

Soy based Food Products with their Nutritional and Health Benefits



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**Centre of Excellence on Soybean Processing and Utilization
ICAR-Central Institute of Agricultural Engineering
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Soy based Food Products with their Nutritional and Health Benefits

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Foreword

Soybean is not only a great source of high quality oil, but also contains high quality protein and carbohydrates. It has a great potential in combating the protein mal-nutrition that exist in this country as well as globally. It is being used as an oil source since long and the meal is utilized as an animal feed. However, its food uses are limited in India and other countries.

The Centre of Excellence on Soybean Processing and Utilization, earlier named as Soybean Processing and Utilization Centre (SPU), was established in April, 1985 at the Central Institute of Agricultural Engineering (CIAE), Bhopal by the Indian Council of Agricultural Research (ICAR), New Delhi in collaboration with the United States Agency for International Development (USAID), Washington. The mandate of SPU was to develop proper processing technology for soybean and disseminate those for food uses to make available nutritional and health benefits of soybean to whole population. Concerted and focussed R & D efforts resulted in development of process technology for more than 40 soy-based food products suiting to Indian tastes and plates.

The centre also conducts 6 days Entrepreneurship Development Programme on comprising lectures and hands-on practices at regular intervals. It has trained more than 2800 persons so far. More than 220 trained entrepreneurs from different parts of the country have established their enterprises for production of nutritious soy-based value-added food products.

In the technical bulletin, brief details of number of food products that have been developed from soybean has been included. This handy information will be useful for researchers, academicians, industrialist and upcoming entrepreneurs interested in establishing enterprise for production of soybean based food products. The efforts put in bringing this technical bulletin by the scientists of the CESPU are highly appreciable and I congratulate them for publishing this document.

Dated: 13 September 2021



(CR Mehta)
Director
ICAR-CIAE-Bhopal

Preface

Soybean products (*soya foods*), reported as potential functional foods, are implicated in several health enhancing properties, as it contains about 40% protein, 20% oil, 23% carbohydrates and an array of micronutrients. In addition, it is an important food commodity to fight nutritional deficiencies, easing the symptoms of postmenopausal women, reducing the risk of osteoporosis, preventing cardiovascular disease, and antimutagenic effects at affordable cost. Isoflavone, for example, is one of the most important compounds abundantly found in soybean, mainly accounting for the health-enhancing properties as mentioned earlier. Due to its popularity, the international trade of soybean is spread several countries such as Japan, China, Indonesia, Philippines, and European countries are importing Soybean to supplement their domestic requirement for human consumption and cattle feed.

The soybean was introduced in India sometimes in early 1960s as an economical source of nutrition. The Soybean Processing and Utilization Centre (SPU) was established in April, 1985 at the CIAE in collaboration with United States Agency for International Development (USAID), Washington. After completion of collaboration with USA, the project became an integral part of CIAE and known as Centre of Excellence on Soybean Processing and Utilization (CESPU). The mandate of CESPU is to develop proper processing technology for soya based food products and disseminate those for food uses to make available nutritional and health benefits of soybean to population. The contribution of Dr. Nawab Ali, Dr B S Bist, (Late) Dr. S D Kulkarni, Dr. R T Patil, Dr. Jaswant Singh, Dr. A P Gandhi, Dr. Joshi, Dr. K Jha, Dr. Dakshinamurti, Dr. S K Khare, Dr. L K Sinha, Dr. P C Bargale, Dr. Sumedha Deshpande in the upliftment of CESPU is highly appreciated. The cottage scale enterprises for food products are located throughout the country. Realising this CESPU started 6-day tailor-made regular training programmes package to upcoming entrepreneurs on soybean processing in 1995. The focus of training course is for utilization of soybean in order to maximize the use of soybean as a protein food source. It has a great potential for generating livelihood through enterprise development.

Although, many documents on health benefits of soybean and its nutritional importance are available. However, no document in the public domain to provide an insight on various soy based food products especially *traditional Indian foods*. In the present technical bulletin, the authors have given efforts to provide the details of almost all-possible type of food product that are available with virus sources and could be developed with incorporation of soybean. In addition, emphasis is given on the Indian taste buds so that products are liked throughout the country. This handy information bulletin is useful for soybean processing from cottage level to industrial level in brief at a single source. This document will be useful to all the upcoming entrepreneurs and provide technical guidance for establishing soybeans-based food enterprise.

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NUTRITIONAL INFORMATION OF SOYBEAN

Dehulled soybean contains 20% oil, 40% protein, 35% carbohydrates and 5% minerals on a dry matter basis. Soybean has more than two times the amount of most of the minerals, especially calcium, iron, phosphorus and zinc, than any other legume and very low sodium content. Soybean has all the important vitamins and is a very good source for B complex vitamins and Vitamin E. However, the macronutrient profile of soybeans differs in some important ways from most other legumes. Soybeans are higher in both protein and fat than other beans and are relatively low in carbohydrates.

- *Protein:* Soybeans are a low cost but rich source of good quality protein. Protein in just 250 grams of soybean is equivalent to protein in 3 liters of milk or 1 kg of mutton or 24 eggs. All the essential amino acids. Compared to casein, greater antioxidative ability in preventing lipid oxidation. PDCAAS of soy protein and egg whites have a maximum score of 1.0, followed by milk and meat proteins.
- *Fat:* Apart from good sources of protein also has higher percentage of oil (20%). Approx. 40 percent of the calories in soy derive from fat; most legumes (with the exception of peanuts) contain between 2 and 14 percent fat. Most of the fat in soybeans is unsaturated. Polyunsaturated (primarily linoleic acid), monounsaturated (oleic acid) and saturated (primarily palmitic acid) fatty acids comprise about 63 percent, 23 percent, and 14 percent, respectively, of the total fat content of soybeans. The polyunsaturated fat content of soybeans is of interest because it includes alpha-linolenic acid (7 percent of the total fat content), an essential omega-3 fatty acid. Soybeans are one of the few good plant sources of both essential fatty acids.
- *Fibre and carbohydrates:* One serving of soybeans provides approximately eight grams of dietary fiber. It contains 30 % carbohydrate that include disaccharide sucrose (range 2.5–8.2%), trisaccharide raffinose (0.1–1.0%) and tetrasaccharide stachyose (1.4 to 4.1%). While the oligosaccharides raffinose and stachyose protect the viability of the soybean seed from desiccation they are not digestible sugars and therefore contribute to flatulence and abdominal discomfort in humans. The majority of Soybean carbohydrates can be classed as belonging to dietary fiber.
- *Minerals and vitamins:* It also has considerable amounts of calcium 226 mg; phosphorus 546 mg; iron 8.5 mg; magnesium 236 mg; copper 2.4 mg; and sodium 27.9 mg per 100 g beans. Soybean has all the important vitamins and is a very good source for B complex vitamins and Vitamin E.
- *Bioactive compounds:* Soybean is the richest source of isoflavones. Although soybeans are rich source of protein and other nutrients, certain antinutritional factors associated with them which are biologically active and need to be eliminated prior to human consumption. It also contains phytic acid, saponin, isoflavones like genistein, diadzin and glycitein, which have beneficial effects like prevention of cardiovascular diseases, osteoporosis, etc.

The utilization of soybean for food uses in India is still meagre, and work needs to be done in terms of production of acceptable soy food products and its inclusion in daily diet of Indian masses to mitigate the widespread energy-protein malnutrition. Hence, soy based food products can easily meet the dietary protein and other nutritional requirements of a population.

