

# Preparation of Soyabean Milk

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**Abstract-** Soy milk is a plant based drink prepared by soaking dried soybeans and grinding them in water. It is a highly nutritious which contains protein, fat, carbohydrates vitamins and minerals. The greatest problem with soy milk is its very short shelf life due to microbial activity. The combination of different preservation methods is just the solution to the problem of short life. The different preservation techniques which can be applied to soymilk are chemical preservatives, heat processing, high pressure processing, pulse electric field, ohmic heating and drying. All these preservation technique gives best results if stored at refrigerated condition as compare to storage at room temperature.

**Index terms-** Soymilk, Soybean, Nutritional Value

## INTRODUCTION

Soymilk is an aqueous, white, creamy extract produced from soybeans which is similar to cow milk in appearance and consistency. It is a highly nutritious which contains protein, fat, carbohydrates vitamins and minerals. It is because of this nutritious value and comparative low cost, that soymilk plays an important role in the dietary pattern of people in most developing countries. The nutrients content in eight ounces of plain soymilk are 140gm calories, 10gm protein, 4gm fat, 14gm carbohydrate, 120mg sodium, 1.8mg iron, 0.1mg riboflavin and 80mg calcium. It has about the same amount of protein as cow's milk, though the amino acid profile differs. The increasing popularity of soymilk as a beverage worldwide is credited to health benefits e.g. low cholesterol and lactose, its ability to reduce bone loss and menopausal symptoms, prevention and reduction

of heart diseases and certain cancers. As this drink is cholesterol free and low in energy, it could enhance health benefits in terms of reducing body weight and blood lipids. With its unique nutty flavour and rich nutrition, soymilk can be used as supplementary way of dairy milk. It is available as a plain, unflavoured beverage or in a variety of flavoured beverage including chocolate, vanilla and almond. Soy-based diets can reduce blood pressure in spontaneously hypertensive rats but apparently not in hypertensive humans.

## HISTORY OF SOY BEAN

Origin of soy bean happened in south-eastern part of Asia and China was the first country to domesticate the soy bean cultivation. From China, soy bean was introduced to India. Traditional small scale soybean cultivation practices may be found in Himachal Pradesh, Utaranchal, eastern part of West Bengal, Manipur etc. regions of India including Central India since long time back

Beneficial effects of soybean on human health and positive effects of its cultivation on soil fertility are well known, for which soy bean cultivation was promoted in India. Promoting soy bean cultivation was not that much successful because of farmers ignorance about soy bean cultivation practices, unavailability of high-yield seeds, unorganized market and unpopularity about the utilization of final produce, i.e., soybean. G.B. Pant University of Agriculture and Technology, Pantnagar (Uttaranchal-India) and the Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (Madhya Pradesh-India), in collaboration with the University of Illinois (USA) worked together for popularizing this highly

nutritious bean cultivation in India, for addressing the protein malnutrition problems in India during mid 1960's.

### SOY MILK

Soy milk (also called soybean milk, soy juice and sometimes referred to as soy drink/beverage) is a beverage made from soybeans. Soy milk is a stable emulsion, which is considered as staple Asian cuisine. Overnight soaked soy beans are crushed with water and filtered to get the soy milk. Composition of soy milk and cow's milk are quite similar. Similar to milk, soy milk or plain soybean beverage is the pale liquid, which, is rich in protein and other nutrients with or without adding optional additives or ingredients. One advantage of soy milk over cow/buffalo milk is, this milk doesn't contain lactose or cholesterol and the fibers present can be removed from the final product.

### NUTRITIONAL IMPORTANCE OF SOY MILK

Soy milk has the same amount of protein as cow's milk, though the amino acid profile differs. Unlike cow's milk, it has little saturated fat and no cholesterol<sup>4</sup>. Soy is naturally high in essential fatty acids, proteins, fibre, vitamins and minerals.

These nutrients provide energy and keep the body functioning at its optimum level. Below are the six most important health benefits of drinking soy milk.

1. Improve lipid profile
2. Strengthen blood vessel integrity
3. Promote weight loss
4. Prevent prostate cancer
5. Prevent postmenopausal syndromes
6. Prevent osteoporosis

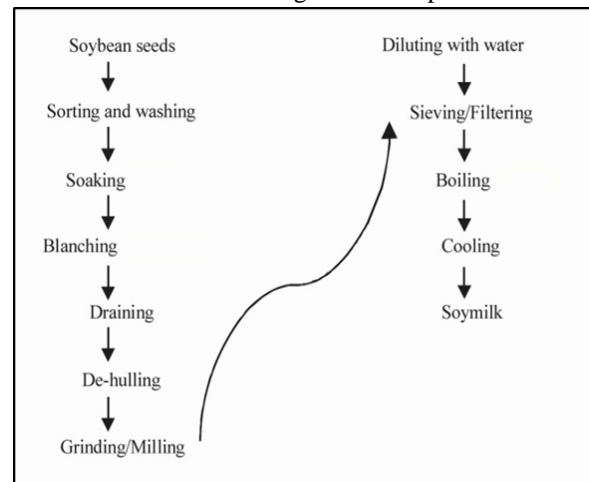
Compositional details of soy milk are provided in Table 1.

| Constituents       | Percent composition |
|--------------------|---------------------|
| Protein            | 4.50                |
| Carbohydrate       | 10.00               |
| Fat                | 4.30                |
| Crude fiber        | 0.20                |
| Ash                | 0.66                |
| Moisture           | 80.34               |
| pH                 | 6.34                |
| Total energy (cal) | 96.7                |

Table 1: Composition of plain soy milk

### PREPARATION OF SOY MILK

Soybean was sorted and cleaned to remove stones and damaged, deformed seeds. Then the dry soybean was washed and soaked in water (500g in 1 Litre) for 12 hours. It was then rinsed and blanched in 1.25% NaHCO<sub>3</sub> for 30 minutes. The rehydrated soybean was washed, manually dehulled and rinsed. The soybean seeds were ground in blender and expressed in the ratio of 3:1 (water to beans on a weight basis) to remove the okra. The obtained milk is then formulated by adding anti-oxidants and preservatives. The milk was then pasteurized at the temperature 71oC for 15 seconds and subsequently bottled and stored at ambient and refrigeration temperature.



### CONCLUSION

Present review concludes that soymilk is highly nutritious which contains protein, fat, carbohydrates vitamins and minerals similar to cow milk. The shelf life of soymilk can be increased by different techniques of preservation.

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