

India's International Trade of Four Specific Commodities in the Recent Past

Some Insights

Preface

The study uses trade indicators to analyse merchandise export and import data in a way that should be useful for the purpose of policy. The indicators provide a glimpse of the trade patterns of the world and the performance of India in comparison to various other countries. They have been used in the case of India's exports of **Frozen Meat of Bovine Animals & Pasta whether or not cooked or stuffed** and imports of **Chocolates and other Preparation of Cocoa & Glycosides** to indicate the possible directions policy may take.

The data used in this study has been sourced from the Export Import Data Bank of the DGCI&S, Department of Commerce, and Government of India and from the United Nations Comtrade Database. Introduction notes of each commodities has been sourced from the various sights –viz Wikipedia, Britannica, The Economic Times etc.

Computations are based on data at ITC-HS four-digit level (ITC-HS Code-0202 & 1902 for export and 1806 & 2938 for import) and the latest finalized data available on the UN Comtrade Database up to year 2020 and on the DGCI&S Database up to August'2022. So, trends from 2018 to 2021 have been shown when we extract the data from UN Comtrade and from 2018 to 2021 have been shown when we extract the data from DGCIS Data base.

In this report, we will see various analysis and aspects of India's Precious as well as International export trade of Frozen Meat of Bovine Animals & Pasta whether or not cooked or stuffed and imports of Chocolates and other Preparation of Cocoa & Glycosides. We will use both the 4 digit Commodity codes, for our analysis, as appropriate.

Trends in India's as well as International Trade i.e. Exports and Imports of above four Commodities are given below in different tables :

- **Table1: India's top 10 Export destination of Frozen Meat of Bovine Animals with their shares in percentage.**
- **Table 2 : World's top 10 Exporters of Frozen Meat of Bovine Animals with their shares in percentage.**
- **Table 3 : World's top 10 Importers of Frozen Meat of Bovine Animals with their shares in percentage.**
- **Annex- I : Top 3 sources of Frozen Meat of Bovine Animals of World's top 3 Importers.**
- **Table4: India's top 10 Export destination of Pasta with their shares in percentage.**
- **Table 5 : World's top 10 Exporters of Pasta with their shares in percentage.**
- **Table 6 : World's top 10 Importers of Pasta with their shares in percentage.**
- **Annex-II : Top 3 sources of Pasta of World's top 3 Importers.**
- **Table 7 : India's top10 Sources of Chocolates and Other Cocoa's preparation with their shares in percentage.**
- **Table 8 :World's top 10 Importers of Chocolates and Other Cocoa's preparation Oils with their shares in percentage.**
- **Table 9 : India's top 10 Sources of Glycosides with their shares in percentage.**
- **Table 10 : World's top 10 Importers of Glycosides with their shares in percentage.**

EXPORT

Frozen Meat of Bovine Animals

Bovine meat, the flesh or other edible parts of animals (usually domesticated cattle, swine, and sheep) used for food, including not only the muscles and fat but also the tendons and ligaments. Bovine Meat is valued as a complete protein food containing all the amino acids necessary for the human body. The fat of meat, which varies widely with the species, quality, and cut, is a valuable source of energy and also influences the flavour, juiciness, and tenderness of the lean. Parts such as livers, kidneys, hearts, and other portions are excellent sources of vitamins and of essential minerals, easily assimilated by the human system.

Bovine Meat digests somewhat slowly, but 95 percent of meat protein and 96 percent of the fat are digested. Fats tend to retard the digestion of other foods; thus, meat with a reasonable proportion of fat remains longer in the stomach, delaying hunger and giving “staying power.” Extractives in meat cause a flow of saliva and gastric juices, creating the desire to eat and ensuring ease of digestion.

The most widely consumed meat is beef, the flesh of mature cattle that normally weigh from 450 to 540 kg (1,000 to 1,200 pounds) and yield between 55 and 60 percent of their weight in meat. Veal, the flesh of calves of cattle, is much less fatty than beef.

People have eaten the flesh of bovines since prehistoric times; some of the earliest known cave paintings, such as those of Lascaux, show aurochs in hunting scenes. People domesticated cattle to provide ready access to beef, milk, and leather. Cattle have been domesticated at least twice over the course of evolutionary history. The first domestication event occurred around 10,500 years ago with the evolution of *Bos taurus*. The second was more recent, around 7,000 years ago, with the evolution of *Bos indicus* in the Indian subcontinent. There is a possible third domestication event 8,500 years ago, with a potential third species *Bos africanus* arising in Africa.

In the United States, the growth of the beef business was largely due to expansion in the Southwest. Upon the acquisition of grasslands through the Mexican–American War of 1848, and later the expulsion of the Plains Indians from this region and the Midwest, the American livestock industry began, starting primarily with the taming of wild longhorn cattle. Chicago and New York City were the first to benefit from these developments in their stockyards and in their meat markets.

The meat-products industry, though called meat packing, includes the slaughtering of animals. The steps in this process generally include stunning, bleeding, eviscerating, and skinning. Carcasses are then inspected and graded according to government-set standards of quality.

Bovine cattle are cattle raised for meat production (as distinguished from dairy cattle, used for milk production). The meat of mature or almost mature cattle is mostly known as beef. In beef production there are three main stages: cow-calf operations, backgrounding, and feedlot operations. The usual methods of preserving meat from bacteria and decay are refrigerating, freezing, curing, freeze-drying, and canning.

Meats are marketed as fresh or processed goods or become ingredients of various meat products, including many types of sausages and luncheon meats. They also yield a number of important by-products.

As per 2021, Brazil was the largest Frozen Bovine Meat exporter in the world followed by Australia, United States, India (Includes Car beef only) and Argentina. Brazil, Australia, the United States and India accounted for roughly 61% of the world's beef exports.

These are broadly classified under **H.S. Code-0202**.

Table – 1

India's Top 10 destination of Frozen Meat of Bovine Animals (H.S Code-0202)