HEALTH BENEFITS OF SOY-BASED FOOD PRODUCTS

In addition to containing good quality nutrients, Soybean based food products also known as soyfoods, reported as potential functional foods, are implicated in several health enhancing properties (Figure 1), which include antioxidant, anti-obesity, anti-diabetes, properties and prevention of osteoporosis and cancers such as breast and prostate cancer. Soybean-based foods have generated much interest because of the evidence that consumption of large amounts of soybean can lower the risk of chronic diseases such as cardiovascular disease and cancer; this effect is particularly noticeable among Asian populations because of their high soy food intake. Soy protein also has cholesterol lowering effect and protein hydrolysate or hydrolysed peptides of soybeans decrease blood cholesterol and glucose levels. In addition, consumption of soy foods may reduce the risk of osteoporosis and help alleviate menopausal symptoms that are major health concerns for women.

It has also been demonstrated that isoflavone aglycones are absorbed faster and in greater amount than their glycosides in human intestines. Fortunately, deglycosylation of isoflavones can be achieved during fermentation process by several strains such as lactic acid bacteria, basidiomycetes, filamentous fungus, and *Bacillus subtilis* with their β -glucosidase activity.



Figure 1. Health- promoting benefits of soy-based food products.

The findings of bioactive compounds within soybean offer fermented soybean products with new applications. Phytoestrogens, especially aglycone isoflavones, can act like the hormone estrogen and have many health-enhancing benefits. Anthocyanin on the seed coat of black soybean is an antioxidant that prevents the blood capillary from the attack of free radicals. These make soybean products very competitive on the functional food market.





Soy based food also contains anti-nutritional factors associated which are biologically active and need to be eliminated prior to human consumption. Fortunately, most of them are thermos labile and destroyed by heat treatment during processing or cooking. Different types of anti-nutritional factors, such as trypsin inhibitor, lectin, α -amylase inhibiting factor and so






on. However, some of these anti-nutrients have been shown to possess beneficial properties apart from its adverse effects. Beneficial and adverse effects of antinutrients are presented in Table1.




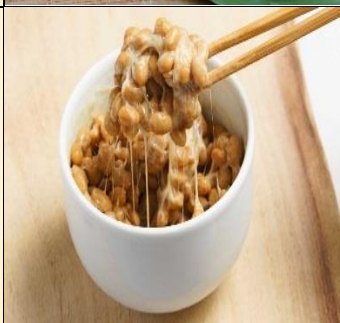

Table.1 Beneficial and adverse effect of antinutrients present in soybean


Antinutrients	Beneficial effect	Adverse effect
Trypsin Inhibitor	Anti-cancerous	Pancreatic hypertrophy
Phytic acid	Anti-cancerous, Antioxidants	Decreases the bioavailability of minerals
Isoflavones	Prevention of cardiovascular diseases, cancers, and menopausal symptoms	Hormonal imbalance
Saponins	Anticancer, antioxidant and anticholesterol activity	Membranolytic effects, toxic effects, adverse effects on animal growth and performance
Goitrogens	Anti-cancer property	Interferes iodine uptake
Lectins (Hemagglutinins)	Anti-cancer property	Haemolytic activity





SOYA BASED FOOD PRODUCTS: NUTRITIONAL AND HEALTH BENEFITS






SN	Product Name	Photograph	Nutritional Facts and Health Benefits (minerals = mg/100gm)	Process flow chart
<i>Soy milk based food products</i>				
1.	Plain soy milk		<p>Nutritional facts :</p> <ul style="list-style-type: none"> Protein = 5.0-6.0% Fibre = 1.0-3.0% <p>Health benefits</p> <ul style="list-style-type: none"> Good for lactose intolerant consumer Improves lipid profile Good for bone health 	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">Soybean soaked for 3-4hr</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">boiling @120 °C</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">separation of soy milk and okara</div>
2.	Flavoured soy milk		<p>Nutritional facts :</p> <ul style="list-style-type: none"> Protein = 5.0-6.0% Fibre = 1.0-3.0 % <p>Health benefits</p> <ul style="list-style-type: none"> Good for lactose intolerant consumer Improves lipid profile Good for bone health 	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">soybean soaked for3-4hr</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">boiling @120 °C</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">separation of soy milk and okara</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">Additon of flavor and packing</div>
3.	Tofu (soy paneer/ firm tofu)		<p>Nutritional facts :</p> <ul style="list-style-type: none"> Protein =12-14 % Fat = 7.0-9.0% Ca = 421mg P = 282mg <p>Health benefits</p> <ul style="list-style-type: none"> Help in body building & weight loss Lowers cancer risk Reduce cholesterol level 	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">heating of soymilk upto 80 °C</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">Coagulation of soymilk with citric acid</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">whey separation form coagulum</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">Pressing of tofu</div>
4.	Silken tofu		<p>Nutritional facts :</p> <ul style="list-style-type: none"> Protein: 5.0-7.0 % Fat: 2.0-6.0 % <p>Health benefits</p> <ul style="list-style-type: none"> Lowers cancer risk Reduce cholesterol level Help in body building & weight loss 	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">heating of soymilk upto 75 °C</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">Put into box</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">Coagulation of soymilk with citric acid</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;">cooling and cutting</div>

5.	Soy Ice cream (strawberry flavour)		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein =6.0-7.0 % • Fat = 9.0-11% • Minerals = 0.8 - 0.9 mg <p>Health benefits</p> <ul style="list-style-type: none"> • Help in body building & weight loss • Lowers cancer risk • Improves lipid profile 	<pre> graph TD A[mixing of dry ingredients to water 60 °C] --> B[addition of emusifier and stablizer] B --> C[blending, mixing and pasteurirzation] C --> D[aging, cooling and freezing] </pre>
Soya flours				
6.	Full fat soy flour		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 35-40% • Fat = 18-22% • Fibre = 1.0-3.0%, • Carbohydrate= 16.2-18.6% <p>Health benefits</p> <ul style="list-style-type: none"> • Boost immunity • Reduce CVD risk • Prevents obesity and diabetes 	<pre> graph TD A[Blanching of clean soybean in hot water for 25 min] --> B[Blanched splits & drying] B --> C[Milling Loss 0.8 kg] C --> D[Full fat soy flour] </pre>
7.	Medium fat soy flour		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 37-45 % • Fat = 10-14% <p>Health benefits</p> <ul style="list-style-type: none"> • Boost immunity • Reduce CVD risk • Prevents obesity and diabetes 	<pre> graph TD A[Expelling of about 70% fat] --> B[Drying] B --> C[Milling] C --> D[Medium fat soy flour] </pre>
8.	Defatted soy flour		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein =46-52% • Carbs = 29-32% <p>Health benefits</p> <ul style="list-style-type: none"> • Boost immunity • Reduce CVD risk • Prevents obesity and diabetes 	<pre> graph TD A[Soymeal] --> B[Drying] B --> C[Milling] C --> D[Defatted fat soy flour] </pre>
Fermented soy based food products				
9.	Soymilk dahi		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 6.0-7.0% • Fat = 2.5-4.0 % • Ca = 98-118mg • Mg = 32-40mg • P = 32-38mg <p>Health benefits</p> <ul style="list-style-type: none"> • Improve bone health • Boost digestive health 	<pre> graph TD A[Preparation of soymilk] --> B[Inoculation of milk with dahi starter @ 1-2%] B --> C[Inculabtion at 37°C] C --> D[Soy dahi] </pre>






