

GROWTH AND EXPORT TRENDS OF MAJOR SPICES IN INDIA: AN ANALYTICAL STUDY

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ABSTRACT

Indian spices are popularly known for their flavour and aroma in domestic as well as in the international markets. Out of the total spices production, Indian households consume about 70-75 per cent either in whole form or in value added form (powder or masalas), 5-10 per cent is utilized by oleoresins, pharmaceuticals and cosmetics companies, 15-20 per cent is exported and the remaining 5 per cent goes for seed purposes (www.commodityindia.com). Increased production and trade balance in terms of export and import are required to support economic growth through agriculture. The present study focused on analysing the growth and instability in area, production and exports of major spices from India. The results showed that India's overall export and agricultural export both increased at 6.50 and 6.16 per cent annual growth rate from 2010-11 to 2019-20, respectively. India's agricultural export share to overall export has grown from 9.71 per cent in 2010-11 to 11.40 per cent in 2019-20 while Ginger, garlic and turmeric, these three spices contributed 58.99 per cent share to total spice production from 19.16 per cent area. Among different spices cumin, chilli and coriander emerged as the first, second and third most grown spices in the country with 29.56, 14.44 and 12.25 per cent area and 9.01, 18.19 and 6.92 per cent production share to total spices respectively.

Keywords : spices, export, trade balance

INTRODUCTION

India being a net exporter of agricultural commodities, the foreign earnings by way of exports will lead to the import of capital goods which will pave way for the increased investment resulting in technological advances, eventually leading to improved productivity and efficiency. To accelerate the pace of economic development, reliance on international trade becomes desirable to muster foreign exchange.

Indian spices are popularly known for their flavour and aroma in domestic as well as in the international markets. India is one of the largest producers, consumer and exporter of spices in the world. Out of the total spices production, Indian households consume about 70-75 per cent either in whole form or in value added form (powder or masalas), 5-10 per cent is utilized by oleoresins, pharmaceuticals and cosmetics companies, 15-20 per cent is exported and the remaining 5 per cent goes for seed purposes (www.commodityindia.com). For the agrarian economies of developing countries like India, spices exports seem to be the engine of the growth of exports. A study about the performance of exports in this sector is important for India.

As the international market becomes increasingly competitive, it is essential to enhance the production and productivity and bring down cost of cultivation to make the Indian spices globally competitive. Thus, to highlight the competitive countries in international market for export of spices, the analysis of competitiveness was undertaken to help the exporters and farmers in identifying demanding market of spices.

OBJECTIVE

To study the compound growth rate and instability in exports of major spices

METHODOLOGY

The present study investigates the growth and instability in area, production and exports of major spices from India for a period of 20 years due to their highest percentage share in value of overall spices exports from India. The yearly time series data of export quantity, export value, export destinations was collected from various websites like- www.apeda.gov.in, indianspices.com/export/, fao.org/faostat/en/#data/TCL, and data of area and production was collected from indiastatagri.com.

Analytical Tools and Techniques

- 1 Exponential growth model
- 2 Instability Index

1 Exponential growth model

Growth rate of exports of major spices for the study period was computed using the exponential growth model. The model is specified as follows:

$$Y = ab^t e^{\dots\dots\dots} \text{----- (1)}$$

Where,

Y= Export (quantity and value) of spices for the year t

a = Intercept

b = Regression coefficient

t = Time variable

e = Residual term

By converting the equation (1) into its natural logarithmic form in order to obtain the compound growth rate is given below.

$$\ln Y = \ln a + t \ln b + \ln e$$

The percentage of compound annual growth rate was derived by using the following formula.

$$CAGR = [(\text{anti } \ln b) - 1] * 100$$

2. Study of instability

One of the simplest ways of measuring variability present in the data is by using coefficient of variance (CV). The variability in quantity and value of exports during the study period was measured using the formula for CV as given below:

$$CV = \frac{\text{Standard Deviation}}{\text{Mean}} * 100$$

Though CV is one of the simplest measure of the instability it does not completely explain the variability present in the time series data because of the presence of the trend component. In order to overcome this problem, formula suggested by Cuddy and Della, (1978) was used. Cuddy-Della instability index was calculated as follows.

$$II (\%) = CV \sqrt{(1 - R^2)}$$

Where, II = Instability Index

CV = Coefficient of variation

= Adjusted Coefficient of Determination of time trend regression of the original data of exports quantity or value of spice.

