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 **Vegetables saps and extracts & Molasses** and imports of **Printing ink & Antibiotics** 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-1302 & 1703 for export and 3215 & 2941 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 May'2023. So, trends from 2019 to 2022 have been shown when we extract the data from UN Comtrade and from 2019 to 2022 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 Articles of Vegetables saps and extracts & Molasses and imports of Printing ink & Antibiotics 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 Vegetable Saps & Extracts with their shares in percentage.
- Table 2 : World's top 10 Exporters of Vegetable Saps & Extracts with their shares in percentage.
- Table 3 : World's top 10 Importers of Vegetable Saps & Extracts with their shares in percentage.
- Annex- I : Top 3 sources of Vegetable Saps & Extracts of World's top 3 Importers.
- Table4: India's top 10 Export destination of Molasses with their shares in percentage.
- Table 5 : World's top 10 Exporters of Molasses with their shares in percentage.
- Table 6 : World's top 10 Importers of Molasses with their shares in percentage.
- Annex-II : Top 3 sources of Molasses of World's top 3 Importers.
- Table 7 : India's top10 Sources of Printing, Writing and Drawing ink with their shares in percentage.
- Table 8 :World's top 10 Importers of Printing, Writing and Drawing ink with their shares in percentage.
- Table 9 : India's top 10 Sources of Antibiotics with their shares in percentage.
- Table 10 : World's top 10 Importers of Antibiotics with their shares in percentage.

EXPORT

Vegetables Saps and Extracts

Saps are usually thickened or solidified. Extracts may be in liquid, paste or solid form. " Tinctures " are extracts still dissolved in the alcohol by means of which they are extracted; the so-called " fluid extracts " are solutions of extracts in, for example, alcohol, glycerol or mineral oil. Tinctures and fluid extracts are generally standardised (for instance, pyrethrum extract may be standardised by adding mineral oil to produce commercial grades with a standard pyrethrins content of, e.g., 2 %, 20 % or 25 %). Solid extracts are obtained by evaporating the solvent. Inert substances are sometimes added to certain extracts so that they can be more easily reduced to powder (e.g., belladonna extract, to which powdered gum Arabic is added), or to obtain a standard strength (for instance, certain quantities of starch are added to opium in order to obtain a product containing a known portion of morphine).

The addition of such substances does not affect the classification of these solid extracts. Extracts may be simple or compound. Simple extracts are obtained by the treatment of only one variety of plant. Compound extracts are obtained either by mixing simple extracts or by treating mixtures of different varieties of plants. Compound extracts (whether in the form of alcoholic tinctures or in any other forms) therefore contain the constituents of several kinds of plant; they include compound jalap extract, compound extract of aloes, compound extract of cinchona, etc. The vegetable saps and extracts of this heading are generally raw materials for various manufactured products. They are excluded from the heading when, because of the addition of other substances, they have the character of food preparations, medicaments, etc.

Vegetable extract is a concentrated liquid obtained from vegetable juice or powder obtained from any dried vegetable. The vegetables can be beetroot, kale, onions, carrots, cabbage, broccoli, parsley or any other vegetable. They can be be used to flavor savoury dishes. They are used for medicinal purposes and as dietary supplements, for their health benefits. They contain vitamins, minerals, fiber and other natural substances with antioxidant, lipid-lowering, anti-inflammatory and antiproliferative properties.

These are broadly classified under **H.S. Code-1302.**

Table – 1

India's Top 10 destination of Vegetables Saps & Extracts (H.S Code-1302)

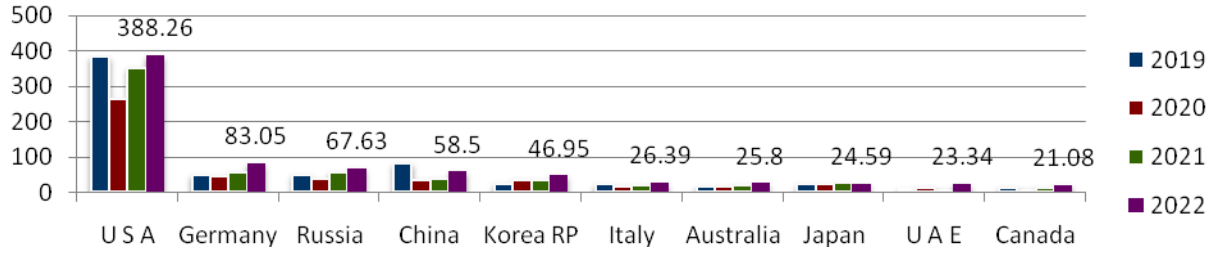
Rank	Countries	2019		2020		2021		2022	
		Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)
1.	U S A	382.52	46.41	263.62	43.16	351.64	45.83	388.26	40.29
2.	Germany	47.84	5.80	45.09	7.38	55.11	7.18	83.05	8.62
3.	Russia	49.01	5.95	36.35	5.95	54.31	7.08	67.63	7.02
4.	China	79.55	9.65	33.97	5.56	38.41	5.01	58.50	6.07
5.	Korea RP	24.32	2.95	33.89	5.55	33.86	4.41	46.95	4.87
6.	Italy	22.11	2.68	16.85	2.76	18.56	2.42	26.39	2.74
7.	Australia	14.90	1.81	15.36	2.51	19.68	2.56	25.80	2.68
8.	Japan	22.40	2.72	22.68	3.71	25.13	3.28	24.59	2.55
9.	U A E	9.18	1.11	12.82	2.10	7.89	1.03	23.34	2.42
10.	Canada	12.44	1.51	8.97	1.47	10.80	1.41	21.08	2.19
	Others	159.93	19.40	121.27	19.85	151.84	19.79	198.04	20.55
	Total	824.20	100	610.85	100	767.24	100	963.65	100

Source: DGCI&S.

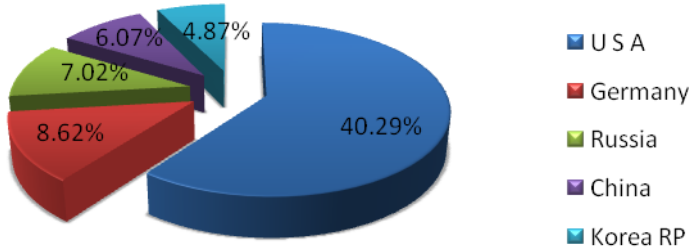
Note : India's Export including re-export

Major destinations of Vegetables Saps and Extracts from India from 2019-2022**(Values in Million USD)**

Data label given on the basis of 2022



India's top 5 destinations of Vegetables Saps and Extracts by percentage India in 2022:



The total value of Vegetable Saps and Extracts etc.. export from India to the world in year 2022 was US $ 963.65 Million, which showing the rise of 25.59% compared to 2021. USA was the largest importer for Vegetable Saps and Extracts etc.. from India. In 2022, USA imported US $ 388.26 Million worth Vegetable Saps and Extracts etc.. from India which was 40.29% share of India's total export. Followed by Germany and Russia with the shipment value being US $ 83.05 Million and US $ 67.63 million respectively. The top 10 countries in total shared the share of 79.45% of the Vegetable Saps and Extracts etc.. export value from India in 2022.