10.	Soy sauce (tamari, shoyu, teriyaki)		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 8.0-11 % • Na = 4000-6000mg • P ≈ 212mg <p>Health benefits</p> <ul style="list-style-type: none"> • Improve bone health • Good for metabolic health • Boost digestive health 	<pre> graph TD A[Rosted wheat + Boiled soyabean + Starter culutre] --> B[Mixing and Incubation (addition of salt)] B --> C[Ripening and Pressing] C --> D[Soya souce] </pre>
11.	Miso		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 13-16.6 % • Na = 4000-5000mg • Carbs = 25-33% <p>Health benefits</p> <ul style="list-style-type: none"> • Improve metabolism • Increase bioavailability of nutrients 	<pre> graph TD A[Rice cooked + soyabean and salt (mixing)] --> B[Inoculation] B --> C[Fermentaion] C --> D[Miso] </pre>
12.	Tempeh		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 18-20 % • Fat = 9.0-11% • P ≈ 412mg <p>Health benefits</p> <ul style="list-style-type: none"> • Reduce cholesterol • Improve bone health • Lower inflammation 	<pre> graph TD A[Boiling of overnight soaked soyabean for 60 minutes] --> B[Inoculation] B --> C[Incubation for 48 hrs.] C --> D[Tempeh] </pre>
13.	Natto		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 18-20 % • Carbs = 11-13 % • Fat = 9.0-11 % • P ≈ 729mg <p>Health benefits</p> <ul style="list-style-type: none"> • Reduce cholesterol • Improve bone health • Lower inflammation 	<pre> graph TD A[Soyabean soaking (10 -12 hrs.)] --> B[Steaming (under pressire for 15 min.)] B --> C[Air drying, Inoculation and Fermentation (400c 16-18 hrs.)] C --> D[Natto] </pre>
14.	Soy plain set yoghurt		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 6.0-7.0 % • Fat = 2.5-3.5 % <p>Health benefits</p> <ul style="list-style-type: none"> • Improve bone health • Reduce CVD risk • Improve metabolism 	<pre> graph TD A[Preparation of soymilk] --> B[Inoculation of milk with yoghurt starter (@ 1-2%)] B --> C[Inculabtion at 37°C] C --> D[Soy dahi] </pre>






15.	Soy lassi/ matha		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 5.0-7.0% • Fat = 2.5-3.5% <p>Health benefits</p> <ul style="list-style-type: none"> • Improve bone health • Reduce CVD risk • Improve digestion 	<pre> graph TD A[Preparation of soy Dahi] --> B[Blinding] B --> C[Adittion of flavour and Seasoning] C --> D[Soy lassi] </pre>
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<i>Okara and defatted soy meal based fermented food products</i>				
16.	Soy dosa		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 4.0-5.0% • Fat = 1.0-2.0% <p>Health benefits</p> <ul style="list-style-type: none"> • Prevents prostate cancer • Manage menopause symptoms • Lowers the risk of heart disease 	<pre> graph TD A[Soaking of basic ingredients (4 hrs)] --> B[Grinding and mixing of okara/DFSM] B --> C[Fermentaion (7- 8 hrs for 35°C)] C --> D[Preparation of dosa] </pre>
17.	Soy dhokla		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 6.0-7.0% • Fat = 1.0-2.0% <p>Health benefits</p> <ul style="list-style-type: none"> • Prevents prostate cancer • Manage menopause symptoms • Lowers the risk of heart disease 	<pre> graph TD A[Soaking of basic ingredients (4 hrs)] --> B[Grinding and mixing of okara/DFSM] B --> C[Fermentaion (7- 8 hrs for 35°C)] C --> D[Preparation of dhokla] </pre>
18.	Soy idli /vada		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 5.0-6.0% <p>Health benefits</p> <ul style="list-style-type: none"> • Prevents prostate cancer • Manage menopause symptoms • Lowers the risk of heart disease 	<pre> graph TD A[Soaking of basic ingredients (4 hrs)] --> B[Grinding and mixing of okara/DFSM] B --> C[Fermentaion (7- 8 hrs for 35°C)] C --> D[Preparation of idli] </pre>
<i>Traditional Indian soy based food products</i>				
19.	Soy milk based burfi		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 11-16% • Fat = 11-15 % <p>Health benefits</p> <ul style="list-style-type: none"> • Good for lactose intolerance consumer • Improves lipid profile • Improve for bone health 	<pre> graph TD A[Soy Milk to Soy curd] --> B[Chakka] B --> C[Admixing fresh cream and sugar] C --> D[Soy Burfi] </pre>

20.	Soy laddu		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein =9.0-13% • Fat ≈18 % • Carbs ≈ 66% <p>Health benefits</p> <ul style="list-style-type: none"> • Lower cholesterol • Prevent loss of bone mass 	<pre> graph TD A[Deffated soy flour +Besan] --> B[Sterring low flam with vanaspati] B --> C[Mixing of sugar and, cardamom/ dry furits] C --> D[Prepration of laddu] </pre>
21.	Soy based rasogulla		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 5.0-6.0 % • Fat = 4.0-5.0 % • Isoflavones ≈ 6.75 % <p>Health benefits</p> <ul style="list-style-type: none"> • Reduce postmenopausal symptoms • Prevent loss of bone mass 	<pre> graph TD A[Blending of Soy milk with cow milk] --> B[cogulation and channa prepration] B --> C[Prepration of sugar syrup(1-4)] C --> D[dipping of Rasogulla boll in surag shyarup] </pre>
22.	Soy Shrikhand		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 7.0-9.0 % • Fat = 9.0-11% <p>Health benefits</p> <ul style="list-style-type: none"> • Prevents prostate cancer • Manage menopause symptoms • Lowers the risk of heart disease 	<pre> graph TD A[Blending of dairy milk + soymilk (50-50)] --> B[Chakka prepration] B --> C[Sugar (65%), flavour and cardamom] C --> D[soya shrikand] </pre>
23.	Soy /Amarkhand		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 7.0-9.0 % • Fat = 9.0-11% <p>Health benefits</p> <ul style="list-style-type: none"> • Prevents prostate cancer • Manage menopause symptoms • Lowers the risk of heart disease 	<pre> graph TD A[Blending of Soy milk + full ff dairy milk] --> B[Chakka prepration] B --> C[Sugar (50%) , Mangopal (40%),%, Flavour and Cardamom] C --> D[soy Amarkhand] </pre>
24.	Soy-sattu		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 20-35 % • Fat = 5.0-6.0% <p>Health benefits</p> <ul style="list-style-type: none"> • Boost metabolism • Help in weight gain & reduction • Relive menopausal symptoms 	<pre> graph TD A[Soyaben, maize and Bengal gram (hole grains)] --> B[Grinding] B --> C[Pass through no. 30 sive] C --> D[Sattu] </pre>






Ready to eat (conventional) soy based food products






25.	Soy chakli		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 9.0-11 % • Fat = 25-27% <p>Health benefits</p> <ul style="list-style-type: none"> • Help to reduce protein malnutrition condition • Improve bone health 	<pre> graph TD A[Saurgum , peral millet , fingure millit and DFSM_] --> B[Addition of spices and oil] B --> C[kneading, extrusion and deep frying] C --> D[soy chakli] </pre>
26.	Soy nuts (fried)		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 25-32% • Fat = 28-32% <p>Health benefits</p> <ul style="list-style-type: none"> • Help to reduce protein malnutrition condition • Improve bone health 	<pre> graph TD A[Cleaning and spliting of soyabean] --> B[coating with chickpea flour] B --> C[frying] C --> D[soy nuts] </pre>
27.	Soy nuts (roasted)		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 30-38 % • Fat ≈19 % <p>Health benefits</p> <ul style="list-style-type: none"> • Help to reduce the protein malnutrition condition • Improve bone health 	<pre> graph TD A[Cleaning and spliting of soyabean] --> B[coating with chickpea flour] B --> C[Roasted] C --> D[soy nuts] </pre>
28.	Soy shakkarpare		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 10-25 % <p>Health benefits</p> <ul style="list-style-type: none"> • Help to reduce protein malnutrition condition • Improve bone health 	<pre> graph TD A[Mixing of flours and dry steaming] --> B[kneading of oil and sugar shyrup] B --> C[shape formation and deep frying] C --> D[shankkarpare] </pre>
29.	Soy papadi		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 10-13 % <p>Health benefits</p> <ul style="list-style-type: none"> • Help to reduce protein malnutrition condition • Improve bone health 	<pre> graph TD A[Millet and soy flour mixing] --> B[Addition spices and doop making] B --> C[Steam cooking and papdi roll] C --> D[Drying and deep frying] </pre>