RESULTS AND DISCUSSION

Present Scenario :

India, contemporarily known as the home of spices, has the world’s largest domestic market for spices. India is dominating in producing spices due to the environmental condition. Presently, India is the world’s largest producer, consumer and exporter of spices. India is the world’s largest spice exporter, producing over 75 different of varieties and exporting a large quantity. Among all countries in the world, including those that do not produce spices or spice products, India has a distinct place in global spice export. Pepper, cardamom, chilli, ginger, turmeric, coriander, cumin, and other spices are among the most popular spices produced in India (Devi & Jadav, 2018). Throughout, India has been the world’s leading spice exporter, followed by Turkey, the Netherlands, and China. In 2019-20, the United States was the leading spice importer in the world, followed by Saudi Arabia and Bangladesh.

Table 1: Top five spices exporting and importing countries in the world (2019-20)

Producer	Exporters	Importers	Consumers
India	India	USA	India
Trukey	Turkey	Saudi Arab	Bangladesh
Bangladesh	Netherland	Bangladesh	Indonesia
China	China Mainland	India	Thailand
Indonesia	South Africa	UK	China

Source: USDA

A glimpse at the facts in Table 2 reveals that India’s agricultural exports have increased in terms of Rs crore. India’s overall export and agricultural export both increased at 6.50 and 6.16 per cent annual growth rate from 2010-11 to 2019-20, respectively. During the last decade, India’s total exports increased from Rs 1142921 crore to Rs 2219854 crore, while agricultural exports increased from Rs 111018 crore to Rs 252976 crore (Chaitra & Sonnad, 2019). India’s agricultural export share to overall export has grown from 9.71 per cent in 2010-11 to 11.40 per cent in 2019-20. Spice exports have steadily climbed in proportion to India’s agricultural exports, from 6.09 per cent in 2010-11 to 8.72 per cent in 2019-20. At present (2019-20) India exports 1208 thousand tones spices valued at Rs 22062.8 crores.

During the year 2019-20, major spices namely garlic, ginger, chilli, turmeric, cumin, coriander, fenugreek, tamarind, fennel and pepper cultivated in India on 4317.55 thousand ha area produced 10125.88 thousand tonnes spices. Ginger, garlic and turmeric, these three spices contributed 58.99 per cent share to total spice production from 19.16

per cent area. Major seed spices namely cumin, coriander, fenugreek and fennel contributed 46.66 and 19.11 per cent to national spice area and production respectively. Cumin, chilli and coriander are first, second and third most grown spices in the country with 29.56, 14.44 and 12.25 per cent area and 9.01, 18.19 and 6.92 per cent production share to total spices

Table 2: Export of agricultural commodities vis-à-vis total national export from India (2010-11 to 2019-20)

Value in ₹ crore

Year	Agricultural Export	Total National Export	Per cent share of Agri. Export to Total Export	Spices Export	Per cent share of Spices Export to Agri. Export
2010-11	111018.99	1142921.92	9.71	6760.71	6.09
2011-12	180528.60	1465959.39	12.31	9659.78	5.35
2012-13	223618.24	1634318.84	13.68	12005.23	5.37
2013-14	262778.96	1905011.09	13.79	13735.39	5.23
2014-15	239681.04	1896445.47	12.64	14899.68	6.22
2015-16	215396.55	1716378.05	12.55	16238.23	7.54
2016-17	226661.91	1849433.55	12.26	17812.26	7.86
2017-18	251563.94	1956514.53	12.86	17980.16	7.15
2018-19	274571.28	2307726.19	11.90	19505.81	7.10
2019-20	252976.06	2219854.17	11.40	22062.80	8.72
CAGR	6.50*	6.16**		11.83**	

Source: DGCIS

Table 3: Area and production of major spices in India (2019-20)

Sr. No.	Major Spices	Area ('000 ha)	Per cent share to total area	Production ('000 tonnes)	Per cent share to total production
1	Garlic	352.66	8.17	2926.09	28.90
2	Ginger	178.16	4.13	1868.35	18.45
3	Chilli	623.45	14.44	1841.80	18.19
4	Turmeric	296.18	6.86	1178.75	11.64
5	Cumin	1276.28	29.56	912.04	9.01
6	Coriander	528.97	12.25	700.81	6.92
7	Fenugreek	126.29	2.93	182.17	1.80
8	Tamarind	44.10	1.02	163.32	1.61
9	Fennel	82.73	1.92	139.76	1.38
10	Pepper	259.15	6.00	61.00	0.60
11	Others	549.58	12.73	151.79	1.50
Total Spices		4317.55	100.00	10125.88	100.00

Source: indiastatagri.com

Trend in spices export :

India has a legacy of more than 5000 years in spice trade. India had been dream land for navigators to reach in search of spices. It had been the major supplier of spices and its value added products to the world market. The spices in India showed positive growth both in terms of area (1.56%) and production (5.60%). India exported approximately 15% of its production in 2020-21, which comprises around 50 whole spices and over 80 spices with added value (Babu,

2017). Spice exports from India have hit record highs in terms of volume (9.33 per cent) and value (16.33 per cent). The export value has increased to 16.33 per cent from Rs 1833.53 crore in 2000-01 to Rs 22062.8 crore in 2019-20 (Joshi and Singh, 2015). During the year 2020-21, India exported 15.65 lakh tonnes of spices worth of Rs 27143.2 crore. It shows that there is a good potential or demand of the Indian spices in the global trade.

