

Export and import pattern of medicinal plants in India

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Abstract

Medicinal plants also play an important role in the lives of rural people in India with few health facilities. The plants that possess therapeutic properties or exert beneficial pharmacological effects on the animal body are generally designated as "Medicinal Plants". They play a significant role in providing primary health care services to rural India. They serve as therapeutic agents as well as important raw materials for the manufacture of traditional and modern medicine. Substantial amount of foreign exchange can be earned by exporting medicinal plants to other countries. In India there are 880 medicinal plants species involved in all India trade. Of this, 48 species are exported and about 42 species are imported. The Ministry of Environment and Forests, Government of India, reveals that there are over 8000 species of medicinal plants grown in the country. About 70 percent of these plants are found in the tropical forest; spread across the Western and Eastern Ghats. The Export-Import Bank of India, in its report for the year 1997, puts medicinal plants related trade in India at \$5.5 billion and the same is growing rapidly. According to World Health Organisation (WHO) the international market of herbal products is around \$6.2 billion, which is poised to grow to \$5 trillion by the year 2050. Unfortunately, India's share in the global medicinal plants related export trade is just 0.5 percent. The export of Medicinal plants is Rs.33453.23 lakhs during 1991-92 to 2002-2003. Its overall trend has been increased in 0.21 percent. And the average Import of Rs.2827.01 lakhs. Also its trend has been increased in 0.39 percent.

Keywords: Medicinal plants, herbs, green-plants.

Introduction

A medicinal plant is any plant which, in one or more of its organ, contains substance that can be used for therapeutic purpose or which is a precursor for synthesis of useful drugs. This definition of Medicinal Plant has been formulated by WHO. Cultivation of medicinal plants especially high value medicinal plants is creating new dimension in the field of Agriculture. The medicinal plant industry puts together the various facets of this multi-disciplinary industry and its global interest. The need for developing countries to acquire technologies and techniques for programmed cultivation of medicinal plant cultivation includes old philosophies, modern impact of traditional medicines, and methods of assessing the spontaneous, process technologies, phytochemical research and information sources. India has the oldest, richest and most diverse cultural traditions in the use of medicinal plants. According to a report by the WHO over 80 percent of the world population relies on traditional medicine, largely plant base, for primary healthcare. Medicinal plants are the local heritage with global importance, World is endowed with a rich wealth of medicinal plants. Herbs have always been the principal form of medicine in India and presently in they are becoming popular throughout the developed world, as people strive to stay healthy in the face of chronic stress and pollution, and to treat illness with medicines that work in concert with the body's own defense. People in Europe, North America and Australia are consulting trained herbal professionals and are using the plant medicines. Medicinal plants also play an important role in

the lives of rural people, particularly in the remote parts of developing countries with few health facilities.

Medicinal plants constitute an important natural wealth of a country. They play a significant role in providing primary health care services to rural people. They serve as therapeutic agents as well as important raw materials for the manufacture of traditional and modern medicine. Substantial amount of foreign exchange can be earned by exporting medicinal plants to other countries. In this way indigenous medicinal plants play significant role of an economy of a country. Past century there has been a rapid extension of the allopathic system of medical treatment in India. It generated commercial demand for pharmacopieial drugs and their products in India. Efforts have been made to introduce many of these drug plants to farmers. Several research institutes have undertaken studies on the cultivation practices of medicinal plants, which were found suitable and remunerative for commercial cultivation. The agronomic practices for growing Poppy, Isabgol, Senna, Cinchona, Ipecac, Belladonna, Ergot and few other have been developed and there is now localized cultivation of these medicinal plants commercially (Purohit and Vyas, 2005).