30.	Kharode		<p>Nutritional facts :</p> <ul style="list-style-type: none"> Protein = 15-17 % <p>Health benefits</p> <ul style="list-style-type: none"> Help to reduce protein malnutrition condition Improve bone health 	<pre> graph TD A[Mixing of Bajra grits with DFSF] --> B[Addition of spices and pre cooking] B --> C[Shape forming , sun drying and deep frying] C --> D[kharode] </pre>
31.	Soy bhujia		<p>Nutritional facts :</p> <ul style="list-style-type: none"> Protein = 10-12 % Fat = 8.0-9.0% <p>Health benefits</p> <ul style="list-style-type: none"> Help to reduce protein malnutrition condition Improve bone health 	<pre> graph TD A[Mixing of Fours] --> B[addition of spices and dough making] B --> C[extrusion and deep frying] C --> D[soy Bhujia] </pre>
32.	Soy sprouts		<p>Nutritional facts :</p> <ul style="list-style-type: none"> Protein = 10-12 % Fat = 4.0-5.0% <p>Health benefits</p> <ul style="list-style-type: none"> Improve immunity Good for digestive health Help in bone growth 	<pre> graph TD A[Cleaning of soyabean] --> B[sokaing overnight] B --> C[sprouting screen] C --> D[soy spourts] </pre>
Extruded soy based food products				
33.	Soy Suji (semolina):		<p>Nutritional facts :</p> <ul style="list-style-type: none"> Protein = 10-12 % Fat = 9.0-10% <p>Health benefits</p> <ul style="list-style-type: none"> Promote weight loss Support nervous system Provides instant energy 	<pre> graph TD A[Mixing of soybean grains] --> B[Grinding and extrusion] B --> C[Sieving] C --> D[suji] </pre>
34.	Soy snacks		<p>Nutritional facts :</p> <ul style="list-style-type: none"> Protein = 16-19 % Carbs = 61-70% <p>Health benefits</p> <ul style="list-style-type: none"> Improve bone health Aid in weight loss Improve lipid profile Reduce protein malnutrition 	<pre> graph TD A[Mixing pf soy flour, whest, rice and samoline] --> B[addition of water and mixing] B --> C[Extrusion and drying] C --> D[soy snacks] </pre>

35.	Nuggets		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 28-30 % • Fibre =29-33 % • Fat = 10-12 % <p>Health benefits</p> <ul style="list-style-type: none"> • Improve bone health • Aid in weight loss • Improve lipid profile • Reduce protein malnutrition 	<pre> graph TD A[Blending soy milk with raw material] --> B[cooking] B --> C[extrusion and dryig] C --> D[Soy Nuggets] </pre>
36.	Soy flakes		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 14-21 % • Fibre = 1.0-2.0% <p>Health benefits</p> <ul style="list-style-type: none"> • Help to reduce and gain weight • Improves skin texture 	<pre> graph TD A[Soyabean pre treatment (cleaning ,dehealing and grinding)] --> B[Softning flaking] B --> C[Extraction] C --> D[Soy flakes] </pre>
Soy based bakery food products				
37.	Soy muffins		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 10-12 % • Fat = 12-14% <p>Health benefits</p> <ul style="list-style-type: none"> • Reduce protein malnutrition in children • Aid in weight loss • Lowers blood pressure 	<pre> graph TD A[Mixing of Soy flour all purpose flour and other ingredients] --> B[blendingto make homogeneous better] B --> C[pouring in Cups] C --> D[Soy muffins] </pre>
38.	Soy based cake		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 18-20 % <p>Health benefits</p> <ul style="list-style-type: none"> • Reduce protein malnutrition in children • Aid in weight loss • Lowers blood pressure 	<pre> graph TD A[Mixing of Soy flour all purpose flour and other ingredientsca] --> B[blendingto make homogeneous better] B --> C[pouring in moulds] C --> D[Soy muffins] </pre>
39.	Soy based biscuits		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 11-13 % <p>Health benefits</p> <ul style="list-style-type: none"> • Reduce protein malnutrition in children • Aid weight loss • Lowers blood pressure 	<pre> graph TD A[Mixing of soy flour , sugar ,all purpose flourand other ingredients] --> B[Dough making] B --> C[spreading and cutting] C --> D[baking at 200°c 15 min] </pre>

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40.	Soy fortified nutritious health noodles		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 16-17% <p>Health benefits</p> <ul style="list-style-type: none"> • Helps in healthy weight gain • Reduce protein malnutrition in children 	<pre> graph TD A[Mixing of DFSF with refined wheat flour] --> B[Dough making] B --> C[rolling, extrusion and cutting] C --> D[Drying of noodles] </pre>
41.	Soy fortified Kuldai		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 42-43.2 % • Calcium ≈ 0.29mg <p>Health benefits</p> <ul style="list-style-type: none"> • Aids in healthy weight gain • Reduce protein malnutrition 	<pre> graph TD A[soaking of wheat and soya grains (2-3 days)] --> B[Grinding (milky white extrat)] B --> C[Boiling, salting and extrusion] C --> D[sun dry(3 - 4 days)] </pre>
42.	Soy Vermicelli		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 14-17 % <p>Health benefits</p> <ul style="list-style-type: none"> • Healthy weight gain • Reduce protein malnutrition 	<pre> graph TD A[Mixing of refined wheat flour with soy flour (80:20)] --> B[Dough making] B --> C[vermicelli extrusion] C --> D[Drying and packing] </pre>
43.	Protein rich soya based composite flour mixture		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 50-55% <p>Health benefits</p> <ul style="list-style-type: none"> • Helps in faster weight gain • Reduce protein malnutrition 	<p>Mixing of different nutritional ingredients with soy flour</p>
44.	Protein rich energy dense comfo spread		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 40-45% <p>Health benefits</p> <ul style="list-style-type: none"> • Maintain and builds body muscles • Reduce protein malnourishment • Weight gain 	<p>Prepared by mixing soy based dried powdered ingredients with a vegetable fat</p>