Table 4: Growth and instability in area, production and export of total spices from India

Sr. No.	Year	Area ('000 ha)	Production ('000 tonnes)	Export Quantity ('000 tonnes)	Export Value (₹ crores)
1	2000-01	2500	3023	235.916	1833.53
2	2001-02	3220	3765	243.203	1940.55
3	2002-03	3220	3765	264.106	2086.71
4	2003-04	5155	5113	254.382	1911.6
5	2004-05	3150	4004	348.524	2350.52
6	2005-06	2366	3705	417.256	2627.624
7	2006-07	2448	3953	419.4	3575.75
8	2007-08	2617	4357	490.225	4435.5
9	2008-09	2629	4145	557.495	5259.2
10	2009-10	2464	4016	611.525	5513.443
11	2010-11	2940	5351	608.7	6760.705
12	2011-12	3213	5951	634.65	9659.785
13	2012-13	3078	5744	862.542	12005.23
14	2013-14	3163	5908	817.25	13735.39
15	2014-15	3317	6108	893.92	14899.68
16	2015-16	3574	6988	843.255	16238.23
17	2016-17	3671	8122	947.79	17812.24
18	2017-18	3878	8124	1028.06	17980.16
19	2018-19	4067	9500	1100.25	19505.81
20	2019-20	4317	10125.88	1208.4 (11.93)	22062.8
	2020-21	4517.72	10485.10	1565 (14.92)	27193.20
	CAGR (%)	1.56	5.60**	9.33**	16.33**
	II	20.25	13.62	9.21	13.28

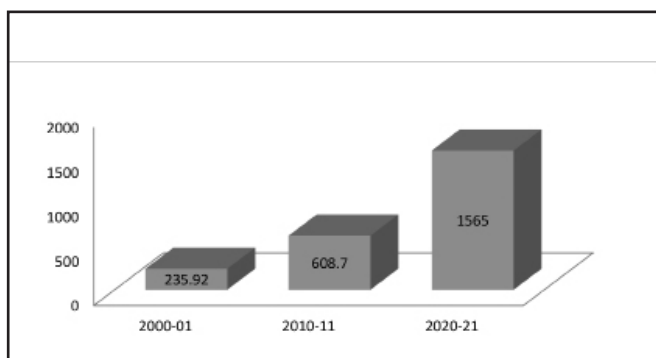


Fig. 1 : Trend in export quantity of spices from India over decades

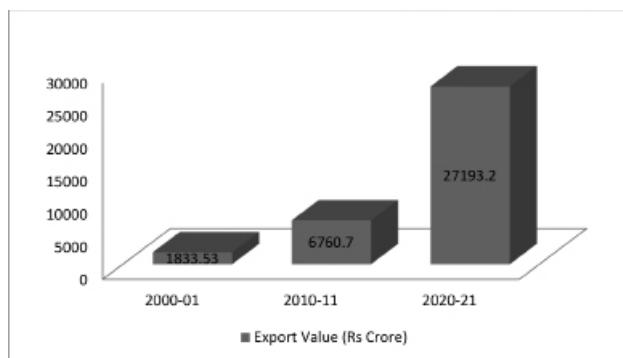


Fig. 2: Trend in export value of spices from India over decades

Ten major spices contributed around 90 per cent of export quantity and value. Major exported spices are chilli, cumin, turmeric and coriander which jointly constitute 72.86 and 54.61 per cent share in quantity and value respectively. Mint products, Pepper and spice oils & oleoresins are low volume high value spice products which holds 27.65 per cent share to total spice export earnings from 3.84 per cent volume share in quantity term respectively. Chilli alone accounts for 38.43 per cent in volume and 31 per cent in

value to total export, followed by cumin, mint products, spice oil & oleoresins, turmeric and small cardamom. In terms of value, the top spices exported by India in the year 2020-21 were Chilli, Cumin, mint products, spice oil & oleoresins, turmeric and small cardamom. Therefore, Chilli, Turmeric and Mint products were selected for detail study. The result is supported by the study carried out by (Varadharaj & Prakash, 2018).