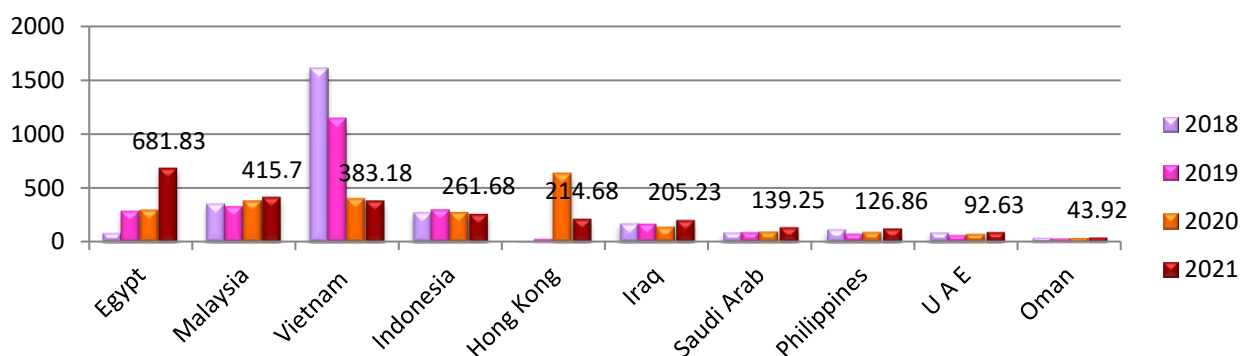
Rank	Countries	2018		2019		2020		2021	
		Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)
1.	Egypt	85.50	2.57	290.13	9.48	295.43	10.69	681.83	23.22
2.	Malaysia	358.55	10.79	333.08	10.88	379.80	13.74	415.70	14.15
3.	Vietnam	1613.24	48.53	1141.72	37.30	400.89	14.51	383.18	13.05
4.	Indonesia	278.71	8.38	301.06	9.84	276.28	10.00	261.68	8.91
5.	Hong Kong	3.95	0.12	32.86	1.07	628.86	22.76	214.68	7.31
6.	Iraq	175.32	5.27	171.77	5.61	142.09	5.14	205.23	6.99
7.	Saudi Arab	91.59	2.76	93.99	3.07	98.12	3.55	139.25	4.74
8.	Philippines	121.12	3.64	80.03	2.61	93.79	3.39	126.86	4.32
9.	U A E	91.30	2.75	68.01	2.22	77.07	2.79	92.63	3.15
10.	Oman	41.09	1.24	35.09	1.15	37.39	1.35	43.92	1.50
	Others	464.05	13.96	513.10	16.76	333.65	12.07	371.89	12.66
	Total	3324.41	100	3060.82	100	2763.37	100	2936.85	100

Source: DGCI&S.

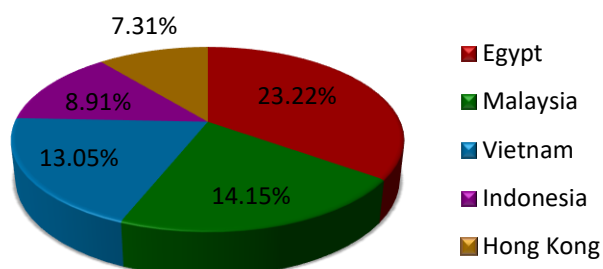
Note : India's Export including re-export

Major destinations of Frozen Meat of Bovine Animals from India from 2018-2021(in Million USD)

Data label given on the basis of 2021



India's top 5 destinations of Frozen Meat of Bovine Animals by percentage India in 2021:



In the year 2021, India has exported Frozen meat of Bovine animals worth of US \$ 2.93Billion, showing the rise of almost 6.28% compared to the year 2020. Egypt was the largest market for Frozen meat of Bovine animals export from India, in 2021 Egypt imported US \$ 681.83 Million worth of Frozen meat of Bovine animals from India which was 23.22% share of India's total export. It was followed by Malaysia and Viet Nam with 14.15% and 13.05% share. The top 10 countries in total shared the share of 87.34% of the frozen meat of Bovine animals export value from India in that year.

Table-2

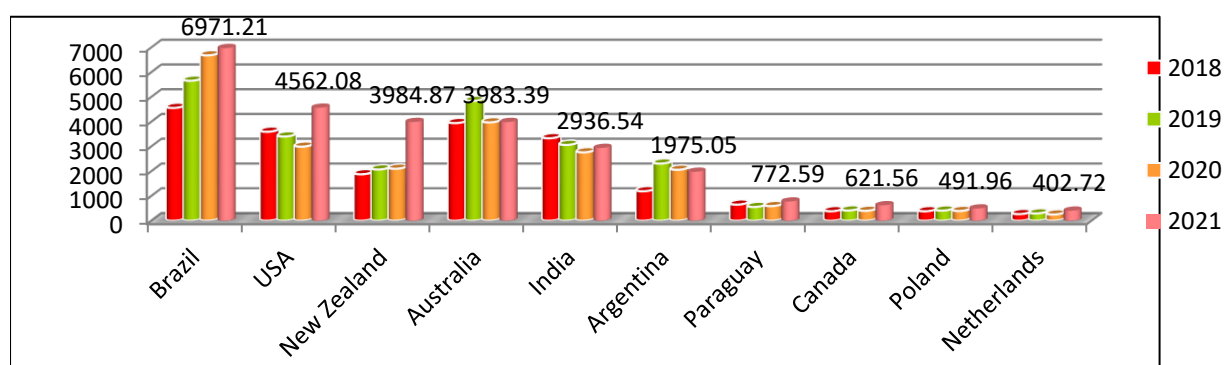
World's Top 10 exporter of Frozen Meat of Bovine Animals (H.S Code-0202)

Rank	Countries	2018		2019		2020		2021	
		Value (million \$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)
1.	Brazil	4556.56	18.63	5653.37	20.16	6679.11	25.12	6971.21	23.19
2.	USA	3594.23	14.69	3403.15	12.13	2991.58	11.25	4562.08	15.17
3.	New Zealand	1876.28	7.67	2070.69	7.38	2100.68	7.90	3984.87	13.25
4.	Australia	3944.27	16.12	4838.50	17.25	3972.87	14.94	3983.39	13.25
5.	India	3332.46	13.62	3062.59	10.92	2762.44	10.39	2936.54	9.77
6.	Argentina	1191.28	4.87	2309.03	8.23	2058.60	7.74	1975.05	6.57
7.	Paraguay	650.92	2.66	555.48	1.98	591.28	2.22	772.59	2.57
8.	Canada	383.14	1.57	413.30	1.47	400.07	1.50	621.56	2.07
9.	Poland	382.06	1.56	409.76	1.46	394.65	1.48	491.96	1.64
10.	Netherlands	268.49	1.10	294.34	1.05	251.48	0.95	402.72	1.34
	Others	4282.24	17.51	5035.13	17.95	4390.98	16.51	3364.26	11.19
	Total	24461.94	100	28045.35	100	26593.75	100	30066.21	100

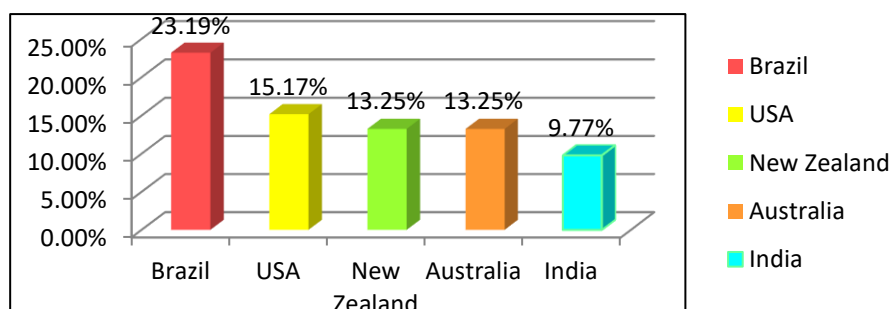
Source: UN Comtrade

Leading exporters of frozen meat of Bovine Animals of world from 2018 to 2021 (in million USD)

Data label given on the basis of 2021



Country wise world's leading exporter of Frozen meat of Bovine animals by percentage in 2021 :



Global export of Frozen Meat of Bovine Animals amounted to US \$ 30 Billion in 2021, increased by 13.06% over the last year. Brazil was the main global supplier of Frozen meat of Bovine animals with a worth value of US \$ 6.97 Billion which was accounted by 23.19% share of global exports in that year. It was followed by USA (15.17%), New Zealand (13.25%). Though, the India is one of the largest producer of Frozen Meat of Bovine Animals. However, India was far behind from Brazil in the global export of frozen meat of Bovine animals and stood at 5th position in ranking in the world with 9.77% share of world export in 2021.