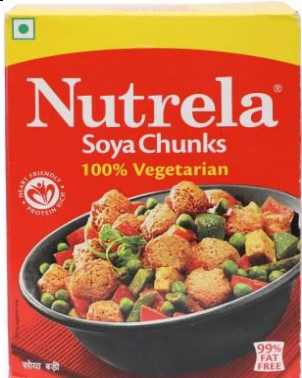

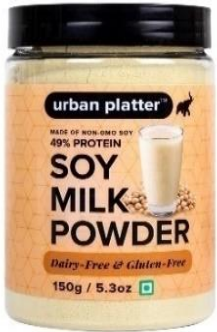
45.	Soy-Banana Based Sprinkles		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 30-35% <p>Health benefits</p> <ul style="list-style-type: none"> • Helps in protein and energy enhancement • Improve digestive system 	Blending of banana with soy curd and drying to make powder
46.	Tofu Whey Based Papaya Beverage		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 4.0-7.0 % • Carbs = 8.0-9.0% • Minerals = 5.0% <p>Health benefits</p> <ul style="list-style-type: none"> • Helps to improves protein and energy level • Stimulate immune system 	Fermentation, addition of fruit juice
47.	Soy cheese spread		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 14-17 % <p>Health benefits</p> <ul style="list-style-type: none"> • Improves energy level • Weight gain • Improve immune system 	<pre> graph TD A[Soy milk] --> B[fermentation lactic acid bacteria] B --> C[curd mixing with adible oil] C --> D[Soy cheese spread] </pre>
48.	Soy chaap		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 20 - 22% • Carbs = 35-37% <p>Health benefits</p> <ul style="list-style-type: none"> • Reduce protein malnutrition • Weight gain 	<pre> graph TD A[Mixing of soya nuggets , soy flour and juten] --> B[dough making] B --> C[mold around woodeen stick] C --> D[Dried Soy chap] </pre>
49.	Soy butter		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein = 40-43% • Fat = 19-22% • Carbs ≈ 32% <p>Health benefits</p> <ul style="list-style-type: none"> • Reduces cholesterol and obesity • Helps in healthy weight gain • Reduces protein malnutrition 	<pre> graph TD A[Pretreatment of whole soyabean] --> B[moisture upto 50% and cooking in adible oil (140 to 180°c)] B --> C[cooling and adding glycerized oil] C --> D[Grinding and passing through mesh screen] </pre>


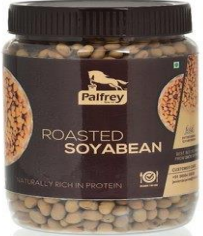
Disclaimer: The details of the soy-based food products are taken from personal discussion and information available in public domain. ICAR-CIAE does not take any guarantee of the quality of the products except for developed by self.

*The given process flow chart is only an indication of the product manufacture process. Experts should be consulted before manufacturing the product.

SOME OF THE COMMERCIAL AVAILABLE SOY BASED FOOD PRODUCTS

<p>Plain soy milk powder</p>		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein =46-49% • Carbs= 22-24% • Fat = 16-18% • Fibre = 21-22% <p>Health benefits</p> <ul style="list-style-type: none"> • Helps in weight loss • Reduce the risk of coronary diseases <p><i>*Commercially available</i></p>
<p>Flavored soymilk powder</p>		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein =46-49% • Carbs= 22-24% • Fat = 16-18% • Fibre = 21-22% <p>Health benefits</p> <ul style="list-style-type: none"> • Helps in weight loss • Reduce the risk of coronary diseases • Good for lactose intolerant consumer <p><i>*Commercially available</i></p>
<p>Soy protein isolates</p>		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein ≈90% <p>Health benefits</p> <ul style="list-style-type: none"> • Lowers cholesterol levels • Cardiovascular health • Gastrointestinal health <p><i>*Commercially available</i></p>
<p>Soy protein hydrolysate powder</p>		<p>Nutritional facts :</p> <ul style="list-style-type: none"> • Protein =46-49% • Carbs= 22-24% • Fat = 16-18% • Fibre = 21-22% <p>Health benefits</p> <ul style="list-style-type: none"> • Helps in weight loss • Reduce the risk of coronary diseases • Good for lactose intolerant consumer <p><i>*Commercially available</i></p>

<p>Soya sticks</p>		<p><i>Nutritional facts:</i> As mention on packed</p>
<p>Soya cups/katori</p>		
<p>Soya Nutrela</p>		
<p>Soy milk</p>		
<p>Soy milk powder</p>		

<p>Soy isoflavones</p>		
<p>Roasted soyabean</p>		
<p>Soya noodles</p>		
<p>Soya mater</p>		<p><i>Nutritional facts:</i> As mention on packed</p>
<p>Tofu</p>		

**The given process flow chart is only an indication of product manufacture process. Experts should be consulted before manufacturing the product.

A FEW PRODUCERS OF SOY BASED FOOD PRODUCTS

SN	Product Name	Contact details of Producers
1	<ul style="list-style-type: none"> • <i>Soy fortified foods:</i> Soy fortified nutritious health noodles, Soy fortified Kuldai, Soy Vermicelli. • <i>Soy flour based products:</i> Full fat soy flour, Medium fat soy flour, Defatted soy flour, Soy <i>Suji</i> (semolina). • <i>Soymilk products:</i> Soy cheese spread, Soy Ice cream, Soy lassi/matha, Soy /Amarkhand. • <i>Traditional fermented foods:</i> Soy dosa, Soy dhokla, Soy idli /vada. • <i>Traditional sweets:</i> Soymilk based burfi, Soy laddu, Soy based rasogulla. • <i>Soy snacks:</i> Soy <i>chakli</i>, Soy nuts (fried), Soy nuts (roasted), Soy <i>shakkarpare</i>, <i>Kharode</i>, Soy <i>bhujia</i>, Soy sprouts, Soy-<i>sattu</i>, Soy snacks. • <i>Soy based bakery products:</i> Soy muffins, Soy based cake, Soy based biscuits. • <i>Products for commercialization:</i> Soy <i>chaap</i>, Protein rich soya based composite flour mixture, Protein rich energy dense comfo spread, Soy-Banana Based Sprinkles, Tofu Whey Based Papaya Beverage 	<p><i>ICAR-Central Institute of Agricultural Engineering</i> <u>Address:</u> Nabibagh, Berasia Road, Bhopal-462038, Madhya Pradesh India. <u>Contact No.:</u> +91-755-2737191, 2521001</p>
2	<p>Soy protein isolates, Soy protein hydrolysate powder</p>	<ul style="list-style-type: none"> • <i>Taj Agro International</i> (A Division of Taj Pharmaceuticals Limited) <u>Address:</u> Unit 214, 2nd Floor, Bake House No.16/22, Maharashtra Chamber of Commerce Lane, Fort, Mumbai – 400001, India. <u>Contact No.:</u> +91-22-2632 2701/ +91-22-2632 2167 • <i>Twilight Litaka Pharma</i> <u>Address:</u> Twilight Litaka Pharma Ltd., Village Dhana Bagbania, Post Office Manpura, Tehsil Baddi Distt Solan-174101, Himachal Pradesh -, India. <u>Contact No.:</u> + 01795-267090/267089 • <i>Chaitanya Agro Bio-tech Pvt. ltd</i> <u>Address:</u> 120/2, Laxmi Nagar, Umbernala Raod, Malkapur, Buldhana Malkapur Buldana District - 443101, Buldhana, Maharashtra, India.

		<p>Contact No.: + +91-9823563605</p> <ul style="list-style-type: none"> • Crescent Biotech Address: Gat No. - 167/3/A/2, At Post - Antroli, Tal – South, Solapur - 413221, Maharashtra , India. Contact No.: +91-80 6809 3162 • Herbochem Address: No. 38 & 39, Technocrats Industrial Estate, Bala Nagar, Hyderabad-500037, Telangana, India. Contact No.: 040-23077331
3	Plain soy milk, Flavoured soy milk, Soy tofu, Soy <i>papad</i> , Soymilk curd, Soy sticks, Soy chunks, Soya flour, Soy based biscuits, Silken tofu, Soy plain set yoghurt, Soy Shrikhand, Soy <i>papadi</i> , Soy flavoured lassi.	<ul style="list-style-type: none"> • Soyaam Food Products Address: 352/1/2, Patthar Mundala Road Palda Indore, Indore, Madhya Pradesh - 452009, India. Contact No.: +91-95222 28791 • Delhi Soy Products Address: Sec-1, R. K. Puram, New Delhi- 110022. Contact No.: +91-9278297984 • Midas Soy Nutritions .. Address: Plot No.15/1, Irwin Square to Osmania Masjid Road, Khaparde Bagicha, Amravati City, District: Amravati Maharashtra State, Pin 444 602. Contact No.: +91- 9422473909, +91-9511754035 • New Super Engineering Address: 742, Sector-3, Opp. Kesar Ispat, Nr. Indorama Temple, Pithampur - 454774, Madhya Pradesh, India. Contact No.: +91-9827205007, 9893119999 • Gujarat Ambuja Exports Limited Address: Ambuja Tower, Opp.Sindhu Bhavan, Sindhu Bhavan Road, Bodakdev, P.O. Thaltej Ahmedabad 380059. Contact No.: +91-79-61556678 • Savour India Private Limited Address: G-1/383-384, Phase II, RIICO Industrial Area, Bhiwadi - 301019, Rajasthan, India. Contact No.: +91-8048078775 • P.C. Kannan & Co Address: No. 32, S.K. 1, Devasnaka, Lasudia, Mori, Indore -452010, Madhya Pradesh. Contact No.: +91-8048866806 • Spark Internationals