Table-2

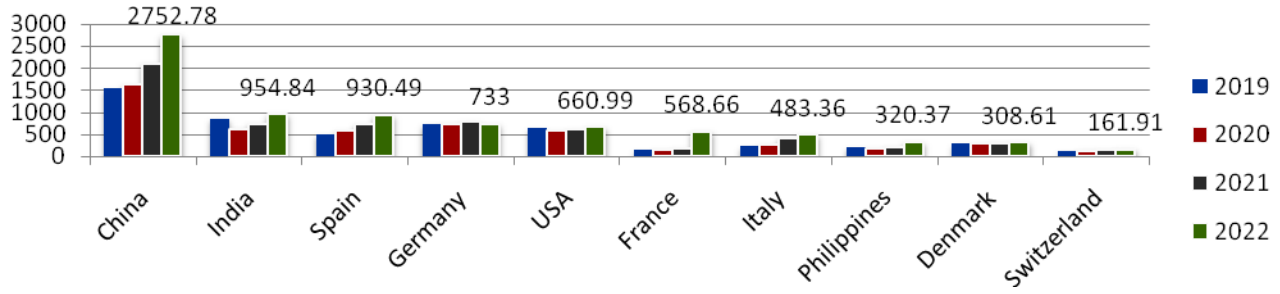
World's Top 10 exporter of Vegetables Saps & Extracts (H.S Code-1302)

Rank	Countries	2019		2020		2021		2022	
		Value (million $)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)
1.	China	1548.64	22.15	1627.87	23.90	2104.04	26.55	2752.78	30.41
2.	**India**	**860.27**	**12.31**	**619.82**	**9.10**	**740.56**	**9.35**	**954.84**	**10.55**
3.	Spain	506.77	7.25	570.06	8.37	716.20	9.04	930.49	10.28
4.	Germany	737.79	10.55	738.68	10.84	779.53	9.84	733.00	8.10
5.	USA	635.61	9.09	572.04	8.40	604.90	7.63	660.99	7.30
6.	France	146.47	2.10	153.17	2.25	168.37	2.12	568.66	6.28
7.	Italy	226.40	3.24	267.53	3.93	414.71	5.23	483.36	5.34
8.	Philippines	212.66	3.04	170.30	2.50	207.75	2.62	320.37	3.54
9.	Denmark	284.40	4.07	290.44	4.26	301.58	3.81	308.61	3.41
10.	Switzerland	123.22	1.76	132.95	1.95	146.84	1.85	161.91	1.79
	Others	1707.87	24.43	1668.83	24.50	1739.52	21.95	1177.24	13.00
	Total	6990.12	100	6811.69	100	7924.01	100	9052.26	100

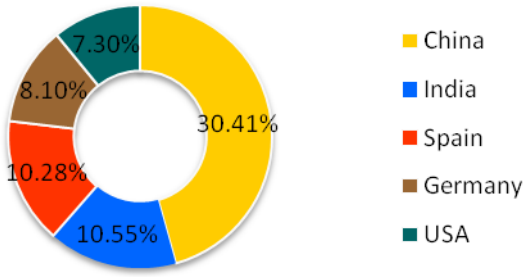
Source: UN Comtrade

Leading exporters of Vegetables Saps and Extracts of world from 2019 to 2022 **(in million $)**

Data label given on the basis of 2022



Country wise leading exporter of Vegetables Saps and Extracts by percentage in 2022 :



In 2022, the worth of Vegetables Saps and Extracts exported worldwide was US $ 9.05 Billion showing the positive growth by + 14.23% compare to that than 2021. Over the period under review, global Vegetables Saps and Extracts exports reached its maximum level of US $ 9.05 Billion in 2022. China was the top ranked global Vegetables Saps and Extracts exporter with a share of approximately US $ 2.75 Billion, or 30.41% share of world export. In that year **India** appeared as the countries with the 2nd largest exporter of Vegetables Saps and Extracts with 10.55% share of world export which was followed by Spain with the share of 10.28%.

Table-3

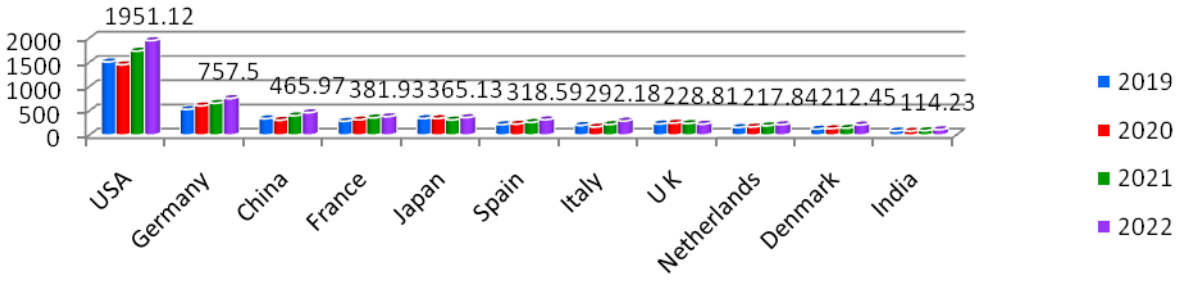
World's top 10 Importers of Vegetables Saps & Extracts (H.S Code-1302)