Table-3

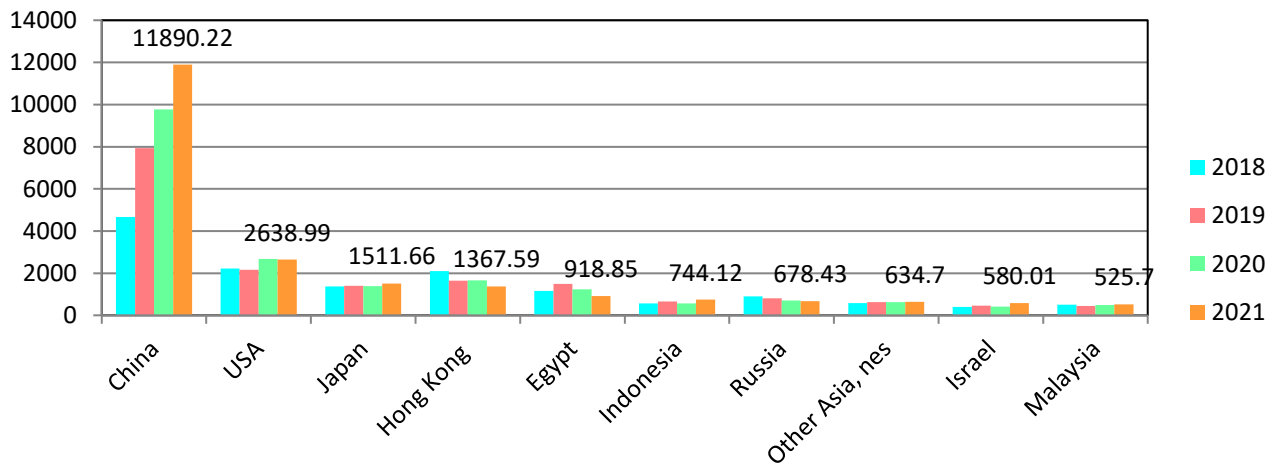
World's top 10 Importers of Frozen Meat of Bovine Animals (H.S Code-0202)

Rank	Countries	2018		2019		2020		2021	
		Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)
1.	China	4662.39	20.67	7928.22	30.87	9770.74	36.54	11890.22	45.18
2.	USA	2226.34	9.87	2155.31	8.39	2681.85	10.03	2638.99	10.03
3.	Japan	1370.88	6.08	1402.33	5.46	1381.93	5.17	1511.66	5.74
4.	Hong Kong	2093.47	9.28	1636.35	6.37	1664.15	6.22	1367.59	5.20
5.	Egypt	1155.56	5.12	1496.75	5.83	1236.75	4.62	918.85	3.49
6.	Indonesia	565.07	2.51	653.17	2.54	559.28	2.09	744.12	2.83
7.	Russia	892.88	3.96	808.94	3.15	707.86	2.65	678.43	2.58
8.	Other Asia, nes	579.82	2.57	631.72	2.46	628.69	2.35	634.70	2.41
9.	Israel	396.82	1.76	456.28	1.78	410.40	1.53	580.01	2.20
10.	Malaysia	498.08	2.21	445.81	1.74	489.87	1.83	525.70	2.00
	Others	8110.12	35.96	8066.31	31.41	7209.33	26.96	4828.85	18.35
	Total	22551.44	100	25681.18	100	26740.84	100	26319.13	100

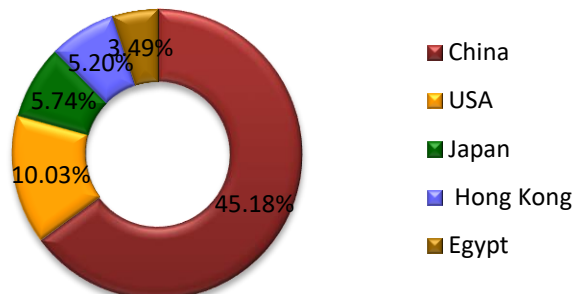
Source : UN Comtrade

Leading Frozen Meat of Bovine Animals importers of world from 2018 to 2021(in million USD)

Data label given on the basis of 2021



Country wise world's leading importers of Frozen Meat of Bovine Animals by percentage in 2021

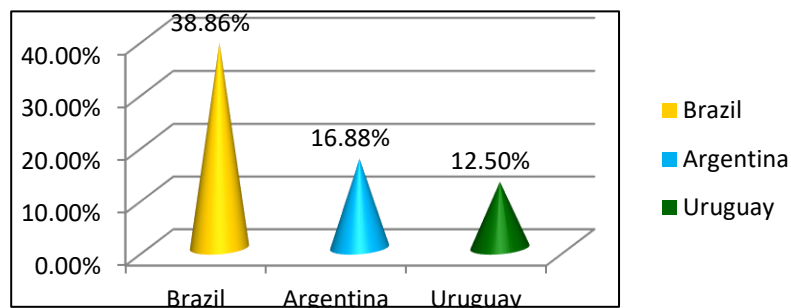


The volume of global imports of Frozen Meat of Bovine Animals totalled US \$ 26.31 Billion in 2021. Global import of Frozen Meat of Bovine Animals has decreased 1.58% over the previous year. The China Remains the Largest Global Importer of Frozen Meat of Bovine Animals, comprising 45.18% of global imports in 2021. It was followed by USA (10.03%) and Japan (5.74%) of global import. In that year there was no import trade of Frozen Meat of Bovine Animals into India

Annexure-1

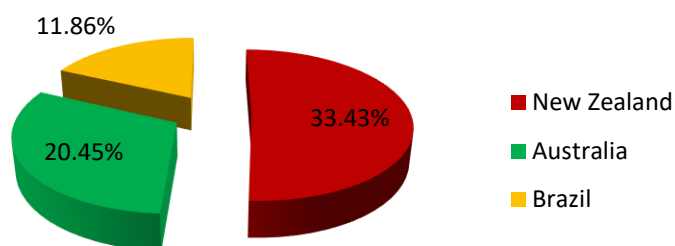
Major sources of world's top 3 importers of Frozen Meat of Bovine Animals (H.S Code-0202)

i) Top 3 Sources of Frozen Meat of Bovine Animals to China in 2021 by percentage:



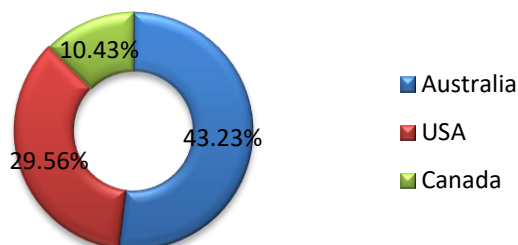
China imports most of its requirements of Frozen Meat of Bovine Animals from Brazil with 38.86 % share of China's total import of Frozen Meat of Bovine Animals came from Brazil in 2021. Argentina (16.88%) & Uruguay (12.50%) were the 2nd and 3rd major source of Frozen Meat of Bovine Animals to China in the same year. **(Source: UN Comtrade)**

ii) Top 3 Sources of Frozen Meat of Bovine Animals to USA in 2021 by percentage:



33.43% of Frozen Meat of Bovine Animals imports of USA came from New Zealand in 2021, followed by Australia (20.45%) and Brazil (11.86%). There was no transaction to USA from India in that year. **(Source: UN Comtrade)**

iii) Top 3 Sources of Frozen Meat of Bovine Animals to Japan in 2021 by percentage:



Australia was the largest source of Frozen Meat of Bovine Animals to Japan in 2021, 43.23% of total Frozen Meat of Bovine Animals import by Japan from Australia in 2021. USA and Canada were other important sources of Frozen Meat of Bovine Animals to Japan in that year. In the same year there was no export trade of Frozen Meat of Bovine Animals from India to Japan. **(Source: UN Comtrade)**

Pasta, Whether or not Cooked or Stuffed

Pasta is a type of food typically made from an unleavened dough of wheat flour mixed with water or eggs, and formed into sheets or other shapes, then cooked by boiling or baking. Rice flour, or legumes such as beans or lentils, are sometimes used in place of wheat flour to yield a different taste and texture, or as a gluten-free alternative. Pasta is a staple food of Italian cuisine.

In commercial processing, the semolina mixed with warm water is kneaded into a smooth stiff dough and extruded. The dough, moved forward while it is being compacted and mixed, is forced through perforated plates, or dies, that form it into the desired shape. Hollow tubular forms, such as macaroni, result when the perforations are small and contain steel pins, while smaller holes without pins produce spaghetti. Flat ribbon like types are made by slitted perforations. Shell forms are produced by a special die; small fancy shapes are produced by rotary knives slicing the dough as it emerges from the die. The formed dough is next dried, reducing its moisture content from about 31 percent to approximately 12 percent. The drying is carefully regulated, as very rapid drying may result in cracking, and very slow drying may produce stretching or encourage the growth of mold or of organisms that produce souring. Doughs may be coloured with spinach juice, producing green pasta; with beet juice, resulting in red types; and with eggs, adding bright yellow colour. Eggs are frequently added to homemade pastas. Pastas are prepared by boiling and may be cooked until firm and resilient to the bite or until very tender. Prepared Italian style, they may be tossed with butter, cheese, and seasoning (nutmeg, pepper) or served with a variety of sauces—tomato, cream, seafood, or others. Shaped pastas are often stuffed with meat, cheese, spinach, or a combination of these and other ingredients.

As a category in Italian cuisine, both fresh and dried pastas are classically used in one of three kinds of prepared dishes: as pasta asciutta, cooked pasta is plated and served with a complementary sauce or condiment; a second classification of pasta dishes is pasta in brodo, in which the pasta is part of a soup-type dish. A third category is pasta al forno, in which the pasta is incorporated into a dish that is subsequently baked in the oven. Pasta dishes are generally simple, but individual dishes vary in preparation.

In terms of nutrition, cooked plain pasta is 31% carbohydrates 6% protein, and low in fat, with moderate amounts of manganese, but pasta generally has low micronutrient content. Pasta may be enriched or fortified, or made from whole grains.

The art of pasta making and the devotion to the food as a whole has evolved since pasta was first conceptualized. In 2008, it was estimated that Italians ate over 27 kg (60 lb) of pasta per person, per year, easily beating Americans, who ate about 9 kg (20 lb) per person. Pasta is so beloved in Italy that individual consumption exceeds the average production of wheat of the country; thus Italy frequently imports wheat for pasta making. In contemporary society, pasta is ubiquitous and there is a variety of types in local supermarkets, in many countries. With the worldwide demand for this staple food, pasta is now largely mass-produced in factories and only a tiny proportion is crafted by hand.

When cooked, plain pasta is composed of 62% water, 31% carbohydrates (26% starch), 6% protein, and 1% fat. A 100-gram (3+1/2-ounce) portion of unenriched cooked pasta provides 670 kilojoules (160 kilocalories) of food energy and a moderate level of manganese (15% of the Daily Value), but few other micronutrients.

As pasta was introduced elsewhere in the world, it became incorporated into a number of local cuisines, which often have significantly different ways of preparation from those of Italy. When pasta was introduced to different nations, each culture would adopt a different style of preparation. In the past, ancient Romans cooked pasta-like foods by frying rather than boiling. It was also sweetened with honey or tossed with garum. Ancient Romans also enjoyed baking it in rich pies, called timballi.

These are broadly classified under **H.S. Code-1902.**

Table – 4

India's Top 10 destination of Pasta Whether or not cooked or stuffed(H.S Code-1902)

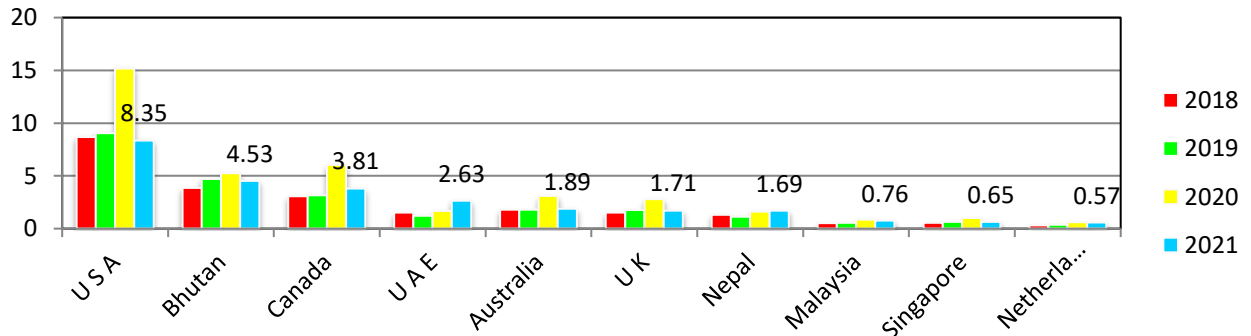
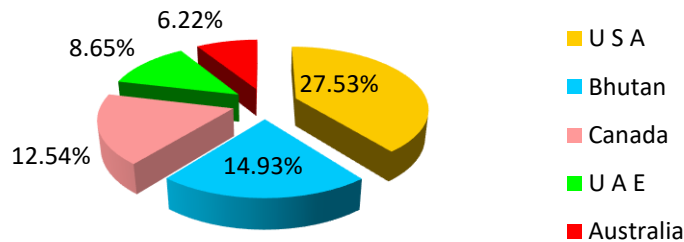
Rank	Countries	2018		2019		2020		2021	
		Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)
1.	U S A	8.68	33.52	9.06	33.73	15.17	36.49	8.35	27.51
2.	Bhutan	3.86	14.88	4.70	17.50	5.26	12.66	4.53	14.93
3.	Canada	3.06	11.81	3.17	11.81	6.03	14.50	3.81	12.55
4.	U A E	1.51	5.83	1.21	4.51	1.66	4.00	2.63	8.67
5.	Australia	1.80	6.95	1.80	6.70	3.10	7.46	1.89	6.23
6.	U K	1.52	5.87	1.75	6.51	2.79	6.71	1.71	5.63
7.	Nepal	1.32	5.09	1.13	4.22	1.60	3.85	1.69	5.57
8.	Malaysia	0.53	2.05	0.54	2.02	0.85	2.04	0.76	2.50
9.	Singapore	0.55	2.12	0.65	2.41	1.00	2.41	0.65	2.14
10.	Netherland	0.31	1.20	0.36	1.35	0.60	1.44	0.57	1.88
	Others	2.76	10.65	2.48	9.24	3.51	8.44	3.75	12.36
	Total	25.91	100	26.85	100	41.58	100	30.35	100

