



## **Cardamom crop production and harvesting: A review**

**Dr. Puneeta Ajmera<sup>1</sup>, Ankita Singh Chauhan<sup>2</sup>, Dr. Luxita Sharma<sup>3</sup>, Dr. Mahavir Singh<sup>4</sup>**

<sup>1</sup> Assistant Professor, Medical School, Amity University, Gurgaon, Haryana, India

<sup>2</sup> M.Sc Dietetics and Applied Nutrition, Department of Dietetics and Applied Nutrition, Amity Medical School, Amity University, Gurgaon, Haryana, India

<sup>3</sup> Assistant Professor & Head, Dietetics and Applied Nutrition, Amity Medical School, Amity University, Gurgaon, Haryana, India

<sup>4</sup> Dean Faculty of Health and Allied Sciences, Amity University, Gurgaon, Haryana, India

### **Abstract**

Cardamom is spices to the different groups of exotic food stuff. Aromatic food ingredients of incense or perfume, it was formerly applied to all pungent. The flavouring used in foods or drink.

Cardamom prevents certain serious ailments like cancer & helps improve digestion health. You can with depression & aids in diabetes treatment. Even take cardamom milk also called elaichi milk & cardamom in your diet. Sugary pulp, held together by a viscid, dark red brown capsules contain several seeds in each cell. Large cardamom is also referred to as black cardamom. The fruit is almost the size of nutmeg. Cured and fresh fruits are hand-picked when mature and dried. Portion of rhizomes & propagation is by seeds. The climatic condition & harvesting seasons generally begins in July & depending on the varieties cultivation & continues to March. Splitting at the time of drying both result in lower market value & ripening is avoided as it results in loss of green colour. Rodents, squirrels & the like capsules also get spoiled in the fields. The quality as well as the quantity of the harvesting. All the factors for production of the herb are taken into consideration in the present study.

**Keywords:** cardamom, production, harvesting

### **Introduction**

Time immemorial spices trade has been a big business. Far eastern Asia were in demand from ancient times and spices from India. The Persian Gulf and from the market places of Athens, caravan across China, Roma, and other cities where they were sold on exorbitant prices. The East became a status 'symbol' by the year 1200. Improve digestion and ginger was used to heat the stomach and clove was believed to comfort the sinus. The varied climate tropical sub-tropical and there are sixty-three spices grown in India and temperature "prevailing India" & almost all spices can be grown in India. The Spices Board Act 1986 (see appendix - II) only 52 spices have been brought, chilli, turmeric, pepper, cardamom, cinnamon, include some of the common Indian spices. The premier position in the world & India produces around 2.5 million tonnes of different spices valued at approximately 3 billion US\$. One spice is grown in abundance in the 25 states & 7 union territories of India at least. Spices as India of other countries in the world produces as many kinds. Rubber, coconut, tea, arecanut, and agriculture Kerala is dominated in commercial crops & nutmeg comprised of agriculture sector & spices including pepper, cardamom, vanilla, cinnamon. Rice is staple main agriculture. The traditional life style of the people of Kerala coconut trees are essential. Its spice plantation known is also Kerala. It has great demand in Middle East, Russia & Japan & cardamom has unique flavour. Wayanad are other districts which have cardamom production in Kerala and cardamom production in Kerala comes from Palakkad.

The 'Queen of Spices' is considered as cardamom with its commercial supply and aroma. Indian cardamom enjoys a preference in foreign countries. Attention & it is labour-intensive cultivation & cardamom cultivation need continuous care. The higher prices in the open market to purchase cardamom. The supply chain of cardamom a study of situation necessitates. Performance of the supply chain problem or constraints which affects the performance of the supply chain, the study could help to identify the key players in the supply chain etc. Profitability of individual firms as well as entire chains & M. Christopher (1998) managing SCRs is a strategic chore that can add to the competitive strength. Little is known about the determinants of success and failure & G.T.M. Hult, D. J. Ketchen Jr. & E.L. Nichols Jr. (2002) but in spite of the accepted importance of SCRs. It is also supposed to limit complete understanding of how knowledge & VCL found as representing a strong & services-based business system function & suitable logical means for such an area as corporate strategy. The corresponding idea of value system have deeply influenced the understanding of how SCRs work & M.E. Porter (1985) Porter's well-known value chain model (VCM). The family of *Maton zingiberaceae*, cardamom has been applied to the aromatic capsules of plants, most of them from India. The Malayalam word *elathari* meaning literally the seeds of Elam from the generic name *elettaria*. Latin word *amomum* is the specific name. Small cardamom was second to pepper in importance during the Renaissance period & cardamom known as malabar cardamom or true cardamoms.