Rank	Countries	2019		2020		2021		2022	
		Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)
1.	USA	1511.31	21.99	1452.80	20.83	1733.66	22.24	1951.12	26.71
2.	Germany	531.60	7.74	606.00	8.69	659.64	8.46	757.50	10.37
3.	China	341.32	4.97	308.19	4.42	401.14	5.15	465.97	6.38
4.	France	288.62	4.20	316.59	4.54	357.93	4.59	381.93	5.23
5.	Japan	344.33	5.01	344.50	4.94	313.82	4.03	365.13	5.00
6.	Spain	217.77	3.17	229.13	3.28	264.63	3.40	318.59	4.36
7.	Italy	201.86	2.94	169.38	2.43	219.58	2.82	292.18	4.00
8.	U K	232.10	3.38	249.78	3.58	241.63	3.10	228.81	3.13
9.	Netherlands	160.37	2.33	170.35	2.44	195.01	2.50	217.84	2.98
10.	Denmark	125.54	1.83	135.17	1.94	145.18	1.86	212.45	2.91
15.	**India**	**88.27**	**1.28**	**84.25**	**1.21**	**93.46**	**1.20**	**114.23**	**1.56**
	Others	3855.22	56.10	3947.07	56.59	4327.32	55.52	3382.55	46.31
	Total	6872.40	100	6975.15	100	7793.51	100	7304.20	100

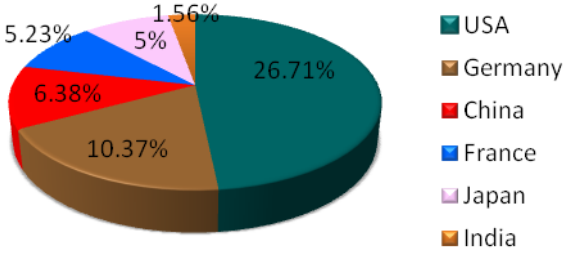
Source : UN Comtrade

Leading Vegetables Saps and Extracts importers of world from 2019 to 2022**(in million $)**

Data label given on the basis of 2022



Country wise leading importers of Vegetables Saps and Extracts by percentage in 2022

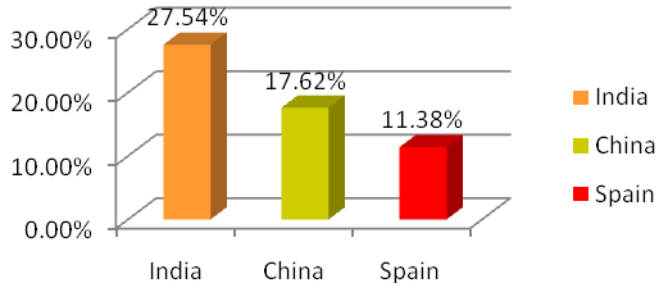


The global import value of Vegetables Saps and Extracts was US $ 7.30 billion in 2022, which jumped down more than 6.28 % from US $ 7.79 billion in 2021. USA imports the largest amount of Vegetables Saps and Extracts from world and imports US $ 1.95 billion Vegetables Saps and Extracts in 2022 or 26.71% of world import, which was followed by Germany and China those imported Vegetables Saps and Extracts of US $ 757.50 million and US $ 465.97 million respectively. India Imported only US $ 114.23 million worth of Vegetables Saps and Extracts from world in 2022 and appeared as 15th largest importer.

Annexure-1

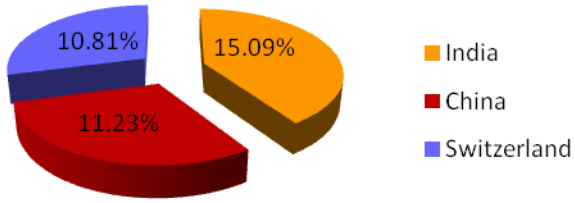
Major sources of world's top 3 importers of Vegetables Saps & Extracts (H.S Code-1302)

Top 3 Sources of Vegetables Saps and Extracts to USA in 2022 by percentage:



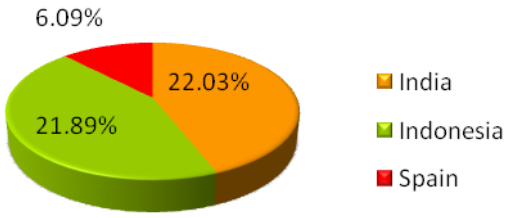
India was the primary source of Vegetables Saps and Extracts to USA , USA imports 27.54% share of its total import in 2022. China stood at 2nd largest source of the commodity group to USA With 17.62% share. In the same year Spain appeared as the country with third largest source of Vegetables Saps and Extracts to USA with 11.38 % share USA's total import. **(Source: UN Comtrade)**

ii) Top 3 Sources of Vegetables Saps and Extracts to Germany in 2022 by percentage***:***



In 2022 **India** was the primary source country of Vegetables Saps and Extracts to Germany. Germany has imported 15.09% share from India. It was followed by China (11.23%) and Switzerland (10.81%)..**(Source: UN Comtrade)**

iii) Top 3 Sources of Vegetables Saps and Extracts to China in 2022 by percentage***:***



India was the largest source of Vegetables Saps and Extracts to China in 2022, 22.03% of total Vegetables Saps and Extracts import by China from India in 2022. Indonesia (21.89 %) and Spain (6.09%) were 2nd and 3rd largest sources countries of Vegetables Saps and Extracts to China in that year. **(Source : UN Comtrade)**

Molasses

Molasses is a viscous substance resulting from refining sugarcane or sugar beets into sugar. Molasses varies in the amount of sugar, method of extraction and age of the plant. Sugarcane molasses is primarily used to sweeten and flavour foods. Molasses is a major constituent of fine commercial brown sugar. It is also one of the primary ingredients used to distill rum. Sweet sorghum syrup is colloquially called *sorghum molasses* in the southern United States. Molasses has a stronger flavour and is more viscous than most alternative syrups .

Cane molasses is an ingredient used in baking and cooking. It was popular in the Americas before the 20th century, when it was plentiful and commonly used as a sweetener in foods and an ingredient in brewing beer in the colonies. George Washington had a notebook that contains a molasses beer recipe.

To produce molasses, sugar cane is harvested and stripped of leaves. Its juice is then extracted, usually by cutting, crushing or mashing. The juice is boiled to produce a concentrate and encourage sugar crystallization. The result of this first boiling is called *first syrup ('A' Molasses*) and has the highest sugar content. First syrup is usually referred to in the Southern United States as *cane syrup* rather than molasses. *Second molasses ('B' Molasses*) is produced by a second boiling and sugar extraction and has a slightly bitter taste.

Boiling the sugar syrup a third-time yields dark, viscous *blackstrap molasses* (*'C' Molasses*), known for its robust flavour. During this process, the majority of sucrose from the original juice is crystallized and removed. The caloric content of blackstrap molasses is mostly a result of the small amount of remaining sugar content. Unlike highly refined sugars, molasses contains significant amounts of vitamin B_6 and minerals, including calcium, magnesium, iron and manganese; one tablespoon provides up to 20% of the recommended daily value of each of those nutrients. Blackstrap is also a good source of potassium.