WHO suggest that increase in many infection diseases, not those which are newly emerging it can be linked to the range of environments threats this includes destruction of or encouragement in to wild life habits changes in the distribution availability of surface water, agriculture land use change including proliapration of both livestock and crops, uncontrolled urbanisation residents to pesticides chemical used to control certain diseases vector, climate variability and change migration and



international travel trade and accidental or international human interaction of pathogens. Forest is the important repositories compounds from wild organisms. However, it

Table 1. India's export of medicinal plants to major market during the Period 2002-03 to 2004-05.

Country	2002-03	2003-04	2004-05	Percent growth
USA	135.63	111.92	98.51	(-)11.98
Japan	30.06	18.57	11.86	(-)36.13
Germany	13.37	13.26	11.55	(-)12.90
France	6.76	8.13	6.76	(-)16.85
UK	17.00	11.45	11.12	(-)2.88
China	6.73	7.04	8.66	23.01
Hong Kong	8.24	10.51	7.01	(-)33.30
Pakistan	6.44	7.29	9.20	26.20
UAE	9.88	5.72	10.47	83.04
Taiwan	8.46	8.43	5.77	(-)31.55
Total (all India)	334.17	302.11	263.08	(-)12.92

Source: Compiled from the data of DGCI&S, Monthly statistics of India foreign trade: Exports & re-exports march 2003&2004 issues, Kolkata.

has been estimated that fewer than 5 percent of tropical plant species have been examined for their medicinal value. Human population rise and the demand for medicine increases the over exploitation of traditional medicines is of growing concern; particularly as at the same time continued environmental destruction means that available resources are decreasing.

Methodology of the study

This study used only secondary data through out its analysis. The concepts used in the study are medicinal plants Exports and Import so on. The statistic tools used in the study are Annual Growth and Linear Regression Models were applied to find out the trend pattern of export and import of medicinal plants in India.

Annual growth rate formula: The measurement of India's medicinal plants export growth is done through annual growth rate formula.

$$y_t = y_0(1+g)^t \quad \text{(or)} \quad \frac{P_2 - P_1}{P_1} \times 100$$

Where P_2 = Current year export; P_1 = previous year export

Linear regression model: A regression is a statistical analysis assessing the association between two variables. It is used to find the relationship between two variables. A regression of y on x is a way of predicting values of y when values of x are given.

$$y = a + bx$$

$$\text{where } a = \frac{\sum y_i - b \sum x_i}{n} \quad \text{and } b = \frac{\sum x_i y_i - \frac{\sum x_i \sum y_i}{n}}{\sum x_i^2 - \frac{(\sum x_i)^2}{n}}$$

Where x and y are the variables; b = The slope of the regression line; a = The intercept point of the regression line and the y axis; N = Number of values or elements; X = First Score; Y = Second Score; $\sum XY$ = Sum of the product of first and Second Scores; $\sum X$ = Sum of First Scores; $\sum Y$ = Sum of Second Scores; $\sum X^2$ = Sum of square First Scores; n being the number of data pairs; a and b are known as the linear regression coefficients. The independent variable is the regressor, and the dependent variables are called regressand.

India's export of medicinal plants

According to EXIM study, there are 880 medicinal plants species involved in all India trade. Of this, 48 species are exported and about 42 spices are imported. Another survey conducted by the Ministry of Environment and Forests, Government of India, reveals that there are over 8000 species of medicinal plants grown in the country. About 70 percent of these plants are found in the tropical forest; spread across the Western and Eastern Ghats. The Export-Import Bank of India, in its report for the year 1997, puts medicinal plants related trade in India at \$5.5 billion and the same is growing rapidly. According to WHO, the international market of herbal products is around \$6.2 billion, which is poised to grow to \$5 trillion by the year 2050. Unfortunately, India's share in the global medicinal plants related export trade is just 0.5 percent.

