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A study on cardamom production and exports: Queen of spices

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Abstract

Cardamom plants grow wild in parts of the monsoon forests of the Western Ghats in southern India. This area has become known as the Cardamom Hills, and until just 200 years ago wild plants from these hills provided most of the world's supply of cardamom. Indian cardamom is slightly smaller, but more aromatic. Though it is more popularly used as a herbal spice, which is added in dishes to provide a strong aroma and flavor but in Ayurveda it is considered to be a very useful and effective medicine. Cardamom is said to be good for kidneys, as this spice promotes urination, lowers blood pressure and also removes accumulated calcium and urea in the kidneys, along with other toxins. Erratic climate and its uneven distribution is a major problem to this crop growers.

Keywords: Cardamom, health, production, exports, growers

Introduction

Many historical Indian texts mention cardamom as a flavouring and medicine. The medical compendium Charaka Samhita written between the 2nd century BC to 2nd century AD refers to it as an ingredient in some preparations. Cardamom is also mentioned in Sanskrit texts of the 4th century BC in a treatise on politics called Kautilya's Arthashastra and in Taittiriya Samhita where it is used in offerings during ceremonies.

By this time the Greeks were importing spices from the East which they called amomon and kardamomon. Later Roman writers also distinguished two varieties, but it is not clear from the descriptions whether they were the true cardamom that we recognize today.

In the 11th century in India cardamom was included in the list of ingredients for panchasugandha-thambula or 'five-fragrance betel chew' in the Manasollasa or Book of Splendor. It was also included in recipes from the court of the Sultan of Mandu dating from about 1500. These recipes include sherbets and rice dishes flavoured with cardamom. True cardamom became an article of trade with South Asia in the last thousand years when Arab traders brought it into widespread use. Exports from the Malabar coast, close to where cardamoms grew wild, were described by the Portuguese traveller Barbosa in 1524. By the time of Garcia da Orta in 1563 the international trade in cardamoms was well developed

Kerala continued to monopolize the cardamom trade until colonial times. It was bought by the Raja's officials and some of it was sold to Muslim merchants while the best quality was exported. In the 19th century British colonies established cardamom as a secondary crop in coffee plantations in other parts of India.

Origin of Cardamom

Cardamom plants grow wild in parts of the monsoon forests of the Western Ghats in southern India. This area has become known as the Cardamom Hills, and until just 200 years ago wild plants from these hills provided most of the world's supply of cardamom.

The fruits have been traded in India for at least 1000 years. It was known as the Queen of Spices, with black pepper being the King. These gold coated pods are from Kew's Economic Botany Collection, and are from India where the plants grow wild.

Health Benefits of Cardamom

Commonly known in India as "choti elaichi", cardamom's scientific name is *Elletaria cardamomum*. Though it is more popularly used as a herbal spice, which is added in dishes to

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provide a strong aroma and flavor but in Ayurveda it is considered to be a very useful and effective medicine. In Ayurvedic texts cardamom is referred to as "ela".

The quantity of cardamom which need to be consumed depends on the physiology of a person and the disease which is to be treated or cured from.

The following are some of the cardamom benefits, related to health.

- One of the main cardamom benefits is its use in treating digestive disorders. It is said to be beneficial in relieving heartburn, bloating and indigestion. Cardamom is also found to be good in improving appetite as well as metabolism and prevents stomach infections.
- Cardamom is said to be good for kidneys, as this spice promotes urination, lowers blood pressure and also removes accumulated calcium and urea in the kidneys, along with other toxins. It is also used in the treatment of genital and urinary infections.
- Oral health is another area, where cardamom benefits are found to be useful. Apart from fighting tooth and gum infections, cardamom is also effective in preventing bad breath.
- Cardamom also has warming effects, which can heat up the body, helps in expelling cough and to relieve headache caused by extreme cold.
- Cardamom has a detoxifying effect and is also used for its anti septic and anti microbial actions. Apart from that, cardamom benefits include its use in treating muscular and respiratory spasms.
- Cardamom also helps in cleansing the body as it has detoxifying properties. Cardamom in small quantities is beneficial for those suffering from asthma or bronchitis.
- Cardamom is known to be helpful in balancing all three 'doshas' in the human body. Hence it is termed as "tridoshic". A little quantity of cardamom is especially beneficial in balancing "kapha". It can be used for balancing "vata" and "pitta" also.