Source: DGCI&S

Note: India's Export including re-export

India's major destination Pasta from 2018-2021(Values in million USD)

Data label given on the basis of 2021

**India's top 5 destinations of Pasta by percentage in 2021:**

In 2021, India's export of Pasta whether or not cooked or stuffed amounted to US \$ 30.35 Million, going down by almost 27% against the previous year figure. Over the period under review, Pasta whether or not cooked or stuffed export from India reached its maximum volume in 2020. USA represented the major importer of Pasta whether or not cooked or stuffed from India in 2021, recording US \$ 8.35 Million which was 27.53% of total export of India, followed by Bhutan and Canada with 14.93% and 12.55% share of India's total export value of Pasta whether or not cooked or stuffed 2021.

Table - 5

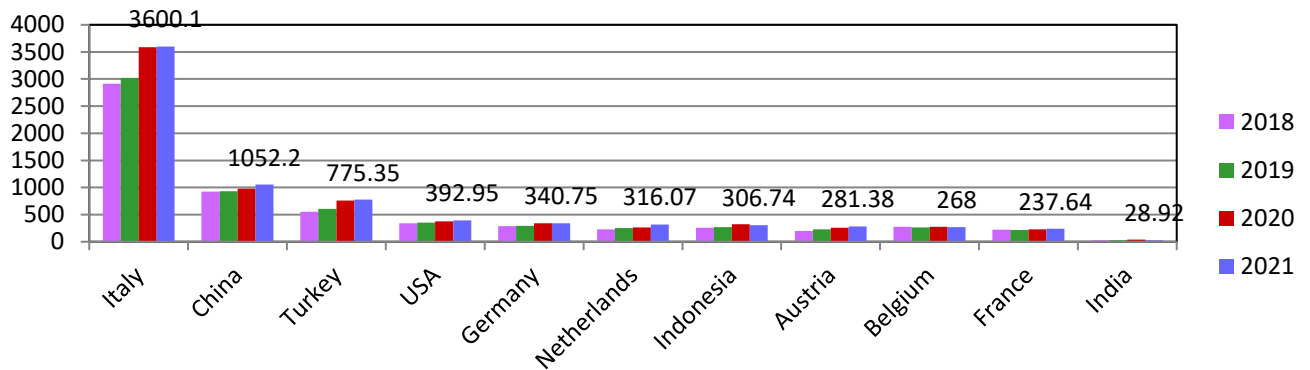
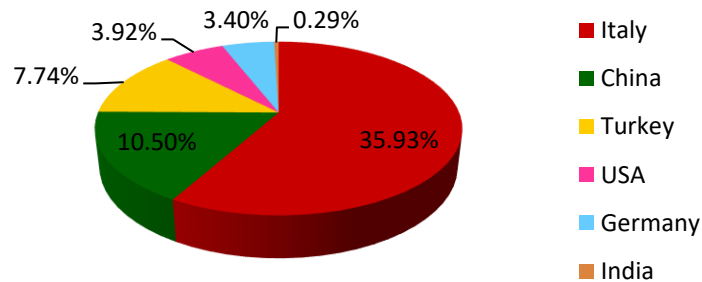
World's Top 10 exporter of Pasta Whether or not cooked or stuffed (H.S Code-1902)

Rank	Countries	2018		2019		2020		2021	
		Value (million \$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)
1.	Italy	2913.07	29.07	3022.50	29.15	3587.77	30.11	3600.10	35.93
2.	China	923.42	9.22	929.43	8.96	979.75	8.22	1052.20	10.50
3.	Turkey	553.23	5.52	608.91	5.87	761.28	6.39	775.35	7.74
4.	USA	342.59	3.42	349.73	3.37	375.09	3.15	392.95	3.92
5.	Germany	284.74	2.84	295.07	2.85	338.17	2.84	340.75	3.40
6.	Netherlands	228.50	2.28	251.23	2.42	263.91	2.22	316.07	3.15
7.	Indonesia	258.64	2.58	269.23	2.60	325.56	2.73	306.74	3.06
8.	Austria	201.02	2.01	225.60	2.18	260.61	2.19	281.38	2.81
9.	Belgium	276.13	2.76	263.49	2.54	275.23	2.31	268.00	2.67
10.	France	224.48	2.24	217.96	2.10	230.59	1.94	237.64	2.37
36.	India	25.50	0.25	26.15	0.25	39.73	0.33	28.92	0.29
	Others	3789.41	37.82	3910.75	37.71	4476.20	37.57	2420.80	24.16
	Total	10020.71	100	10370.05	100	11913.90	100	10020.89	100

Source: UN Comtrade

Top world exporters of Pasta from 2018 to 2021 (Values in million USD)

Data label given on the basis of 2021

**Export trends in world's leading Pasta exporters by percentage in 2020:**

Global export of Pasta whether or not cooked or stuffed was totalled US \$ 10 Billion in 2021. In that year the total export value decreased at a rate of -15.89% from 2020. The trend pattern indicated some almost constant over the period under review except 2020. Italy represented the major exporter of Pasta whether or not cooked or stuffed in the world, exported 35.93% share of world export. China and Turkey constitutes the 2nd and 3rd largest exporter of the Commodity in the same year with 10.50% and 7.74% share of world export respectively. In the same year India's contribution was only 0.29%.