The World Bank in its latest report on the potential of India's forests to generate income has praised efforts of Madhya Pradesh and Assam in marketing medicinal plants. However, the report states that the country's natural resources are not being fully exploited. India's share in the global export of medicinal plants just 0.52 percent notwithstanding its having 15,000 species of such plant. The market structure for medicinal plants in most states of the country is weak and focuses largely on local trading. Over the past 10 years there has been a considerable interest in the use of herbal medicines in the world. Regarding the export of medicinal plants India's contribution to the international market is comparatively very low. Utilizing our biodiversity and proper planning, India products can very enter the overseas markets. This can be achieved only through proper development of medicinal plants, standardization of the extracts and keeping the quality. WHO has recognized the effectiveness of traditional system of medicinal and its safety (Tannan and Tannan, 2006).

Country wise export of medicinal plants

Table 1 shows that India's exports of medicinal plants in 2004-05 declined by 12.92 percent over the previous year when the same nose-dived to Rs.263.08 crore as against Rs.302.11 crore in the previous year. India's exports have continuously been showing a declining trend from Rs.334.17 crore in 2002-03 to Rs.302.11 crore in 2003-04 and Rs.263.08 crore in 2004-05. USA

Table 2. Import and export structure in India during the period 1991-92 to 2002-03.

Year	Export			Import		
	Quantity (Tonns)	Value (Rs. in lakhs)	Growth increasing/ decreasing	Quantity (Tonns)	Value (Rs. in lakhs)	Growth increasing/ decreasing
1991-92	387444.43	19485.66	-	3566.97	1426.16	-
1992-93	37405.18	20030.82	2.72	2887.97	1629.02	12.45
1993-94	32948.78	22191.03	9.73	4341.92	1346.36	-20.99
1994-95	35953.07	28280.73	21.53	4467.34	1662.13	19.00
1995-96	35493.85	31301.50	9.65	2623.70	2032.45	18.22
1996-97	42592.97	40814.00	23.31	5977.38	4428.09	54.10
1997-98	40754.97	41671.63	2.06	5116.01	3740.94	-18.37
1998-99	42047.03	45858.59	9.13	5441.29	4213.39	11.21
1999-00	43339.10	50045.54	8.37	5766.56	4685.84	10.08
2000-01	41991.18	33953.64	-47.39	6134.39	2350.88	-99.32
2001-02	47352.81	36160.45	6.10	5378.15	2550.98	7.84
2002-03	40168.42	31645.13	-14.27	6673.46	3857.84	33.88
Average	68957.65	33453.23	-	4864.60	2827.01	-
R ²	0.21	0.42	-	0.65	0.39	-

Source: Natural resources India foundation (NRIF) Pilot study on mechanism for sustainable development and promotion of herbal and medicinal plants in the state of Uttaranchal (India) forwarded to ser division, planning commission, government of India. New Delhi.

continuous to be the largest market for Indian medicinal plants. However, exports to this market have shown the same trend-declining to Rs.98.51 crore in 2004-05 as against Rs.111.92 crore in 2003-04 and 135.63 crore in 2002-03. The other market showing a declining a trend in 2004-05 over the previous year included Japan (36.13%), Hong Kong (33.30%), Taiwan (31.55%) and France (17.85%). On the other hand, the markets showing a significant growth included UAE (83.04 %) and Pakistan (26.20%).

Tamil Nadu Sate Tuticorin Region at present, medicinal plants and herbal extracts worth Rs.40 crore are exported annually through the port, it will augment export potential of medicinal plants in this region (The Hindu, February 28th 2006). India is the largest exporter, next only to China, accounting for about 13 percent of the global exports. USA is the principal market for Indian medicinal plants, accounting for 50 percent of exports. Psyllium husk (Isobgul husk) emerged as the largest item of exports registering a record growth of 162.80 percent when the same reached a level of Rs.154 crore as against Rs.58.60 crore. The export of Jajoba seed, which happened to be the largest item of export in the year 2003-04, declined drastically in 2004-05 by reaching a low level of Rs.8.53 crore as against Rs.89.07 crore in 2003-04, registering thereby a steep declining by 90.42 percent. The other item showing a steep decline during the period comprised Garcenia (79.59%) Gymnema powder (50%), other fresh/dried cut. Crushed and powdered leaves (39.36%) Phyrethrum (27.98%) Senna leaves and pods (24.32%), and the fresh/dried cut, crushed and powered bark, husk & rind (20.59%). On the other hand, the plants registering a phenomenal growth comprised galangal rhizomes and roots (364.10%) and basil, Hyasop, Rosemary sage, Svory (194.74%).