The bitterness of blackstrap molasses is much greater than in the regular form of molasses. It is sometimes used in baking or to produce ethanol, as an ingredient in cattle feed, or as a fertilizer.
The exaggerated health benefits sometimes claimed for blackstrap molasses were the theme of the 1951 novelty song *Black Strap Molasses*, recorded by Groucho Marx, Jimmy Durante, Jane Wyman and Danny Kaye.

Molasses made from sugar beet differs from sugarcane molasses. Only the syrup remaining from the final crystallization stage is referred to as molasses. Intermediate syrups are referred to as high green and low green molasses, and these are recycled at crystallization plants to maximize extraction. Beet molasses is 50% sugar by dry weight, predominantly sucrose, but contains significant amounts of glucose and fructose. Beet molasses is limited in biotin for cell growth and hence may be supplemented with a biotin source.

The non-sugar content includes many salts, including calcium, potassium, oxalate and chloride. It contains betaine and the trisaccharide raffinose. These result from the concentration of the original plant material or other chemicals in processing and are unpalatable to humans. It is therefore mainly used as an animal feed additive or a fermentation feedstock. Additional sugar can also be extracted from beet molasses in a process known as desugarization. The process employs industrial-scale chromatography to separate sucrose from non-sugar components. The technique is economically viable in trade-protected areas, where the price of sugar is supported above market price. As such, it is practised in the U.S. and parts of Europe. Sugar beet molasses is widely consumed in Europe Molasses is also used in yeast production.

Molasses is composed of 22% water, 75% carbohydrates and very small amounts (0.1%) of fat (table). It contains no protein. In a reference amount of 100 grams, molasses is a rich source (20% or more of the Daily Value, DV)of vitamin B6 and several dietary minerals including manganese, magnesium, iron, potassium and calcium (table).The sugars in molasses are sucrose (29% of total carbohydrates), glucose (12%) and fructose (13%) (data from USDA nutrition table).

These are broadly classified under **H.S. Code - 1703.**

Table - 4

India's Top 10 destination of Molasses (HS Code – 1703)

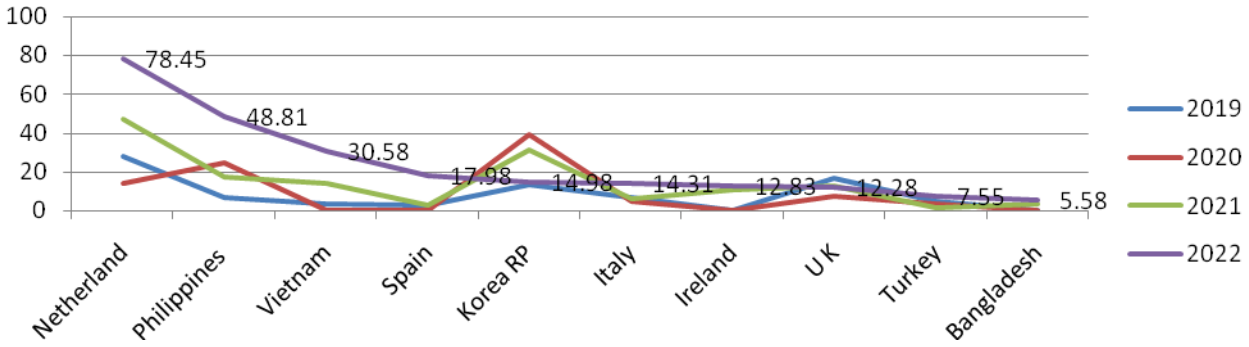
Rank	Countries	2019		2020		2021		2022	
		Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)
1.	Netherland	27.77	29.63	14.09	12.84	47.29	21.45	78.45	29.34
2.	Philippines	6.91	7.37	24.76	22.56	17.49	7.93	48.81	18.26
3.	Vietnam	3.20	3.41	0.00	0.00	13.99	6.34	30.58	11.44
4.	Spain	2.87	3.06	0.00	0.00	2.67	1.21	17.98	6.72
5.	Korea RP	13.43	14.33	39.33	35.84	31.27	14.18	14.98	5.60
6.	Italy	6.58	7.01	4.94	4.50	6.30	2.86	14.31	5.35
7.	Ireland	0.00	0.00	0.00	0.00	10.62	4.82	12.83	4.80
8.	U K	16.30	17.39	7.13	6.50	12.83	5.82	12.28	4.59
9.	Turkey	4.42	4.72	3.58	3.26	1.56	0.71	7.55	2.82
10.	Bangladesh	0.00	0.00	0.00	0.00	3.52	1.59	5.58	2.09
	Others	12.27	13.09	15.92	14.51	72.94	33.08	24.01	8.98
	Total	93.74	100	109.75	100	220.48	100	267.36	100

Source: DGCI&S

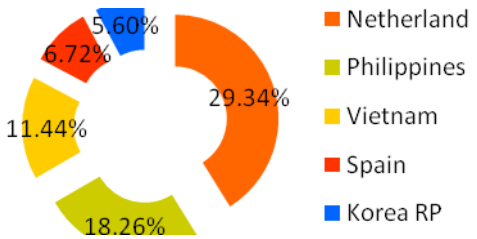
Note : India's Export including re-export

India's major destination of Molasses from 2019-2022 **(Value in Million USD)**

Data label given on the basis of 2022



India's top 5 major destinations of Molasses by percentage in 2022:



In 2022 Molasses is exported to so many countries from India . In the year 2022, India has exported Molasses worth of US 267.36 million which was more than 21.26 % more than the year 2021. The table shows that the trends of Molasses export from India was increasing over the review period. . In 2022 Netherland was the top most destination of Indian Molasses, It has imported US $ 78.45 million worth of Molasses or 29.34 % share of India's total export which was Followed by Philippines and Viet Nam with the Molasses shipment value being U S $ 48.81 million and US $ 30.58 Million. The top 10 countries in total shared the share of 91.02 % of the Molasses export value from India.