Table - 6

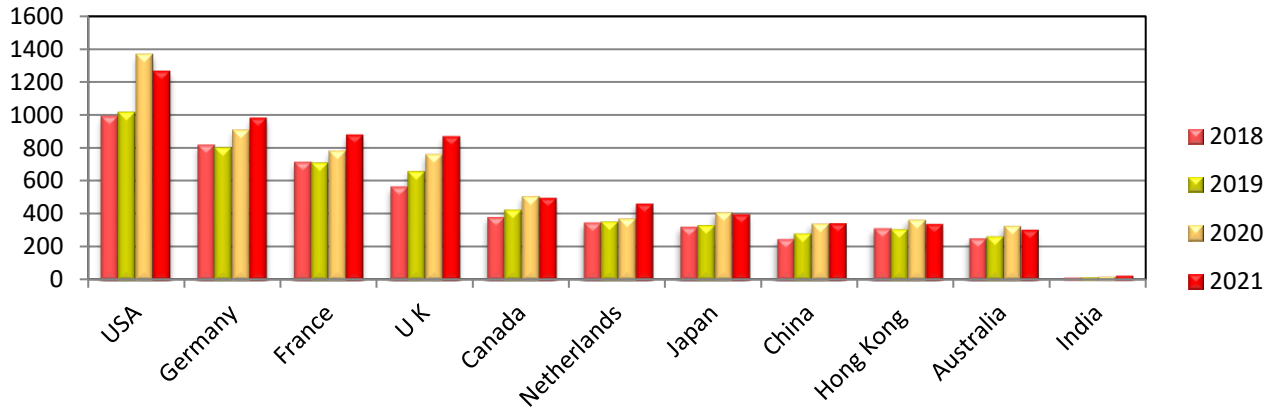
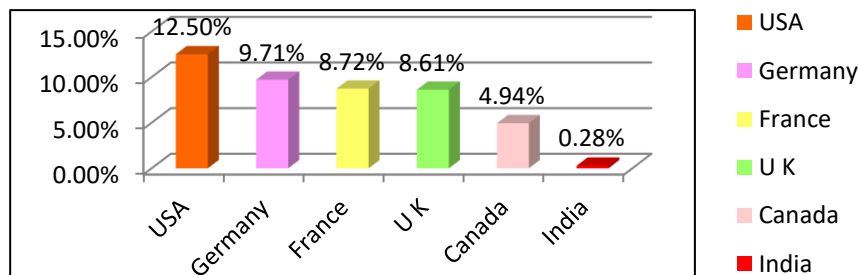
World's top 10 Importers of Pasta Whether or not cooked or stuffed (H.S Code-1902)

Rank	Countries	2018		2019		2020		2021	
		Value (million \$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)
1.	USA	987.81	10.80	1017.13	10.85	1365.72	12.80	1264.88	12.50
2.	Germany	814.68	8.90	803.50	8.57	909.27	8.52	982.23	9.71
3.	France	711.04	7.77	712.08	7.60	782.98	7.34	882.03	8.72
4.	U K	562.99	6.15	658.72	7.03	760.35	7.12	871.47	8.61
5.	Canada	380.86	4.16	427.01	4.56	507.84	4.76	499.66	4.94
6.	Netherlands	346.69	3.79	356.29	3.80	372.98	3.49	464.48	4.59
7.	Japan	322.73	3.53	333.08	3.55	410.92	3.85	400.76	3.96
8.	China	248.20	2.71	282.56	3.01	341.49	3.20	346.27	3.42
9.	Hong Kong	312.34	3.41	308.36	3.29	364.26	3.41	342.13	3.38
10.	Australia	251.69	2.75	264.91	2.83	327.93	3.07	305.76	3.02
45.	India	16.51	0.18	18.87	0.20	21.75	0.20	28.67	0.28
	Others	4194.11	45.84	4190.25	44.71	4506.66	42.23	3727.74	36.85
	Total	9149.64	100	9372.75	100	10672.16	100	10116.07	100

Source :UNComtrade

Top world importers of Pasta from 2018 to 2021 (Values in million USD)

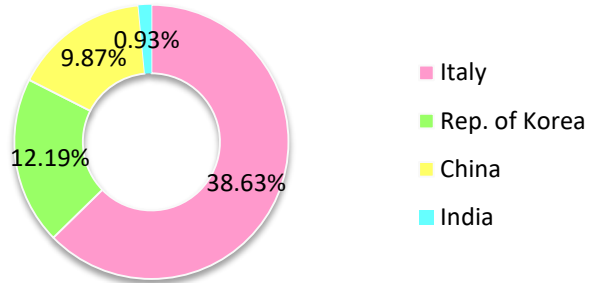
Data label given on the basis of 2021

**Country wise leading global Importer of Pasta by percentage in 2021**

The USA imported around US \$ 1.26 Billion worth of Pasta whether or not cooked or stuffed in 2021, making it the leading importer of Pasta whether or not cooked or stuffed worldwide that year. Germany followed in second place, importing around US \$ 982.23 million worth of the commodity. It was followed by France, imported US \$ 882 million of Pasta whether or not cooked or stuffed in the same year. India's share was only 0.28% share of world import. The top 10 importing countries imported 63.15% share of world import of Pasta whether or not cooked or stuffed in that year.

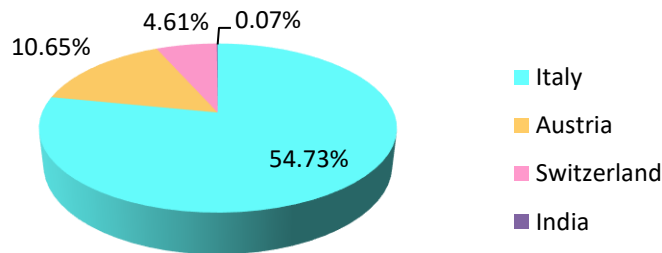
Sources of world’s top three importers of Pasta (H.S Code-1902)

i) Top 3 Sources of Pasta to USA in 2021 by percentage:



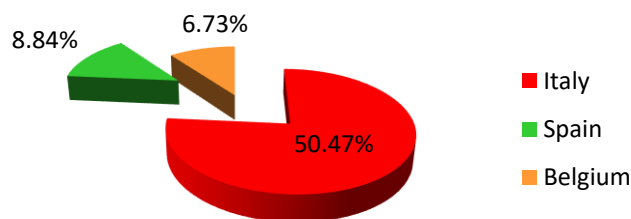
In the year 2021 USA, imports largest worth value of Pasta whether or not Cooked or Stuffed 38.63% share from Italy, which was followed by Rep. of Korea (12.19%) and China (9.87%). **India** has exported 0.93% of USA’s total import of Pasta whether or not Cooked or Stuffed in 2021. (Source: UN Comtrade)

ii) Top 3 Sources of Pasta to Germany in 2021 by percentage:



Italy was the number one source of Pasta whether or not Cooked or Stuffed to Germany, imports 54.73% share from Italy, 10.65% from Austria and 4.61% share from Switzerland in 2021. In the same year **India** has exported US \$ 0.7 Million of Pasta to Germany. (Source: UN Comtrade)

iii) Top 3 Sources of Pasta to France in 2021 by percentage:



Italy was the largest source country of Pasta whether or not Cooked or Stuffed to France in 2021, France imports, 50.47% share of its total import of Pasta whether or not Cooked or Stuffed from Italy in that year. France imported 8.84% from Spain and 6.73% Pasta whether or not cooked or Stuffed from Belgium respectively. (Source : UN Comtrade)

IMPORT

Chocolates and other food preparations containing Cocoa.

Chocolate is a food made from roasted and ground cacao seed kernels that is available as a liquid, solid, or paste, either on its own or as a flavouring agent in other foods. Cacao has been consumed in some form since at least the Olmec civilization (19th-11th century BCE), and the majority of Mesoamerican people — including the Maya and Aztecs — made chocolate beverages.