	<p><u>Address:</u> 302 Himayat Nagar Hyderabad Andhra Pradesh 500028 India. Contact No.: +91-9292955844</p> <ul style="list-style-type: none"> • <i>Agrawal Global Services</i> <u>Address:</u> Dharampuri, Dhar-454552, Madhya Pradesh. Contact No.: +91-989-3579530 • <i>D-International</i> <u>Address:</u> 52/2, Bicholi Hapsi Rd, Srikant Palace, Indore-452001, Madhya Pradesh, India. Contact No.: +91-70004 83153 • <i>Mahakali Foods Pvt Ltd</i> <u>Address:</u> 48, Bengali Colony, Kanadia Road, 452016 Madhya Pradesh, India. Contact No.: +91-7312591801 • <i>Shree Laxmi Food Industrie</i> <u>Address:</u> Chamber Road Jorhat, 785001, Assam, India. Contact No.: +91-9435050290 • <i>Vijayanagar Soy Milk & Products</i> <u>Address:</u> Plot 70C, IDA Nellimarla, Vizianagaram, 535002 Andhra Pradesh, India. Contact No.: +91-9700318318 • <i>Chetran Foods Private Limited</i> <u>Address:</u> Unit 25, Lane 2/A, Chintamani Estate, Ramtekdi Industrial Area, Hadapsar, Pune, Maharashtra 411028, India. Contact No.: +91-8068442225 • <i>Hershey India Pvt. Ltd.</i> <u>Address:</u> 5 Mandideep District Raisen No 1, New Industrial Area, Bhopal 462046 Madhya Pradesh. Contact No.: 22 2572 7800 • <i>Soyarich Foods</i> <u>Address:</u> Pimple Gurav, Pimpri Chinchwad, Pune-411061, Maharashtra, India. Contact No.: +91-90961 25401 • <i>Sindhi Dairy Products</i> <u>Address:</u> AD Market Shop No. 5, Shalimar Bagh-110088, Delhi, India. Contact No.: +91-9968440888, +91- 9013340152 • <i>Invigorate Foods</i> <u>Address:</u> 166-D, Sector-7, Phase-II, IMT Manesar, Gurugram-122050, Haryana,
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		<p>India. Contact No.: +91-9811268869</p> <ul style="list-style-type: none"> • Adisoy Foods & Beverages Pvt. Ltd <u>Address:</u> Kup Kalan Road, Village jogimarja, Ludhiana, 141119, Punjab, India. Contact No.: +91-9780000094 • Soya Beany <u>Address:</u> Mdda Complex L-58 Clock Tower Dehradun, Uttarakhand, India. Contact No.: +91-8859994545 • Niharika Agro Exports <u>Address:</u> Roadways Chauraha, Station Road, Mirzapur-231001, Uttar Pradesh, India. Contact No.: +91-8707849677 • Shri Balaji Agro Foods <u>Address:</u> KH No .- 753, Siraspur, Badli, New Delhi-110042, India. Contact No.: +91-8800142086
4.	Soy sauce (tamari, shoyu, teriyaki)	<ul style="list-style-type: none"> • Holyland Marketing Private Limited <u>Address:</u> D-154, New Rajinder Nagar, New Delhi - 110060, Delhi, India. Contact No.: +91- 96438 16851 • G.D. Food Mfg. (I). Pvt. Ltd. <u>Address:</u> Plot No. SP 15 & 16, RIICO Industrial Area Neemrana-301705, Distt. Alwar, Rajasthan, India. Contact No.: +91-92143 86732 • PT. Heinz ABC Indonesia <u>Address:</u> Menara Mandiri Tower II 20th & 21st Floor Jl. Jenderal Sudirman Kav. 54-55 Jakarta Selatan, DKI Jakarta, 12190 Indonesia Contact No.: +62-2150857000 • Imported & Distributed by Kikkoman India Private Ltd <u>Address:</u> 7th Floor, Boston House, Suren Road, Andheri East-400093, Mumbai, India. Contact No.: +91-8048361217 • Imported & Distributed by Chenab Impex Pvt Ltd. <u>Address:</u> J1-A, Ansa Industrial Estate, Saki Vihar Road Sakinaka, Andheri (E), Mumbai 400072 India. Contact No.: 022 4079 5800

5.	Soya nutrela/chunks, Soy Nuggets Soy flakes, Soy lecithin	<ul style="list-style-type: none"> • <i>Ruchi Soya Industries Limited</i> <u>Address:</u> 601, part B-2, metro tower 6th floor, Vijay Nagar, AB Road Indore-452010, Madhya Pradesh, India. <u>Contact No.:</u> +91 (22) 6109 0100/ 2872 4445/ 2871 • <i>New Super Engineering</i> <u>Address:</u> 742, Sector-3, Opp. Kesar Ispat, Nr. Indorama Temple, Pithampur - 454774, Madhya Pradesh, India. <u>Contact No.:</u> +91-9827205007, 9893119999 • <i>Gujarat Ambuja Exports Limited</i> <u>Address:</u> Ambuja Tower, Opp.Sindhu Bhavan, Sindhu Bhavan Road, Bodakdev, P.O. Thaltej-380059, Ahmedabad, India. <u>Contact No.:</u> +91-79-61556678 • <i>Savour India Private Limited</i> <u>Address:</u> G-1/383-384, Phase II, RIICO Industrial Area Bhiwadi - 301019, Rajasthan, India. <u>Contact No.:</u> +91-8048078775 • <i>P.C. Kannan & Co</i> <u>Address:</u> No.32, S.K. -1, Devasnaka, Lasudia, Mori, Indore -452010, Madhya Pradesh, India. <u>Contact No.:</u> +91-8048866806 • <i>Spark Internationals</i> <u>Address:</u> 302 Himayat Nagar Hyderabad-500028, Andhra Pradesh, India. <u>Contact No.:</u> +91- 9292955844 • <i>Agrawal Global Services</i> <u>Address:</u> Dharampuri, Dhar- 454552, Madhya Pradesh, India. <u>Contact No.:</u> +91-989-3579530 • <i>D-International</i> <u>Address:</u> 26 / B, 1st floor, Johari Palace, M. G. Road, 452001, Madhya Pradesh, India. <u>Contact No.:</u> +91-731-4248819 • <i>Mahakali Foods Pvt Ltd</i> <u>Address:</u> 48, Bengali Colony, Kanadia Road, 452016, Madhya Pradesh, India. <u>Contact No.:</u> +91-7312591801 +91 9165888885 • <i>Shree Laxmi Food Industrie</i> <u>Address:</u> Chamber Road Jorhat, 785001, Assam, India. <u>Contact No.:</u> +91-9435050290
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		<ul style="list-style-type: none"> • <i>Vijayanagar Soy Milk & Products</i> Address: Plot 70C, IDA Nellimarla, Vizianagaram, 535002 Andhra Pradesh, India. Contact No.: +91-9700318318
6.	Soy Katori	<ul style="list-style-type: none"> • <i>Home Alone Products Pvt Ltd.</i> Address: D/15/1, Okhla Ind. Area, Phase II, New Delhi-110020, India. homealonefoods@hotmail.com • <i>Pushpanjali Food Products</i> Address: Shop No. 159, New Manglapuri, New Delhi-110030, India. Contact No.: +91-8048372558 • <i>Aggarwal food product</i> Address: S-55,okhla industrial area,phase 2, New Delhi-110020, Okhla, Delhi India. Contact No.: +91-9818967227 • <i>Deep Agencies</i> Address: Plot No-WZ19, UGF WZ Block, Ram Nagar, Tilak Nagar, New Delhi-110018, Delhi, India. Contact No.: +91-9811950229 • <i>DSF International</i> Address: 1781, Hauz Suiwalan, Daryaganj, Near Hauz Masjid, Chandni Chowk, New Delhi-110002, Delhi, India. Contact No.: +91-8068441041
7.	Soy butter	<ul style="list-style-type: none"> • <i>VedaOils</i> A- Address: 91, Block A, Wazirpur Industrial Area, Wazirpur, Delhi, 110052 Contact No.: +91-9999525990 • <i>Don't Go Nuts</i> Address: 627Oak St. Unit B Salida, CO 81201-2030 United States. Contact No.: (855) 666-8826 • <i>Hilton Whole Grain Millers Ltd.</i> Address: O/A WOWBUTTER Foods Staffa, Ontario, Canada 6939 26 Line, Staffa, ON N0K 1Y0, Canada. Contact No.: (519) 345-0111
8.	Soy oil	<ul style="list-style-type: none"> • <i>Bansal Extraction & Exports Pvt. Ltd.</i> Address: Plot No. 11-A-II, New Industrial Area, Mandideep, Bhopal-462016 Madhya Pradesh. Contact No.: 0755 - 2429831 • <i>Nagasai Traders</i>

