EXPERIMENT 1 PREPARATION OF FULL FAT SOY FLOUR

Structure

1.1 INTRODUCTION

Full fat soy flour is the simplest soy product. It can be used for supplementation of variety of conventional food, snacks and bakery products. Supplementation of food products with soybean ensures nutritional enrichment of food (s) at relatively low cost. Malnutrition of children and poor is the problem of our country and soy flour has potential to meet the requirements of protein and energy needs.

Full fat soyflour can be prepared by different approaches e.q. hot water blanching, steam blanching, roasting/hot air treatment and dry extrusion cooking. However, simplest method of hot water blanching is considered for practical for adoption. Main objective of this experiment/ practical is to know the methodology for conversion of whole soybean in to edible grade full fat soyflour.

Objective

After studying and performing this experiment, you should be able to:

- prepare full fat soyflour from soybean.

1.2 EXPERIMENT

1.2.1 Principle

The whole soybean are converted into, edible grade and safe for food uses, soyflour. It involves inactivation of anti nutritional factors and removal of undesirable constituents present in soybean. We are required to follow physical and heat treatment approach for the purpose. Urease activity is taken as indicator of heat treatment.

1.2.2 Requirements

Potable water, whole soybean (dried) stainless steel container (*Bhagona*),Gas stove/ heat source , mercury- in- glass, thermometer-optional (0-110 ^{0}C range), beaker (1000 ml)/measuring cylinder, weighing balance(5 kg capacity) sieve (IS-30), drying

oven / dryer, tray, burr-mill (chakki), blower/fan, cleaner /grader, soybean dehuller, polythene bag(s) of

(500 g /1000g capacity), sealing machine, etc.

1.2.3 Procedure

- Take a whole soybean sample (5 kg)
- Clean and grade it using screen cleaner cum grader. First switch on the machine and then feed the raw material.
- Using the balance, weight the material received from different outlets of the machine.
- Select Grade - I or II material for further processing. Remove foreign matter and immature grains present in the lot and then use for further processing.
- Using the soybean dehuller dehul the soybean. Splitting will take place automatically. Burr mill can also be used for dehulling and splitting of soybean by increasing the gap between the emery stones and operating the machine.
- Weigh soy splits (*dal)* using balance. Take the potable water in the proportion of *dal* to water as 1:3 , in the container Boil the water using the cook stove.
- Then blanch the soy dal for that add soy-*dal* to boiling water and continue boiling for 25 minutes.
- After blanching drain the water and spread the blanched soy-splits in tray and dry in sun or in oven. Material should be dried to about 6-8% moisture content so that it can be milled easily.
- Grind the blanched and dried splits to flour in the burr mill /*chakki* and allow it to cool to room temperature.
- Sieve the soy flour using IS- 30 sieve, weight and seal the full fat soy flour in polythene bags/packet:

The product thus obtained is edible grade full fat soy flour.

1.2.4 Observations

- Weight the product at each stage of processing.
- Observe the colour of product after processing.
- Measure temperature of boiling water prior to adding soy-*dal* to it, immediately after every five minutes after that.
- Record the time required for boiling of water and blanching operation.
- Record the time requirement for each activity/step.
- Record the time and temperature of drying.

1.2.5 Results

The following results may be obtained after using recorded observations/data

i Percentage of dockage/foreign matter

$$= \frac{\text{Weight of dockage}}{\text{Total weight of inital sample}} \times 100$$

ii Percentage of husk and germ/hypocoty.

$$= \frac{\text{Weight of husk and germ}}{\text{Weight of clean soybean sample taken for experiment}} \times 100$$

iii Recovery of full fat soy flour (%)

$$= \frac{\text{Weight of soy flour}}{\text{Weight of clean soybean sample taken for experiment}} \times 100$$

1.3 PRECAUTIONS

i) Do not prepare the soy dal and store for long prior to blanching.

ii) Do not add soy dal to cold water and boil for blanching.

iii) Ensure that only sound and whole soybean are taken for processing

iv) Ensure hygienic conditions at work place.

v) Persons working should wear clean cloths and wash hands.