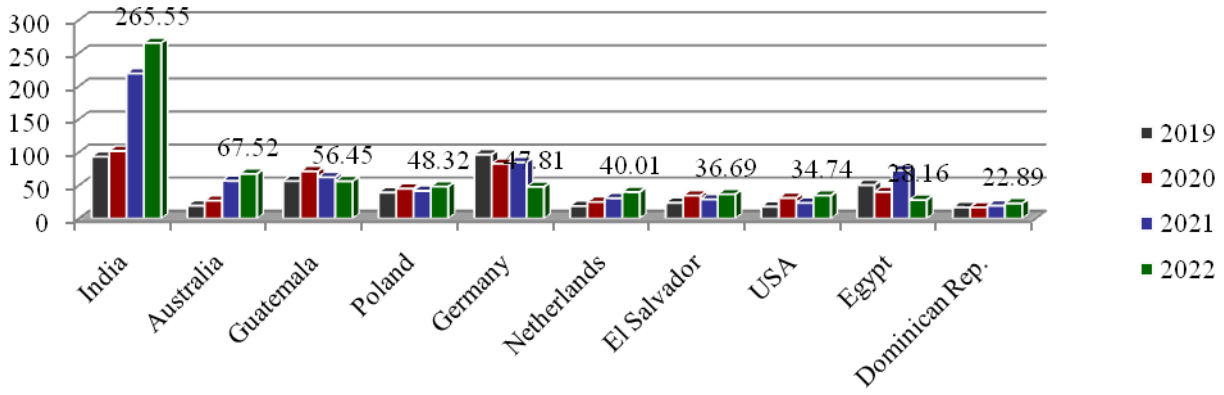
Table - 5

World's Top 10 exporter of Molasses (H.S Code-1703)

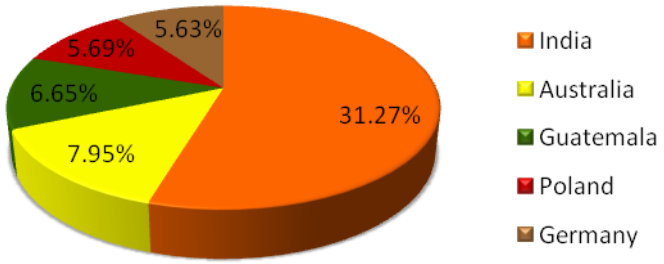
Rank	Countries	2019		2020		2021		2022	
		Value (million $)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)
1.	**India**	**93.51**	**10.35**	**102.14**	**10.63**	**219.30**	**19.92**	**265.55**	**31.27**
2.	Australia	19.52	2.16	26.96	2.81	57.01	5.18	67.52	7.95
3.	Guatemala	56.77	6.28	71.42	7.44	62.42	5.67	56.45	6.65
4.	Poland	39.49	4.37	45.23	4.71	41.82	3.80	48.32	5.69
5.	Germany	96.75	10.71	82.81	8.62	85.12	7.73	47.81	5.63
6.	Netherlands	18.82	2.08	25.17	2.62	30.78	2.80	40.01	4.71
7.	El Salvador	23.96	2.65	34.77	3.62	28.97	2.63	36.69	4.32
8.	USA	18.09	2.00	31.16	3.24	23.71	2.15	34.74	4.09
9.	Egypt	50.65	5.60	40.09	4.17	72.76	6.61	28.16	3.32
10.	Dominican Rep.	17.01	1.88	16.80	1.75	19.46	1.77	22.89	2.70
	Others	469.15	51.91	483.99	50.39	459.36	41.73	200.96	23.67
	Total	903.71	100	960.54	100	1100.71	100	849.10	100

Source: UN Comtrade

Top world exporters of Molasses from 2019 to 2022 **(Values in million USD)**
Data label given on the basis of 2022



Export trends in world's leading Molasses exporters by percentage in 2022:



Global export of Molasses was totaled US $ 849.10 Million in 2022. In that year the total export value decreased at an rate of 22.86 % from 2021. The trend pattern indicated increasing trends up to the year 2021. **India** represented the major exporter of Molasses in the world, exported 31.27% share of world export in 2022. Australia and Guatemala constitutes the 2nd and 3rd largest exporter of the Commodity group in the same year with 7.95% and 6.65 % share of world export respectively. The top 10 countries together export more than 76.33% share of world export of Molasses in 2022.

Table - 6

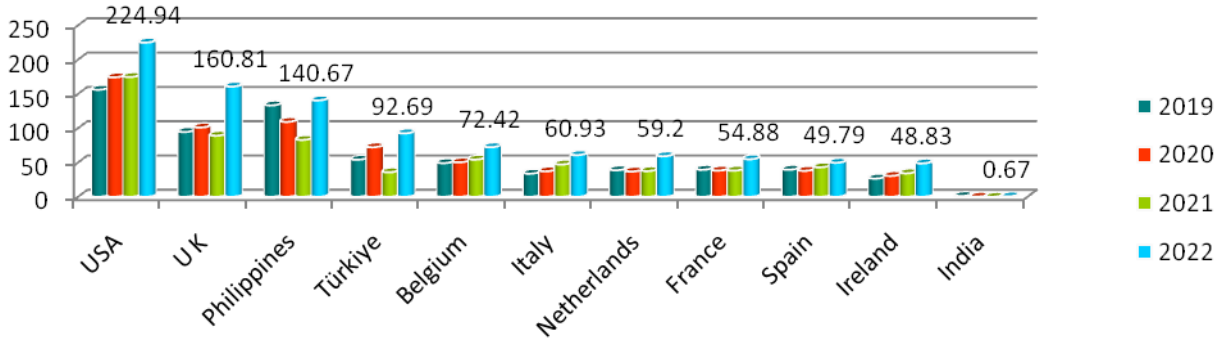
World's top 10 Importers of Molasses (H.S Code-1703)

Rank	Countries	2019		2020		2021		2022	
		Value (million $)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)
1.	USA	156.19	14.34	174.19	14.58	174.69	14.17	224.94	17.99
2.	U K	94.61	8.69	101.14	8.47	89.18	7.24	160.81	12.86
3.	Philippines	133.29	12.24	109.31	9.15	83.04	6.74	140.67	11.25
4.	Türkiye	54.09	4.97	72.33	6.05	35.79	2.90	92.69	7.41
5.	Belgium	49.16	4.51	50.33	4.21	54.42	4.42	72.42	5.79
6.	Italy	33.79	3.10	37.19	3.11	47.20	3.83	60.93	4.87
7.	Netherlands	38.74	3.56	36.94	3.09	37.57	3.05	59.20	4.73
8.	France	39.48	3.62	38.32	3.21	38.26	3.10	54.88	4.39
9.	Spain	39.55	3.63	38.00	3.18	43.08	3.50	49.79	3.98
10.	Ireland	26.72	2.45	30.55	2.56	34.33	2.79	48.83	3.91
51.	**India**	**1.24**	**0.11**	**0.16**	**0.01**	**0.07**	**0.01**	**0.67**	**0.05**
	Others	423.62	38.89	506.28	42.38	594.95	48.27	285.10	22.80
	Total	1089.25	100	1194.58	100	1232.50	100	1250.26	100