		<p>Address: D No. 23-6-61, Patnam Bazar, Main Road, Guntur - 522003, Andhra Pradesh.</p> <p>Contact No.: 0863 - 2321272</p> <ul style="list-style-type: none"> • Om Agro Industries Address: Vyapar Parisar, Chikhli, Durg - 490006, Chhattisgarh. Contact No.: 9425294200 • Maharashtra Oil Extractions Pvt. Ltd. Address: E-140, MIDC, Awdhan, Dhule – 424311, Maharashtra. Contact No.: 2562 - 239777 / 239888 • Shree Basant Oils Ltd. Address: F-10, Vimal Towers, Sanjay Place, Agra - 282 002, Uttar Pradesh. Contact No.: +91-9760999901 • Kriti Nutrients Address: Brilliant Sapphire, 801 – 804, 8th Floor, Plot No. 10, Scheme 78-II, Vijay Nagar, Indore – 452 010, Madhya Pradesh. Contact No.: 0731 - 2719100 / 2704716 • Maharashtra Solvent Extraction Pvt. Ltd. Address: E-132, M.I.D.C, Behind S.T. Workshop, Awdhan, Dhule – 424006, Maharashtra. Contact No.: 256 - 239500 / 239501 • Omsree Agro Industries Pvt.Ltd. Address: E-117, MIDC Avdhan, Dhule – 424006, Maharashtra. Contact No.: +91-9422775044 • Shree Basant Oils Ltd. Address: F-10, Vimal Towers, Sanjay Place, Agra - 282 002, Uttar Pradesh. Contact No.: +91-9760999901 • Gujarat Ambuja Exports Ltd. Address: Ambuja Tower, Opp.Sindhu Bhavan, Sindhu Bhavan Road, Bodakdev, P.O. Thaltej Ahmedabad 380059. Contact No.: +91-79-61556678
9.	Plain soy milk powder, Flavoured soymilk powder and Tofu (soy paneer/ firm tofu)	<ul style="list-style-type: none"> • Bionutrients India Pvt. Ltd. Address: 4G3F+2WV, Industrial Area, Mandideep, Bhopal, Madhya Pradesh 462046, India. Contact No.: +91-755-2766627, 2766379 • Midas Soy Nutrition's Address: Plot No.15/1, Irwin Square to

	<p>Osmania Masjid Road Khaparde Bagicha, Amravati City, Amravati-444 602, Maharashtra. Contact No.: +91- 9422473909, +91-9511754035</p> <ul style="list-style-type: none"> • <i>Delhi Soy Products</i> <u>Address:</u> Sec-1, R. K. Puram, New Delhi 110022. Contact No.: +91-9278297984 • <i>Sadiya Mani Products & Co.</i> <u>Address:</u> 36/63, Ragavan Colony 1st, Vadapalani, Chennai, 600026, Tamilnadu, India. Contact No.: +91-44-23750826, +91-9283228386 • <i>Neon India Products</i> <u>Address:</u> Devi Mandir Road, Uttam Nagar, 132103, Haryana, India. Contact No.: +91-180-4014654 • <i>Invigorate Foods</i> <u>Address:</u> 166-D, Sector-7, Phase-II, IMT Manesar, Gurugram-122050, Haryana, India. Contact No.: +91 9811268869 • <i>Carefit Agro Foods</i> <u>Address:</u> Alambagh, 226005, Uttar Pradesh, India. Contact No.: 91-522-9305155095 • <i>Soyarich Foods</i> <u>Address:</u> Pimple Gurav, Pimpri Chinchwad, Pune-411061 Maharashtra, India. Contact No.: +91-90961 25401 • <i>Sindhi Dairy Products</i> <u>Address:</u> AD Market Shop No. 5, Shalimar Bagh-110088, Delhi, India. Contact No.: +91-9968440888, +91-9013340152 • <i>Pushpanjali Agro Industry</i> <u>Address:</u> Deraassi, 140201, Punjab, India. Contact No.: +91-9888-009556 • <i>Taral Foods</i> <u>Address:</u> Pratham, Opposite Bhavnath Mandap Service, Street No. 6, Laxmi Nagar, Rajkot -360004 Gujarat. Contact No.: +91-9643203127
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10.	Soya noodles	<ul style="list-style-type: none"> • <i>Naturally Yours</i> <u>Address:</u> Green Acres Off, Anurag Building, Shop No.5, Ground Floor, Panjrapole, Borla, Naka, Chembur, Mumbai, Maharashtra 400088, India. Contact No.: +91-8767801982 • <i>VeZlay Foods Pvt Ltd</i> <u>Address:</u> A1/1, Shahadra, Nathu Colony, Delhi- 110093, India. Contact No.: +91-7011 736 463, 011-22810601 • <i>Viva Foods</i> <u>Address:</u> Survey no 23, Karvenagar, Besides Kakade Palace, Pune -411052, India. Contact No.: + 91-9960245094 • <i>Pankaj Food Products</i> <u>Address:</u> No. 7545/C/9B, Street No. 4 , Waheguru Road , New Amar Nagar, Kabir Nagar, Ludhiana-141003, Punjab, India. Contact No.: +91-9417542988
11.	Soy isoflavones	<ul style="list-style-type: none"> • <i>Kshipra Biotech Private Limited</i> <u>Address:</u> 88, Mahatma Gandhi Rd, Khatipura, Indore, Madhya Pradesh 452007, India. Contact No.: +91-97544 42044 • <i>West-Coast Pharmaceutical Works Ltd. (Gota Plant)</i> <u>Address:</u> Meldi Estate, Near Prasang Party Plot, Opp. Sola Bhagwat, Sayona City Road, Gota, Ahmedabad-382481, Gujarat, India. Contact No.: + 91-2717-241152 / 53 • <i>Panacea Phytoextracts Private Limited</i> <u>Address:</u> 204-206, Shiromani Complex, Nehrunagar Road, Opposite Ocea Park, Ambawadi, Ahmedabad-380015, Gujarat, India. Contact No.: + 91-72288 24747 • <i>Master G Traders</i> <u>Address:</u> Village Berkhera Pandey, Barkhera Pandey, Kashipur, Udham Singh Nagar-244713, Uttarakhand, India. Contact No.: + 91-8048954214 • <i>21st Century Healthcare, Inc.</i> <u>Address:</u> 2119S. Wilson St. Temphe, AZ 85282 United States.

