize the technology for the manufacture of soy based Indian food products. (3) To analysis the products for their organoleptic acceptability through sensory evaluation.

**Methodology:-** (i) Processing of whole Soybeans and preparation of Soy flour. (ii) Product development from Soy flour/ Wheat flour blend. (iii) Sensory evaluation of Soy products. (a) Method of selection of pannel members. (b) Triangle deference test for panel member selection. (c) Sensory Evaluation by hedonic Scale.

### Processing of whole Soybeans and Preparation of Soy flour

As a raw food it is limited due to the presence of anti nutritional factors such as trypsin inhibitors, saponins, hemoglutins, beany flour bitterness and poor digestibility. Soaking reduces oligosaccharides and anti nutritional factors, cooking, and drying destroy enzymes and harmful micro organisms. Water balancing is done because of the presence of trypsin inhibitors which is generally heatlabile. It can be inactivated only which auto clauing of 100c-120c per 15 min.

**Processing of whole Soybeans/Whole Soybean/** Clean of dirt foreign matter and brokens/Cracked with a mini grain mill and the hulls were removed fromhand

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winower/The split pulses were filled in a cloth bags to 1/3<sup>rd</sup> of their fullest capacity and soaked in Water contain 1% sodium bicarbonate at ambient temperature/Beans were conditioned to 52% moisture on wet basis water ratio 1:7 Soaked beans were cooked in boiling water (100c for 15-20 to detoxify the beans)/ Later bags lifted up and allowed to drain for a few minutes/Cooked beans were dried for 32-36 hrs. to bring moisture use level to 8%/The size reduction was under taken in mini grain mill/Soy flour.

**2- Product development from Soy flour/Wheat flour Blend Simple Steps in Product Development-** The primary objective of the study was to develop household adaptable processing technique and to incorporate the Soybean in indigenous Indian recipes that can be easily cooked and liked by large group of masses.

**Selection and Standardization of Recipes-**The recipes were selected on the basis of easily consumable, affordable, high energy nutrient dense diet that can be used as weaning diet and also be of value in cases of adult malnutrition, 5 Popular Indian recipes were selected on the basis of these factors-

(a) Because of their low cast (b) Because of their popularity (c) Because of easily available ingredients (d) Because of easy to cook recipes These 5 recipes were chapatti, halwa, laddoo, porridge, and mathri with different concentration of Soybean. 5% ,10%, 15% and 20%.

**3. Sensory Evaluation of soy Products-**In the present study sensory evaluation of soy based product at concentration 5%, 10%, 15%, 20% was done with respect to the appearance, flavor, colour, sweetness, texture etc.The evaluation was judged by 20 semi trained panel members selected using triangle difference test.

(A) **Method of Selection of Panel Member** -For this 30 post graduate students were selected to triangle difference test.

**Testing Producers-**(i) Panels are generally not aware of the variable. (ii) Rinse the mouth in water to create natural environment. (iii) Chew salt free crackers (iv) Spit out crackers. (v) Rinse mouth with water. (vi) Spit out water. (vii) Taste food- roll it around the mouth to all parts of the tongue & cheeks. (viii) Spit out food. (ix) Rinse mouth.

(B)**Triangles Difference Test for Panel Member Selection-**In the present study triangle difference test was conducted for the panel members selection three paratha samples were presented in triangular form among these three samples two were alike and one was different the samples were presented in the following order.

(i) ABB (ii) BAB (iii) BBA where

B- Control or duplicate sample

A- Treated or odd sample.

A well prepared questionnaire for triangle test was provided to the panel member. Evaluation was done one the Basis of discrimination ability of the subject.

(C)**Sensory Evaluation by9- Point Hedonic Scale** -Evaluation of sensory characteristics of 5 standardized recipe prepared using soy flour with wheat flour at different concentration (5% ,10% , 15%, 20%) was done by the selected semi trained panel members after giving detailed instructing and their judgment.

**Procedure-**(i) The test was conducted in a separate room free of noise and odour. Between 5 to 6 pm as member feel free during this period. Each sample with different concentration introduced to each of the panelist. The sample was homogenous and temperature was standardized and kept constant before conducting the test. (ii) The member was asked to give score according to their preference on a Performa on the basis of hedonic scale for appearance, colour, texture, flavor sweetness and over all acceptability. (iv) Water was provided after testing each sample to remove any after taste.After some time the questionnaire was collected from each panel member.