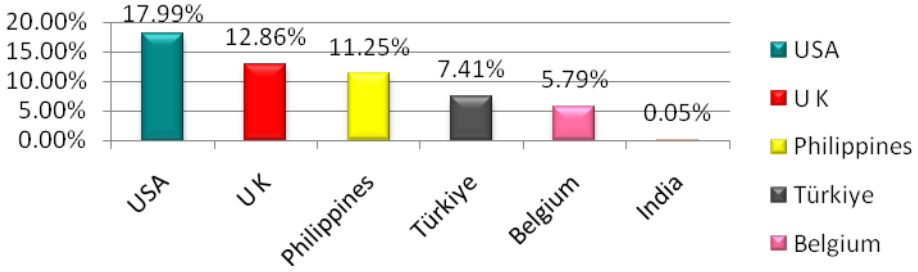
Source :UN Comtrade

Top world importers of Molasses from 2019 to 2022 **(Values in million USD)**

Data label given on the basis of 2022



Country wise leading global Importer of Molasses by percentage in 2022

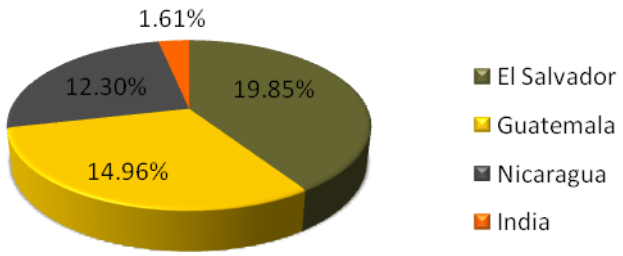


USA imported around US $ 224.94 Million worth of Molasses in 2022, making it the leading importer of Molasses worldwide that year. U K followed in the second place, importing around US $ 160.81 Million worth of the commodity. It was followed by Philippines, imported around US $ 140.67 Million of Molasses in the same year. **India's** share was only 0.05% share of world import and making it the 51st position in ranking in the world in that year.

Annexure -II

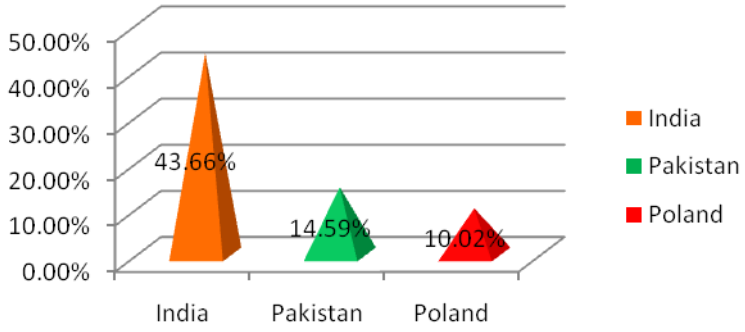
Sources of world's top three importers of Molasses (H.S Code-1703)

(i) Top 3 Sources of Molasses to USA in 2022 by percentage:



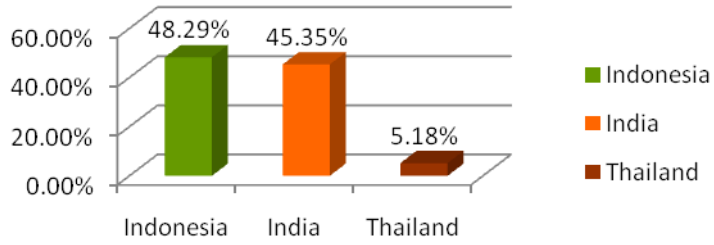
In the year 2022 USA, imports largest worth value of Molasses, 19.85 % share imported from El Salvador. In that year the 2nd and 3rd largest source of Molasses to USA were Guatemala and Nicaragua with 14.96 % and 12.30 % share. **India's** share was 1.61% share of USA's total import of Molasses in 2022.
(Source: UN Comtrade)

(ii) Top 3 Sources of Molasses to UK in 2022 by percentage**:**



India was the largest source of Molasses to U K. U K imports 43.66 % share of Molasses from India, 14.59 % from Pakistan and 10.02% share from Poland in 2022.
(Source: UN Comtrade)

(iii) Top 3 Sources of Molasses to Philippines in 2022 by percentage**:**



Indonesia was the largest source country of Molasses to Philippines in 2022, it exports, 48.29% share of Philippines's total import of Molasses. It was closely followed by **India** with 45.35% share. The 3rd major source of Molasses to Philippines was Thailand (5.18%) .
(Source : UN Comtrade)

IMPORT

Printing Ink

Ink is a gel, sol, or solution that contains at least one colorant, such as a dye or pigment, and is used to color a surface to produce an image, text, or design. Ink is used for drawing or writing with a pen, brush, reed pen, or quill. Thicker inks, in paste form, are used extensively in letterpress and lithographic printing.

Ink can be a complex medium, composed of solvents, pigments, dyes, resins, lubricants, solubilizers, surfactants, particulate matter, fluorescents, and other materials. The components of inks serve many purposes; the ink's carrier, colorants, and other additives affect the flow and thickness of the ink and its dry appearance.

Many ancient cultures around the world have independently discovered and formulated inks for the purposes of writing and drawing. The knowledge of the inks, their recipes and the techniques for their production comes from archaeological analysis or from written text itself. The earliest inks from all civilizations are believed to have been made with *lampblack*, a kind of soot, as this would have been easily collected as a by-product of fire.

Ink was used in Ancient Egypt for writing and drawing on papyrus from at least the 26th century BC. Egyptian red and black inks included iron and ocher as a pigment, in addition to phosphate, sulfate, chloride, and carboxylate ions; meanwhile, lead was used as a drier.

India ink (British English: **Indian ink**; also **Chinese ink**) is a simple black or coloured ink once widely used for writing and printing and now more commonly used for drawing and outlining, especially when inking comic books and comic strips. India ink is also used in medical applications.

Basic India ink is composed of a variety of fine soot, known as *lampblack*, combined with water to form a liquid. No binder material is necessary: the carbon molecules are in colloidal suspension and form a waterproof layer after drying. A binding agent such as gelatin or, more commonly, shellac may be added to make the ink more durable once dried. India ink is commonly sold in bottled form, as well as a solid form as an inkstick (most commonly, a stick), which must be ground and mixed with water before use. If a binder is used, India ink may be waterproof or non-waterproof.