		<p>Contact No.: +1 480-966-8201</p> <ul style="list-style-type: none"> • Best Naturals <u>Address:</u> PO Box 394, Kenilworth, New Jersey, 07033, United States. Contact No.: (877) 659-6004 • Importer & Distributor: Nature's way Brand <u>Address:</u> LLC green Bay WI54311 United States. Contact No.: 1-800-9NATURE, (1-800-962-8873)
12.	Soy sauce powder	<ul style="list-style-type: none"> • Venkatesh Natural Extract Pvt Ltd. <u>Address:</u> Vidhya Complex, Above Sunshine Motores, Chevorlet Car Showroom, Lal Bagh Chowk, Chhindwara-480002 (Madhya Pradesh) India. Contact No.: +91-7162231143 • Orfo Natura Llp <u>Address:</u> 120, Aayana Complex, Near Shell Petrol Pump 100 Feet Thaltej-Hebatpur Road, Ahmedabad-380059, Gujarat, India. Contact No.: 91 - 79 - 29708440 • Innovative Health Care (India) Private Limited <u>Address:</u> No. 88/1, AB Block, 1st Street Anna Nagar, Chennai-600040, Tamil Nadu, India. Contact No.: +91-4426289003/4, 42189654 • Shri Hari Industries <u>Address:</u> F-103, Bichwal Industrial Area, Bikaner- 334006, Rajasthan. Contact No.: +91-9413384758, +91-9414429976
13.	Soy Chaap	<ul style="list-style-type: none"> • Unimax Frozen Treat Pvt Ltd <u>Address:</u> Offc No. 1109, Preals Best Height 2, Netaji Subhash Place Complex-Pitampura, Delhi – 110034, India. Contact No.: +91-7373000915, +91-9540770033 • VeZlay Foods Pvt Ltd <u>Address:</u> A1/1, Shahadra, Nathu Colony, Delhi – 110093, India. Contact No.: +91-7011 736 463, 011-22810601 • Shri Balaji Agro Foods

		<p><u>Address:</u> KH No .- 753, Siraspur, Badli, Delhi-110042, India. <u>Contact No.:</u> +91-8800142086</p> <ul style="list-style-type: none"> • Seasons Farm Works <u>Address:</u> Plot No. 157, HSIDC, Barhi Industrial Area, Phase-1, G.T. Karnal Road, Sonipat - 131101, Haryana, India. <u>Contact No.:</u> +91-8035918381, +91-8035918381 • Vishal Chaap <u>Address:</u> 431A, Rishi Nagar, Rani Bagh, Delhi - 110034, Near By Rani Bagh Main Market. <u>Contact No.:</u> +91- 7947238419 • Trinity Soya Products Manufacturer <u>Address:</u> H1-226J, RD. 5 Indraprastha Industrial Area, Kota-324005, Rajasthan. <u>Contact No.:</u> +91- 94149 66909, +91-94135 23108 • S. S Soy <u>Address:</u> TC 305, 3rd Floor, Capital High Street, Phool Bagh, Bhiwadi-301019, Alwar, Rajasthan. <u>Contact No.:</u> +91-7665669111, +91-7665669222 • Sagar Trading Company <u>Address:</u> E-5, Laxmi Park, Nangloi, New Delhi-110041, India. <u>Contact No.:</u> +91-8010007272 • Soy Delight Food <u>Address:</u> Shop No A/2, 2nd Floor, Pranami Nagar Corporation, Ved Road, Katargam, Surat - 395004, Opposite Reliance Smart Mall, Gujrat, India. <u>Contact No.:</u> +91-9033868815, +91-9664566240 • Frozen Delicia <u>Address:</u> Pocket E- 5, Plot No. 06, F-1, First Floor, Rohini, Sector 7, Delhi - 110085, India. <u>Contact No.:</u> +91-8037268001
14.	Soy flour	<ul style="list-style-type: none"> • Bansal Extraction & Exports Pvt. Ltd. <u>Address:</u> 107 Deen Dayal Parisar, Opp. Habibganj Railway Station Arera Colony Bhopal- 462001, Madhya Pradesh, India. <u>Contact No.:</u> 0755-2423736 • Aneesh Enterprises <u>Address:</u> 2A-91 Windermere, 9th Floor Off New Link Road Nr. Oshiwara Police

	<p>St., Andheri (W) - 400053, Mumbai, Maharashtra, India. Contact No.: 022-66964108</p> <ul style="list-style-type: none"> • <i>Agro Solvent Products Pvt. Ltd.</i> <u>Address:</u> 2nd Floor, Gopal Bhavan Sanjay Complex, Jayendra Ganj, Gwalior - 474009, Madhya Pradesh, India. Contact No.: 0751-2623960 • <i>Bajrang Agro Industries Pvt. Ltd.</i> <u>Address:</u> 1st Floor, 219-234 Vikram Tower Sapna Sangeeta Road, Indore, - 452001, Madhya Pradesh, India. Contact No.: 0731-2405051 • <i>Adani Wilmar Ltd.</i> <u>Address:</u> Near Navrangpura Railway Crossing, Ahmedabad, -380009, Gujarat, India. Contact No.: 079-25555402 • <i>Avi Agri Business Pvt. Ltd.</i> <u>Address:</u> 4th Floor, Saket Tower, 3A Ratlam Kothi A.B. Road, Indore, - 452001, Madhya Pradesh, India. Contact No.: 0731-2525050 • <i>Betul Oils & Flours Ltd.</i> <u>Address:</u> Kosmi Industrial Area, Indore, -452001, Madhya Pradesh, India. Contact No.: 022-22828937 • <i>Bhaskar Exxoils Limited</i> <u>Address:</u> Dwarka Sadan, 6 Press Complex Zone - I, M.P. Nagar, Bhopal-462011, Madhya Pradesh, India. Contact No.: 0755-4201000 • <i>Dhanuka Extractions Pvt. Ltd.</i> <u>Address:</u> 106 Raj Talkies Compound, Chhawani, Indore, -452001, Madhya Pradesh, India. Contact No.: 07423-264118 • <i>Bunge India Pvt. Ltd.</i> <u>Address:</u> 601 C & 601D, 6th Floor The Capital, C-70 G Block Bandra Kurla Complex, Bandra (E), Mumbai, -400051, Maharashtra, India. Contact No.: 022-40509519
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*** The list of producers of soy products given here is an indicative list for information only. The contact details of a few producers of soy-based food products are taken from personal discussion and information available in public domain. ICAR-CIAE does not take any guarantee of the quality of the products produced by these producers.

Food products produced after adequate processing of soybean are nutritionally rich, good for health, inexpensive and enhances longevity.



Centre of Excellence on Soybean Processing and Utilization



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