Objectives of the Study

1. To know the history and growth of cardamom in India.
2. To study the production and export of cardamom an importance spice.
3. To identify the problems faced by the farmers in cultivation of cardamom.

Production of Cardamom in India

There are three distinctive types of cardamom grown in India, they are Malabar, Mysore and Ceylon. India cultivates Malabar variety in Kerala, Karnataka and Tamil Nadu. The two major commercial varieties of small cardamom in the world are the Malabar and the Guatemalan. Indian cardamom is slightly smaller, but more aromatic.

Small size cardamom

Cardamom is the dried fruit of an herbaceous perennial and in India it is mainly grown in Kerala, Tamil Nadu and Karnataka and on the shady slopes of the Western Ghats. Warm humid climate, loamy soil rich in organic matter, distributed rainfall and special cultivation and processing

methods all combine to make Indian cardamom truly unique in aroma, flavor size and colour. It is a popular spice in Northern Africa and Eastern Africa, where population is predominantly Arabic. Most of the Arab, Indian and Sri Lankan cuisine add cardamom to their non-vegetarian and rice preparation like meat and rice dishes.

Large size cardamom

Large Cardamom is a perennial herb with subterranean rhizomes and 50-140 aerial leafy shoots. Each shoot has height of 1.7 to 2.6 meter and possess 9 to 13 leaves in each tiller. Leaves are glabrous on both sides with a prominent mid-rib. Inflorescence is a condensed spike with yellowish perianth. Each spike has 10-15 fruits. Fruit is round or oval shape, capsule with reddish brown colour. Each capsule is trilobular with many seeds. The fruit is four to six times the size of small cardamom. It has taste, flavor and aroma that stimulate the taste buds when used in rice and meat preparations, besides a wide range of beverages and sweets. In India, black cardamom is felt superior for spicy and rustic dishes and can be used in liberal amounts. Black cardamoms enhance and intensify the taste of other ingredients if used after crushing a bit. There are many distinct species of black cardamom, ranging in pod size from 2 cm to more than 5 cm with different tastes. The table 1 shows the details of area of production and quantity of large size cardamom produced during the period of 2013-14 to 2017-18.

Table 1: Area of Production (in hectares) and Production of Cardamom (Quantity in tonnes) during 2013-14 to 2017-18

Year	Area of production	Production	Productivity (in %)
2013-14	96030	20465	21
2014-15	96357	23315	24
2015-16	96467	28740	30
2016-17	95974	23560	25
2017-18	95947	26070	27
Total	480775	122150	

Source: www.spicesboardindia.com

Table 1 showed that the productivity is increased gradually for the first three years then it reduced for the next two years.

Co-efficient of correlation between area of production and production of cardamom (Small size & Large size)

In order to measure the degree of relationship between the above mentioned variables of the Karl Pearson's Co-efficient correlation has been computed and the results are presented in the form of tables. And the respective correlation values have been tested by using the 't' test.

The following formula has been used for computing co-efficient of correlation and 't' value.

$$i) r(x,y) = \frac{-\sum(\bar{x}-x)(y-y)}{\sqrt{\sum(x-x)^2 \sum(y-y)^2}}$$

$$ii) t = r/\sqrt{(1-r^2) \times \text{sqrt}(n-2)}$$

Hypothesis

There is no significant relationship between area of production and quantity produced.

Table 2: Co-efficient of correlation between area of production and quantity produced

Cardamom	Correlation Co-efficient (r)
Small size & Large size	0.47 (3.7)

Figures in parenthesis are calculated 't' values.

Table 2 showed that the co-efficient of correlation between area of production and quantity produced, it shows a positive relationship between them. The null hypothesis is accepted. It implies that the area of production and quantity produced are not significantly correlated. This shows that there is no significant relationship between the two variables.

Cardamom exports

India was the world's largest exporter of cardamom till 1985. Now the country exports less than 10 percent of the total production. The increased competition from low-cost counterparts and improvement in domestic consumption has been the reasons for low exports from the country. The exports from India are good only in those years when the production in Guatemala is affected by some weather problems. Alleppey green is the major grade of cardamom exported in India. It is considered to be best grade in the world.