India ink has been in use in India since at least the 4th century BC, where it was called **masi**, an admixture of several substances. Indian documents written in Kharosthi with this ink have been unearthed in as far as Xinjiang, China. The practice of writing with ink and a sharp-pointed needle in Tamil and other Dravidian languages was common practice from antiquity in South India, and so several ancient Buddhist and Jain scripts in India were compiled in ink. In India, the carbon black from which India ink is formulated was obtained indigenously by burning bones, tar, pitch, and other substances.

A common ingredient in India ink, called carbon black, has been used by many ancient historical cultures. For example, the ancient Egyptians and Greeks both had their own recipes for "carbon black". One Greek recipe, from 40 to 90 AD, was written, documented and still exists today.

Coloured pigments are inorganic compounds of chromium (yellow, green, and orange), molybdenum (orange), cadmium (red and yellow), and iron (blue). Inks for offset are more highly coloured than those used in letterpress, because they must be transferred to the blanket before they reach the paper. Furthermore, the pigments must resist being picked up by the water from the dampening system.

Printing ink is a liquid or paste that is used to create text or images on paper or other substrates through various printing processes. It typically consists of pigments or dyes suspended in a carrier liquid, such as water or a solvent. The pigments or dyes provide the color, while the carrier liquid helps to transfer the ink to the substrate. Different types of printing ink are used for different types of printing, such as offset printing, screen printing, and digital printing.

These are broadly classified under **H. S. Code 3215**.

Table - 7

India's Top 10 Sources of Printing, Writing or Drawing Ink (HS Code :3915)

Rank	Countries	2019		2020		2021		2022	
		Value (million $)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)
1.	China	30.77	16.29	26.40	20.08	39.37	21.79	58.18	26.91
2.	Singapore	31.21	16.52	23.89	18.17	32.30	17.88	32.79	15.16
3.	Japan	16.21	8.58	11.96	9.10	17.78	9.84	24.06	11.13
4.	Philippines	4.43	2.34	6.84	5.20	13.53	7.49	16.96	7.84
5.	Germany	12.32	6.52	9.48	7.21	10.71	5.93	12.31	5.69
6.	U K	10.59	5.61	9.34	7.10	11.98	6.63	11.78	5.45
7.	U S A	10.97	5.81	8.33	6.33	9.94	5.50	11.65	5.39
8.	Korea RP	10.76	5.70	7.30	5.55	8.92	4.94	11.26	5.21
9.	Taiwan	6.28	3.32	4.19	3.19	5.18	2.87	6.49	3.00
10.	Thailand	6.37	3.37	5.42	4.12	7.00	3.88	6.01	2.78
	Others	49.01	25.94	18.35	13.95	23.98	13.27	24.75	11.45
	Total	188.93	100	131.50	100	180.68	100	216.22	100

Source**: DGCI&S**

Note : India's Import including re-import

Imports of Printing, Writing or Drawing Ink to India increased to US $ 216.22 Million in 2022 from US $ 180.68 Million in 2021. Over the period under review, global Printing, Writing or Drawing Ink imports attained its maximum worth value of US $ 216.22 Million in 2022. In 2022 India imported the highest dollar worth of Printing, Writing or Drawing Ink from China with valued at US $ 58.18 Million. In Second and Third source countries were Singapore and Japan , from where India imported around US $ 32.79 Million and US $ 24.06 Million worth of Printing, Writing or Drawing Ink respectively. In the same year. The top 10 countries shared 88.55% of the Printing, Writing or Drawing Ink import to India.

Table - 8

World Top 10 Importer of Printing, Writing or Drawing ink forms (HS Code 3215)

Rank	Countries	2019		2020		2021		2022	
		Value (million $)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)
1.	Germany	2027.56	15.51	2214.89	16.27	2207.31	15.12	2019.21	17.83
2.	Netherlands	1051.57	8.04	1471.66	10.81	1433.60	9.82	1221.92	10.79
3.	France	1085.38	8.30	1255.13	9.22	1289.48	8.83	1071.05	9.46
4.	USA	509.67	3.90	527.09	3.87	626.55	4.29	662.73	5.85
5.	U K	661.49	5.06	574.52	4.22	636.89	4.36	518.55	4.58
6.	China	510.05	3.90	495.64	3.64	566.04	3.88	491.60	4.34
7.	Italy	483.24	3.70	467.81	3.44	510.21	3.49	472.36	4.17
8.	Poland	197.47	1.51	331.28	2.43	309.90	2.12	310.45	2.74
9.	Singapore	341.48	2.61	262.44	1.93	324.61	2.22	283.23	2.50
10.	Mexico	235.34	1.80	204.03	1.50	229.82	1.57	275.26	2.43
16.	**India**	**188.87**	**1.44**	**131.53**	**0.97**	**180.77**	**1.24**	**216.42**	**1.91**
	Others	5968.98	45.66	5812.23	42.68	6463.96	44.28	3995.29	35.29
	Total	13072.25	100	13616.71	100	14598.37	100	11321.65	100

Source :UNComtrade

In 2022 Global import of Printing, Writing or Drawing Ink totaled were US $ 11.32 Billion, which was decreased by 22.45 % from the year of 2021. Over the period under review, global printing ink imports attained its maximum level of US $ 14.60 Billion in 2021. In value terms, Germany constitutes the largest market for imported Printing Ink worldwide with worth value of US $ 2.02 Billion, making up 17.83% of global imports. The second position in the ranking was occupied by Netherlands (US $ 1.22B), with the share of 10.79 % of global imports. It was followed by the France with the share of 9.46 %. In the same year **India** constitutes the 16th position in ranking with 1.91% share of world import.

Antibiotics

An **antibiotic** is a type of antimicrobial substance active against bacteria. It is the most important type of antibacterial agent for fighting bacterial infections, and antibiotic medications are widely used in the treatment and prevention of such infections. They may either kill or inhibit the growth of bacteria. A limited number of antibiotics also possess antiprotozoal activity. Antibiotics are not effective against viruses such as the common cold or influenza; drugs which inhibit growth of viruses are termed antiviral drugs or antivirals rather than antibiotics. They are also not effective against fungi; drugs which inhibit growth of fungi are called antifungal drugs.

Antibiotics have been used since ancient times. Many civilizations used topical application of moldy bread, with many references to its beneficial effects arising from ancient Egypt, Nubia, China, Serbia, Greece, and Rome. The first person to directly document the use of molds to treat infections was John Parkinson (1567–1650). Antibiotics revolutionized medicine in the 20th century. Alexander Fleming (1881–1955) discovered modern day penicillin in 1928, the widespread use of which proved significantly beneficial during wartime. However, the effectiveness and easy access to antibiotics have also led to their overuse and some bacteria have evolved resistance to them The World Health Organization has classified antimicrobial resistance as a widespread "serious threat [that] is no longer a prediction for the future, it is happening right now in every region of the world and has the potential to affect anyone, of any age, in any country". Global deaths attributable to antimicrobial resistance numbered 1.27 million in 2019.