**Result & Discussions-**Suitable combination of soy & wheat flour was evolved and 5 different products were prepared. The products were chapatti, porridge, Halwa, Laddoo & Mathri. These were than examined for sensory characteristics on a point hedonic scale by a panel of 20 semi trained judges.

**Key Words**

A - Standard recipe (wheat flour 100%)

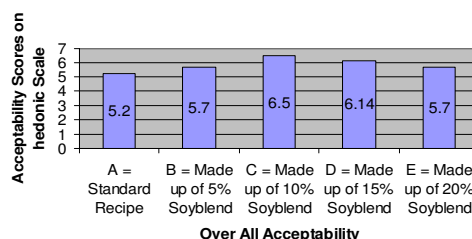
B- 5% Soy blend

C- 10% Soy blend

D- 15% Soy blend

E- 20% Soy blend

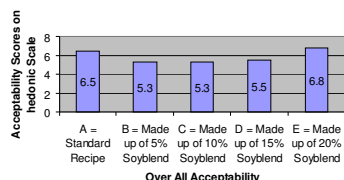
**Result of Sensory Evaluation and statistical Analysis**



(1) **Chapati :- Mean over all Acceptability Score Discussions-**There are no significant difference

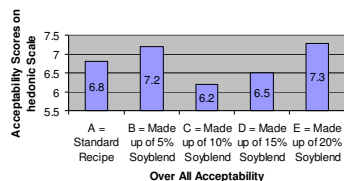
observed between A and B and A and E. The significant difference was observed between A and C and A and D. Showed that Chapati made from 10% Soy flour were quite acceptable.

**(2)Porridge:- Mean over all Acceptability Score**



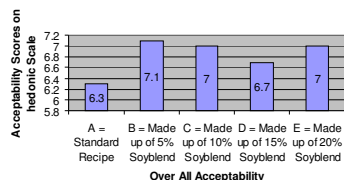
**Discussions-**Over all acceptability of sample B C D E were found to be equally acceptable in all sample when compared with standard recipe A . Over all acceptability sample E made up of 20% soy blend was most acceptable.

**(3)Halwa:- Mean Over all Acceptability Score**



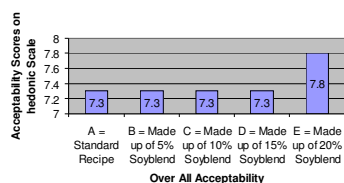
**Discussions-**Over all acceptability of sample B C. DE was found to be equally acceptable when compared with standard recipe A. Sample B was more acceptable than A.

**(4)Ladoo:- Mean Over all Acceptability Score**



**Discussions-**Sample BCDE was found to be equally acceptable when compared recipe A in all samples. Sample B was most acceptable.

**(5)Mathri:- Mean over all Acceptability Score**



**Discussion-**Acceptability of sample BCDE was found to be equally acceptable when compared with the standard recipe (A) sample E was most acceptable than other products.

**Summary & Conclusion-**Although, it has been proved over the centuries that animal foods are the best sources of Protein.

The Present study was under taken with allowed aim to making easily consumable, affordable high energy and nutrient dense soy protein products prepared from different concentration of wheat and soy blends. That can not only be used as weaning diet, but can also be of value in adult malnutrition and above all have therapeutic significance too. First part of the study was processing of soybean selection of such technique was to be done that could be easily adopted at the house hold level by the masses overnight soaking and hot water blanching has been found to be one of the best techniques. On the second part of the study various soy based Indian recipes were prepared with different concentration of soybean with wheat flour. These concentrations were 5%, 10%, 15%, 20%. Organoleptic evaluation study constituted the third part. This was done by conducting intake trails using 9 Point hedonic scale with the help of 20 semi trained panel members having good discrimination and good communication power selection was done using triangle difference test. The result of the present study showed that soy product made from processed soybean can be easily used in the community as they were highly acceptable. Soybeans can prove to the brahmastra with in the easy access of the common masses and strengthen their side, in their was for all eviating malnutrition's with in their economic limits.

**Limitations of the Study-**(i) Only 5 recipes were selected for product development due to lack of time.(ii) Acceptability and intake trails of different developed products could not be conducted among children due to tight academic schedule.

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