Madhya Pradesh is the topmost spice producing state in India. Spices production, within the country, is mainly concentrated in five states including Madhya Pradesh, Rajasthan, Gujarat, Andhra Pradesh and Telangana accounting for nearly 70% of the total production of spices in the country. Spices exports from India are mostly to China,

USA, Bangladesh, UAE and Thailand. It can be seen that China was the largest importer of Indian spices in terms of value, which imported worth Rs 5053.23 crore spices during the year 2019-20. It contributed a share of 22.90% to the total value of spices exports.

Table 5: Item-wise export of major spices from India (2020-21)

Sr. No.	Item	Export Quantity ('000 tonnes)	% share to the total	Export Value (Rs crores)	% share to the total
1	Chilli	601.50	38.43	8429.75	31.00
2	Cumin	299.00	19.11	4253.10	15.64
3	Mint products	27.40	1.75	3668.25	13.49
4	Spice oil & Oleoresins	16.45	1.05	3306.75	12.16
5	Turmeric	183.00	11.69	1676.60	6.17
6	Small Cardamom	6.50	0.42	1106.75	4.07
7	Curry Powder	38.45	2.46	891.45	3.28
8	Ginger	125.70	8.03	756.63	2.78
9	Pepper	16.30	1.04	544.45	2.00
10	Coriander	57.00	3.64	489.82	1.80
11	Other seed spices	48.80	3.12	300.08	1.10
12	Fennel	31.80	2.03	276.30	1.02
13	Other spices	113.10	7.23	1493.27	5.49
Total Spices		1565	100.00	27193.20	100.00

Source: Spices Board

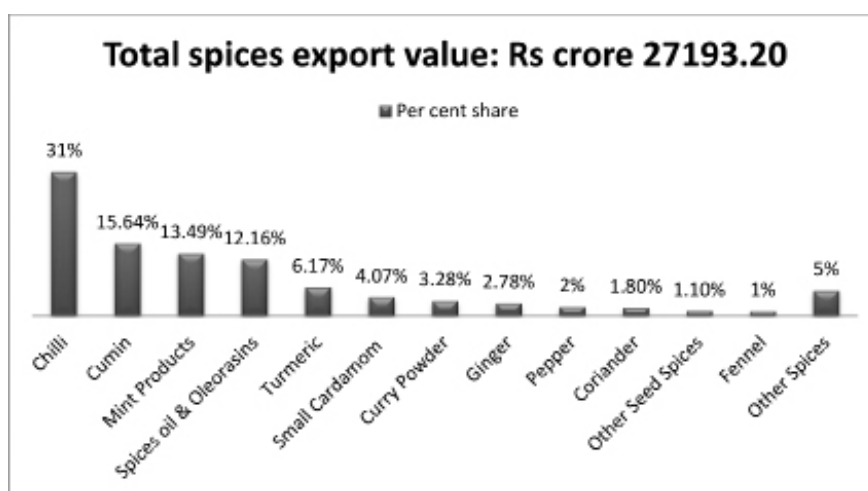


Figure 3: Major item-wise export from India during 2020-21

Table 6: Major Indian spices producing states and Export destinations (2019-20)

Sr. No.	Major Producing States	Production ('000 tonnes)	Major Export Destinations	Export Value (₹ crores)
1	Madhya Pradesh	3075.98 (30.38)	China	5053.23 (22.90)
2	Rajasthan	1058.92 (10.46)	USA	3351.27 (15.19)
3	Gujarat	1009.93 (9.97)	Bangladesh	1177.03 (5.33)
4	Andhra Pradesh	896.18 (8.85)	UAE	1078.33 (4.89)
5	Telangana	853.09 (8.42)	Thailand	1078.13 (4.89)
India		10125.88 (100.00)	India	22062.8 (100.00)

Note: Data in parentheses denotes percentage to the India's production/Export value of spices

CONCLUSION

The analysis of growth and instability of spices has revealed that almost all the spices have recorded a positive and significant growth rate during the study period. The study was based on secondary data. The proportionate share of spices export to India's agricultural export is 8.72 per cent in 2019-20. During the year 2020-21, India exported 15.65 lakh tonnes of spices worth of Rs 27143.2 crores and it registered all time high growth both in terms of quantity (9.33 per cent) and value (16.33 per cent) during the last two decades. Chilli alone accounts for 38.43 per cent in volume and 31 per cent in value to total export, followed by cumin, mint products, spice oil & oleoresins and turmeric. Spices exports from India are mostly to China, USA, Bangladesh, UAE and Thailand.

CONFLICT OF INTEREST

The authors of the paper declare no conflict of interest

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