Antibiotics are used to treat or prevent bacterial infections, and sometimes protozoan infections. (Metronidazole is effective against a number of parasitic diseases). When an infection is suspected of being responsible for an illness but the responsible pathogen has not been identified, an empiric therapy is adopted. This involves the administration of a broad-spectrum antibiotic based on the signs and symptoms presented and is initiated pending laboratory results that can take several days.

When the responsible pathogenic microorganism is already known or has been identified, definitive therapy can be started. This will usually involve the use of a narrow-spectrum antibiotic. The choice of antibiotic given will also be based on its cost. Identification is critically important as it can reduce the cost and toxicity of the antibiotic therapy and also reduce the possibility of the emergence of antimicrobial resistance. To avoid surgery, antibiotics may be given for non-complicated acute appendicitis.

Antibiotics may be given as a preventive measure and this is usually limited to at-risk populations such as those with a weakened immune system (particularly in HIV cases to prevent pneumonia), those taking immunosuppressive drugs, cancer patients, and those having surgery. Their use in surgical procedures is to help prevent infection of incisions. They have an important role in dental antibiotic prophylaxis where their use may prevent bacteremia and consequent infective endocarditis. Antibiotics are also used to prevent infection in cases of neutropenia particularly cancer-related. The use of antibiotics for secondary prevention of coronary heart disease is not supported by current scientific evidence, and may actually increase cardiovascular mortality, all-cause mortality and the occurrence of stroke.

Antibiotic consumption varies widely between countries. The WHO report on surveillance of antibiotic consumption published in 2018 analysed 2015 data from 65 countries. As measured in defined daily doses per 1,000 inhabitants per day. Mongolia had the highest consumption with a rate of 64.4. Burundi had the lowest at 4.4. Amoxicillin and amoxicillin/clavulanic acid were the most frequently consumed.

Antibiotics are screened for any negative effects before their approval for clinical use, and are usually considered safe and well tolerated. However, some antibiotics have been associated with a wide extent of adverse side effects ranging from mild to very severe depending on the type of antibiotic used, the microbes targeted, and the individual patient. Side effects may reflect the pharmacological or toxicological properties of the antibiotic or may involve hypersensitivity or allergic reactions. Adverse effects range from fever and nausea to major allergic reactions, including photodermatitis and anaphylaxis.

These are broadly classified under **H. S. Code 2941**.

Table - 9

India's Top 10 Source Countries of Antibiotics (HS Code : 2941)

Rank	Countries	2019		2020		2021		2022	
		Value (million $)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)
1.	China	1079.22	80.09	1121.32	79.08	1368.67	82.71	1318.55	83.06
2.	Austria	15.40	1.14	25.04	1.77	43.45	2.63	52.59	3.31
3.	Italy	31.27	2.32	30.83	2.17	25.84	1.56	26.67	1.68
4.	Spain	22.89	1.70	22.12	1.56	15.00	0.91	24.67	1.55
5.	U S A	31.50	2.34	33.50	2.36	36.05	2.18	22.43	1.41
6.	Hong Kong	27.38	2.03	38.57	2.72	36.39	2.20	14.39	0.91
7.	Mexico	19.36	1.44	17.27	1.22	8.35	0.50	14.10	0.89
8.	U K	17.84	1.32	14.81	1.04	20.09	1.21	13.47	0.85
9.	Slovenia	15.79	1.17	17.74	1.25	12.83	0.78	13.39	0.84
10.	Korea RP	16.30	1.21	14.05	0.99	17.27	1.04	10.51	0.66
	Others	70.48	5.23	82.74	5.84	70.85	4.28	76.71	4.83
	Total	1347.43	100	1418.00	100	1654.79	100	1587.48	100

Source: DGCI&S

Note : India's Import including Re-import

There are so many countries India imports Antibiotics from. The dollar value of Antibiotics import in 2022 stood at US $ 1.59 Billion and US $ 1.65 Billion in 2021. Which shows a negative growth of almost (-)4.07% from 2021. In 2021 India imported the highest dollar worth of Antibiotics from China with valued at US $ 1.32 Billion. In Second and Third major sources were Austria and Italy, from where India imported around US $ 52.59 Million and US $ 26.67 Million worth of Antibiotics respectively. In the same year The top 10 countries shared 95.17% of the total import to India.

Table - 10

World Top 10 Importer of Antibiotics (HS Code : 2941)

Rank	Countries	2019		2020		2021		2022	
		Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)	Value (million$)	Share (%)
1.	**India**	**1346.57**	**11.18**	**1423.63**	**12.51**	**1656.10**	**16.43**	**1588.63**	**17.86**
2.	Italy	1528.21	12.69	1377.07	12.10	945.50	9.38	1200.63	13.50
3.	USA	860.41	7.15	640.20	5.62	682.86	6.78	751.87	8.45
4.	Germany	1172.29	9.74	1032.96	9.07	899.27	8.92	648.47	7.29
5.	France	610.97	5.07	588.06	5.17	572.14	5.68	494.37	5.56
6.	Belgium	443.34	3.68	389.17	3.42	280.77	2.79	463.41	5.21
7.	Brazil	299.10	2.48	382.89	3.36	387.33	3.84	415.78	4.67
8.	China	689.65	5.73	391.64	3.44	350.45	3.48	413.44	4.65
9.	Spain	316.09	2.62	480.66	4.22	354.49	3.52	325.48	3.66
10.	Japan	392.83	3.26	330.49	2.90	288.67	2.86	245.06	2.75
	Others	4382.48	36.39	4345.70	38.18	3659.87	36.32	2348.89	26.40
	Total	12041.93	100	11382.46	100	10077.45	100	8896.03	100

Source :UNComtrade

Global imports of Antibiotics amounted to US $ 8.90 Billion in 2022, approximately decreasing by 11.73% from the previous year level. Over the period under review, global Antibiotics imports attained its maximum worth value of US $ 12.04 Billion in 2019. In 2022 India constitutes the largest market for imported Antibiotics worldwide with worth of US $ 1.59 Billion , making up 17.86 % share of global imports. The second position in the ranking was occupied by Italy (US $ 1.20 B), with the share of 13.50% of global imports. It was followed by the USA, with the share of 8.45%. Over the period under review, Germany was in the top three importing countries for three consecutive years from 2019 to 2021.