The seeds of the cacao tree have an intense bitter taste and must be fermented to develop the flavour. After fermentation, the seeds are dried, cleaned, and roasted. The shell is removed to produce cocoa nibs, which are then ground to cocoa mass, unadulterated chocolate in rough form. Once the cocoa mass is liquefied by heating, it is called chocolate liquor. The liquor may also be cooled and processed into its two components: cocoa solids and cocoa butter. Baking chocolate, also called bitter chocolate, contains cocoa solids and cocoa butter in varying proportions, without any added sugar. Powdered baking cocoa, which contains more fibre than cocoa butter, can be processed with alkali to produce Dutch cocoa. Much of the chocolate consumed today is in the form of sweet chocolate, a combination of cocoa solids, cocoa butter or added vegetable oils, and sugar. Milk chocolate is sweet chocolate that additionally contains milk powder or condensed milk. White chocolate contains cocoa butter, sugar, and milk, but no cocoa solids.

Chocolate is one of the most popular food types and flavours in the world, and many foodstuffs involving chocolate exist, particularly desserts, including cakes, pudding, mousse, chocolate brownies, and chocolate chip cookies. Many candies are filled with or coated with sweetened chocolate. Chocolate bars, either made of solid chocolate or other ingredients coated in chocolate, are eaten as snacks. Gifts of chocolate moulded into different shapes (such as eggs, hearts, coins) are traditional on certain Western holidays, including Christmas, Easter, Valentine's Day, and Hanukkah. Chocolate is also used in cold and hot beverages, such as chocolate milk and hot chocolate, and in some alcoholic drinks, such as *creme de cacao*.

Although cocoa originated in the Americas, West African countries, particularly Côte d'Ivoire and Ghana, are the leading producers of cocoa in the 21st century, accounting for some 60% of the world cocoa supply.

With some two million children involved in the farming of cocoa in West Africa, child slavery and trafficking associated with the cocoa trade remain major concerns. A 2018 report argued that international attempts to improve conditions for children were doomed to failure because of persistent poverty, absence of schools, increasing world cocoa demand, more intensive farming of cocoa, and continued exploitation of child labour.

The Maya and Aztecs associated cocoa with human sacrifice, and chocolate drinks specifically with sacrificial human blood. The Spanish royal chronicler Gonzalo Fernández de Oviedo y Valdés described a chocolate drink he had seen in Nicaragua in 1528, mixed with achiote: "because those people are fond of drinking human blood, to make this beverage seem like blood, they add a little achiote, so that it then turns red. ... and part of that foam is left on the lips and around the mouth, and when it is red for having achiote, it seems a horrific thing, because it seems like blood itself."

Roughly two-thirds of the entire world's cocoa is produced in West Africa, with 43% sourced from Côte d'Ivoire, where, as of 2007, child labour is a common practice to obtain the product. According to the World Cocoa Foundation, in 2007 some 50 million people around the world depended on cocoa as a source of livelihood.

A 100-gram serving of milk chocolate supplies 540 calories. It is 59% carbohydrates (52% as sugar and 3% as dietary fibre), 30% fat and 8% protein (table). Approximately 65% of the fat in milk chocolate is saturated, mainly palmitic acid and stearic acid, while the predominant unsaturated fat is oleic acid (table).

These are broadly classified under **H. S. Code 1806**.

Table - 7

India's Top 10 Sources of Chocolates and other preparations of Cocoa (HS Code :1806)

Rank	Countries	2018		2019		2020		2021	
		Value (million \$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)
1.	Singapore	8.96	11.93	11.62	15.15	6.53	19.03	13.04	16.35
2.	Italy	8.82	11.73	10.38	13.53	3.06	8.92	10.26	12.86
3.	Malaysia	4.90	6.52	5.75	7.50	4.66	13.58	7.20	9.03
4.	Turkey	6.02	8.01	5.23	6.82	2.16	6.29	6.83	8.56
5.	Netherland	10.54	14.02	12.03	15.68	4.32	12.59	6.68	8.38
6.	U A E	5.64	7.50	4.93	6.43	2.56	7.46	6.51	8.16
7.	Belgium	8.03	10.68	4.51	5.88	1.80	5.24	5.54	6.95
8.	Bangladesh	1.05	1.40	1.59	2.07	0.61	1.78	3.48	4.36
9.	U S A	2.80	3.73	2.33	3.04	0.73	2.13	2.87	3.60
10.	Poland	0.62	0.82	0.61	0.80	0.60	1.75	2.70	3.39
	Others	17.77	23.64	17.71	23.09	7.29	21.24	14.65	18.37
	Total	75.16	100	76.70	100	34.32	100	79.76	100

Source: DGCI&S

Note: India's Import including re-import

Imports of Chocolates and other preparation of Cocoa in India increased to US \$ 79.76 Million in 2021 from US \$ 34.32 Million in 2020. Over the period under review, global Chocolates and other preparation of Cocoa imports attained its maximum worth value of US \$ 79.76Million in 2021. In 2021 India imported the highest dollar worth of Chocolates and other preparation of Cocoa from Singapore with valued at US \$ 13.04 Million. In Second and Third source countries were Italy and Malaysia , from where India imported around US \$ 10.26 Million and US \$ 7.20 Million worth of Chocolates and other preparation of Cocoa respectively. In the same year. The top 10 countries shared 81.63% of the Chocolates and other preparation of Cocoa import to India.

Table - 8

World Top 10 Importer of Chocolates and other preparations of Cocoa (HS Code 1806)

Rank	Countries	2018		2019		2020		2021	
		Value (million \$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)
1.	USA	2748.02	9.62	2957.01	10.25	2887.64	10.34	3222.49	11.24
2.	Germany	2561.79	8.96	2542.95	8.81	2460.53	8.81	2652.26	9.25
3.	France	2233.42	7.82	2170.84	7.52	2209.66	7.91	2533.49	8.84
4.	U K	2134.47	7.47	2081.37	7.21	2264.61	8.11	2374.77	8.28
5.	Netherlands	1331.05	4.66	1313.05	4.55	1339.93	4.80	1577.63	5.50
6.	Canada	1022.02	3.58	1015.64	3.52	1015.01	3.63	1158.08	4.04
7.	Poland	843.14	2.95	832.89	2.89	943.49	3.38	1093.06	3.81
8.	Belgium	777.22	2.72	792.12	2.75	818.75	2.93	782.33	2.73
9.	Spain	666.52	2.33	635.89	2.20	606.15	2.17	724.87	2.53
10.	Italy	601.23	2.10	612.60	2.12	632.47	2.26	708.58	2.47
52.	India	75.38	0.26	76.67	0.27	55.85	0.20	79.70	0.28
	Others	13582.56	47.53	13820.03	47.90	12704.86	45.47	11764.37	41.03
	Total	28576.83	100	28851.08	100	27938.95	100	28671.63	100

Source: UNComtrade

In 2021 Global import of Chocolates and other preparation of Cocoa totalled were US \$ 28.67 Billion, which was increased by 2.63% from the year of 2020. Global import of the Commodity peaked of US \$ 28.85 Billion in 2019, however, in the year 2020 and 2021, it failed to regain its strength. In value terms, USA constitutes the largest market for imported Chocolates and other preparation of Cocoa worldwide with worth value of US \$ 3.22 Billion, making up 11.24% of global imports. The second position in the ranking was occupied by Germany (US \$ 2.65 B), with the share of 9.25% of global imports. It was followed by the France with the share of 8.84%. In the same year **India** constitutes the 52nd position in ranking with 0.28% share of world import.