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Observed from the Table 2 that the average of Medicinal plants export in India is 68957.65 tonns. It's value of Rs.33453.23 lakhs during 1991-92 to 2002-2003. Observed from the table that India's Medicinal plants value of export has been increase in 2.06 percent during 1998-99. It was higher in the year 1996-97 in 23.31 percent. Export growth of Medicinal plants has been increased on increasing rate 2.72 to 21.53 percent during 1992-93 to 1994-95. Further, it was increased and decreasing rate of 21.53 to 9.65 percent during 1994-95 to 1995-96. Then it was in increasing rate in the next year 9.65 percent to 23.31 percent. It was increased in 2.06 percent in 1997-98 and 7.13 percent in 1998-99, 8.37 percent in 1999-2000 and 6.10 percent in 2001-02 respectively. But growth of export Medicinal plants value is decreased in 47.39 percent in 2000-01.

14.27 percent in 2002-2003. Overall trend in Medicinal plants export has been increased in 0.21 percent during 1991-92 to 2002-03.

From the table average Import of Medicinal plants during 1991-92 to 2002-03 is 4864.60 tonns Rupee value of this import is 2827.01 lakhs. The imports of Medicinal plants has been increase in 12.45 percent 1991-92 to 1992-93 and it was decrease in 20.99 percent during 1993-94 after this period the import of medicinal plants has been increased on increasing rate at 18.22 percent , 19.00 percent , 54.10 percent in the year 1995-96, 1994-95 and 1996-97 respectively. From the next year 1997-98 in the import has been decreased in 18.37 percent and also increased the import has been 11.21 percent and 10.08 percent in the following years. Then it was increased in 7.84 percent 33.88 percent during 2001-02 and 2002-03 respectively. The import of medicinal plants growth has been decreased in 99.32 percent during 2000-01. It was higher decrease in the overall trend in the import of medicinal plants of India has been increased only 0.65 percent it is value of rupees also increased in 0.39 percent.

Conclusion

In India average export of Medicinal plants is Rs.33453.23 lakhs during 1991-92 to 2002-2003. Its overall trend has been increased in 0.21 percent. And the average Import of Rs.2827.01 lakhs. Also its trend has been increased in 0.39 percent.

Suggestions

1. The export subsidy for the medicinal plants should be hiked to increase production and supply.
2. The awareness campaign should be connected to the cultivators every year.

3. Allocate funds for conducting Research and Development not only to improve verities of medicinal plants and enhance their availability but also establish their efficacy in various clinical conditions.
4. Set up export promotion zones exclusively for medicinal plants and herbal products in potential State like Gujarat, Rajasthan, Haryana, Tamil Nadu and Andhra Pradesh, which have gained significantly in cultivation and processing of medicinal plants and herbs.
5. Harvesting, drying and storage of medicinal plants must ensure the purity and safety against microbial contamination and quality deterioration.
6. There should be a linkage between growers and pharmaceutical companies to ensure marketability of raw drugs.
7. The village cultivation of medicinal plants should ensure health, nutrition and environmental security.
8. Immediate approach should be bestowed to establish the State Medicinal Plants Board in each State of the Country along with training facilities is available in the state Agricultural Department, Forest Department and other allied NGOs etc.
9. The farmers normally used traditional manure. The Government should propagate through to various media and encourage the use of modern chemical fertilizers for the cultivation of medicinal plants.
10. The government should create marketing facilities for these plants.

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