The exports of value added products are showing an improvement. Cardamom oil and cardamom oleo-resins are the major value added products of cardamom. European Union countries like Germany, Netherland and the UK are the major importers of these value added products from sub-continent. Table 3 showed details of exports of cardamom (small size) for the period of 2013-14 to 2017-18.

Table 3: Export of cardamom (small size) from India during 2013-14 to 2017-18 (Quantity in tonnes and Value in Rs. Lakhs)

Year	Quantity	Growth in %	Rs.	Growth in %
2013-14	3600	0.00	28380.33	0.00
2014-15	3795	5.42	32346.75	13.98
2015-16	5500	44.93	44982.75	39.06
2016-17	3850	-30.00	42150.00	-6.30
2017-18	5680	47.53	60608.50	43.79
Total	22425		208468.33	

(Source: www.spicesboradindia.com)

Table 3 showed that the quantity of exports of cardamom was increased in 2015-16 to 44.93% due to climate conditions and there was more demand in foreign countries. In case of values of exports it was very poor in 2016-17 and it was very much better in 2017-18. It was due to price fluctuations in the market. Table 4 shows the details of exports of cardamom (large size) during the same period.

Table 4: Export of cardamom (Large size) from India during 2013-14 to 2017-18 (Quantity in tonnes and Value in Rs. Lakhs)

Year	Quantity	Growth in %	Rs.	Growth in %
2013-14	1110	0.00	7961.15	0.00
2014-15	665	-40.09	8403.90	5.56
2015-16	600	-9.77	7550.70	-10.15
2016-17	780	30.00	8265.50	9.47
2017-18	760	-2.56	5646.00	-31.69
Total	3915		37827.25	

(Source: www.spicesboradindia.com)

Table 4 showed that quantity of exports of large size cardamom was decreased from 2014-15 and 2016-16 due to quality differences. And in case of value of exports it was very poor in 2015-16 and 2017-18. It showed a positive growth in the year 2016-17 due to price increase in the market.

Consumption of cardamom

Despite the fall in exports the Indian cardamom sector is still thriving due to increase in the domestic consumption. The improvement in the living standards and increase in the disposable income of Indians have been largely responsible for this increase in domestic consumption. Increase in consumption of pan has increased the demand from pan manufacturers. Currently, pan makers are the single largest consumers of cardamom in the country.

Problems faced by cardamom growers in India

- Erratic climate and its uneven distribution is a major problem to this crop growers.
- Massive deforestation in the cardamom growing areas.
- Scarcity of water on the plantation areas.
- Unprecedented magnitude of soil erosion and landslides in hill areas.
- Large cardamom is originated in Sikkim, involves more number of intermediaries.
- Export price fluctuations.
- Farmers take more advance from local traders before harvesting, they pay more interest on advances.
- Production is declined due to viral diseases like chirkey and phurkey.
- Another problem is adopting improved curing methods to produce high quality product, since it involves huge investment.
- Lack of effective grading mechanism also limits the farmers ability to fix higher prices for their products.

Factors influencing cardamom markets

The following factors influencing the cardamom markets.

- Fresh cardamom is green and has a characteristic aroma. Freshness, colour, aroma and size in addition to the current supply-demand scenario are the major factors that influence cardamom prices.
- Cardamom is usually stored in cooler areas to preserve its inherent properties.
- Indian cardamom especially Alleppey green, is of premium quantity as against all other international grades.
- Production in other countries particularly Guatemala.
- Year-ending stocks and stocks-to-consumption ratio.
- Time of arrival of new crop in the market.

Conclusion

Cardamom the queen of spices is one of the most exotic and highly prized spices. Cardamom plants normally start bearing fruits two years after planting. Two major commercial varieties of small cardamom in the world are the Malabar and the Guatemalan. Indian cardamom is slightly smaller but more aromatic. Guatemala, India, Tanzania, Sri Lanka, Vietnam, Laos and Cambodia are the major cardamom growing countries. Saudi Arabia is the single largest importer of cardamom, distantly followed by

Kuwait. India roughly exports 5 to 8 percent of its production. Important markets for cardamom within the country are Vandanmendu, Bodinayakanur, Kumily, Thekady, Kumbum and Pattiveeran Patti in Kerala. India can reclaim the first place in cardamom trade soon, provided the Indian government pays more attention to cardamom cultivation, marketing activities, export promotional activities and minimum support price to farmers.

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