Glycosides

A **Glycosides** is a molecule in which a sugar is bound to another functional group via a glycoside bond. Glycosides play numerous important roles in living organisms. Many plants store chemicals in the form of inactive glycosides. These can be activated by enzyme hydrolysis, which causes the sugar part to be broken off, making the chemical available for use. Many such plant glycosides are used as medications. Several species of *Helicon*s butterfly are capable of incorporating these plant compounds as a form of chemical defence against predators. In animals and humans, poisons are often bound to sugar molecules as part of their elimination from the body.

In formal terms, a glycoside is any molecule in which a sugar group is bonded through its anomeric carbon to another group via a glycoside bond. Glycosides can be linked by an O-, N-, S-, or C- glycoside bond. According to the IUPAC, the name "*C*-glycoside" is a misnomer; the preferred term is "*C*-glycosyl compound". The given definition is the one used by IUPAC, which recommends the Haworth projection to correctly assign stereo chemical configurations.

Many authors require in addition that the sugar be bonded to a *non-sugar* for the molecule to qualify as a glycoside, thus excluding polysaccharides. The sugar group is then known as the glycone and the non-sugar group as the aglycone or genin part of the glycoside. The glycone can consist of a single sugar group, two sugar groups, or several sugar groups.

The first glycoside ever identified was amygdalin, by the French chemists Pierre Robiquet and Antoine Boutron-Charlard, in 1830.

Various medicines, condiments, and dyes from plants occur as glycosides; of great value are the heart-stimulating glycosides of *Digitalis* and *Strophanthus*, members of a group known as cardiac glycosides. Several antibiotics are glycosides (*e.g.*, streptomycin). Saponins, widely distributed in plants, are glycosides that lower the surface tension of water; saponin solutions have been used as cleansing agents.

Glycosides derived from glucuronic acid (the uranic acid of glucose) and steroids are constituents of normal animal urine. Compounds (nucleosides) derived from the partial breakdown of nucleic acids are also glycosides.

Glycosides are of commercial interest for industry in general and specifically for the pharmaceutical and food industry. Currently chemical preparation of glycosides will not meet EC food regulations, and therefore chemical preparation of glycosides is not applicable in the food industry. Thus, enzyme-catalysed reactions are a good alternative. However, until now the low yields obtained by enzymatic methods prevent the production of glycosides on a commercial scale. Therefore, high yields should be established by a combination of optimum reaction conditions and continuous removal of the product. Unfortunately, a bioreactor for the commercial scale production of glycosides is not available. The aim of this article is to discuss the literature with respect to enzymatic production of glycosides and the design of an industrially viable bioreactor system.

Glycosides are very important in various industrial applications. Glycosides derived from long chain alkanols possess good surfactant and emulsifying properties, and are therefore applied in detergents and cosmetics. Terpene and phenolic glycosides are found to have antifungal and antimicrobial activity and have attracted great attention in food industry. Terpene and phenolic glycosides are found to have antifungal and antimicrobial activity and have attracted great attention in food industry. Glycosides of peptides and steroids are used in antitumor formulations and cardiac-related drugs, respectively. Aroma glycosides are an important class of non-volatile precursors that are currently gaining increased interest and attention for their role in imparting unique aroma to food.

These are broadly classified under **H. S. Code 2938**.

Table - 9

India's Top 10 Source Countries of Glycosides (HS Code : 2938)

Rank	Countries	2018		2019		2020		2021	
		Value (million \$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)
1.	Spain	23.81	35.86	24.14	34.62	16.00	34.14	25.05	41.10
2.	China	30.40	45.79	32.83	47.08	21.16	45.15	12.25	20.11
3.	Malaysia	1.62	2.44	2.58	3.70	4.60	9.81	10.50	17.23
4.	U S A	1.16	1.75	0.96	1.38	0.49	1.05	4.92	8.07
5.	France	2.08	3.13	3.09	4.43	1.96	4.18	2.96	4.86
6.	Germany	2.21	3.33	1.11	1.59	0.15	0.32	2.85	4.68
7.	Vietnam	0.51	0.77	0.77	1.10	0.34	0.73	0.70	1.15
8.	Bangladesh	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.46
9.	Singapore	0.22	0.33	0.21	0.30	0.16	0.34	0.25	0.41
10.	Hong Kong	0.10	0.15	0.13	0.19	0.00	0.00	0.23	0.38
	Others	4.27	6.43	3.91	5.61	2.02	4.31	0.95	1.56
	Total	66.39	100	69.73	100	46.87	100	60.93	100

Source: DGCI&S

Note: India's Import including Re-import

There is a total of 46 countries India imports Glycosides, from. The dollar value of Glycosides import in 2021 stood at US \$ 60.93 Million and US \$ 46.87 Million in 2020, which shows a growth of almost 30% from 2020. In 2021 India imported the highest dollar worth of Glycosides from Spain with valued at US \$ 25.05 Million. In Second and Third major sources were China and Malaysia, from which India imported around US \$ 12.25 Million and US \$ 10.50 Million worth of Glycosides respectively. In the same year the top 10 countries shared 98.44% of the import to India.

Table - 10

World Top 10 Importer of Glycosides (HS Code : 2938)

Rank	Countries	2017		2018		2019		2020	
		Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)	Value (million\$)	Share (%)
1.	USA	206.88	15.89	227.92	17.66	321.22	23.71	438.49	29.84
2.	China	133.33	10.24	130.74	10.13	121.37	8.96	112.65	7.67
3.	France	77.02	5.92	93.08	7.21	107.92	7.97	103.93	7.07
4.	Russia	54.63	4.20	50.84	3.94	48.35	3.57	79.82	5.43
5.	Spain	42.12	3.24	50.02	3.88	58.04	4.28	62.74	4.27
6.	India	66.74	5.13	69.73	5.40	70.66	5.22	60.87	4.14
7.	Germany	70.35	5.40	37.08	2.87	48.03	3.55	60.74	4.13
8.	Malaysia	78.39	6.02	92.40	7.16	60.32	4.45	59.78	4.07
9.	Japan	54.27	4.17	49.86	3.86	45.84	3.38	48.63	3.31
10.	Brazil	36.98	2.84	39.65	3.07	44.01	3.25	47.35	3.22
	Others	481.10	36.96	448.95	34.80	429.06	31.67	394.63	26.85
	Total	1301.79	100	1290.28	100	1354.83	100	1469.64	100

Source: UNComtrade

Global Glycosides imports amounted to US \$ 1.47 Billion in 2021, approximately increasing by 8.48% from the previous year level. Over the period under review, global Glycosides imports attained its maximum worth value of US \$ 1.47 Billion. In 2021 USA (US \$ 438.49 M) constitutes the largest market for imported Glycosides worldwide, making up 29.84% of global imports. The second position in the ranking was occupied by China (US \$ 112.65 M), with the share of 7.67% of global imports. It was followed by the France, with the share of 7.07%. In the same year **India** has imported US \$ 60.87 Million of Glycosides from 46 different countries and occupied 6th position in ranking in the world import of Glycosides with 4.14% share of world import.