*Elettaria cardamom* is the official Latin name for true cardamom. 6

A ginger like plant come from the seeds of cardamom. In a pod in three double rows with about six seeds in each row are contained small brown black sticky seeds. Black cardamom being brown & the pods are 5-20 mm 1/4 - 3/4 long, the smaller being green, oval or oblate & pods are roughly triangular in cross section. The seeds are sold loose or ground & pods are available whole & split. 7

Woody- balsamic under tone & warming fragrance, colour less to pale yellow liquid with a sweet spicy. Oriental bases in general & it blends well with rose, olibanum organe, bergamot, cinnamon, cloves, Caraway, ylang labdanum, cedarwood, organge blossom. Cardamom. (Italian, Portuguese, Spanish), kardamom (polish Croatian, Bulgarian, Russian), kardemumma (Finnish), cardamom (German, English), kardemomme (Norwegian, Danish) at least phonetically similar names in almost all danguages of Europe. Green cardamom & Nepali alacichi black cardamom is the modern genus name *elettaria* from the local name in South Asian tongue of hindi elaichi e.g, Tamil elakkari, kannada elakki & telgue yelakulu which itself is borrowed from a dravidian language from the corresponding dravidian roots, EL. Many modern names of cardamom are directly. Source is Sanskrit where cardamom is called ela or ellka. 9

The most popular spices in anicent rome was probably cardamom & cardamom is one of the oldest spices. 10

The first century AD, Rome was importing substantial quantity of cardamom from India. Cardamom & Arabic writers of very early time knew & India. Dating back to 1550BC, which lists about 800 medical drugs & their uses & first written mention is in the famous ebers papyrus, discovered in Egypt. Alexandra in 176- 180 AD at duty to liable spices of list the in mentioned is cardamom. Triggered historical events, past, cardamom. Discovering America in Indian spices of which cardamom the queen, were the main reason why columbs from Spain set out to discover India. The entire Roman; Indian cardamom along with spices provoked & by Alexander of Macedonia, which led to the historic invasion of India. The English came to India across the seas to take cardamom with them & Arabs the portuges, the dutch. 11 Cardamom was used in India as a medical herb as early as the 4th century BC. Kalidasa in the 4th century AD abounds in reference to its spicy fragrance. The 4th century AD is the ancient literature in Tamil the cardamom plant finds mention in chilappatikaram. The natural habitat of the species. Cardamom cultivation in India is concentrated mainly in those regions, small area in maharashtra it is grown as a subsidiary crop in the arecanut gardens. The Western ghats in under cardamom approximately 40, 500 ha of area scattered throughout the hill Forrest zone. Cardamom hills in travancore in the some 50 per cent of the area lies, 13 percent in kodagu district in Karnataka, anamalai the nelliam Patty & kodaikanal hills, Cochin, some 23 per cent in shimoga, has an & chikmagalur districts & 13 percent in Tamil Nadu in the southern foothills of the nilgiris. 12

The Western ghats in Kerala is the crop it was cultivation in the forests. The formal invitation by the travancore Maharaja, in the 1850s. 13

Central America srilanka, guate mala, cardamom is cultivation

in India, Nepal, Mexico, Guatemala, Thailand.

### Small Cardamom

- Small cardamom known as true cardamom or chhoti elachi (*elettaria cardamom*)
- Highly priced spices & small cardamom it belongs to cardamom is one of the most exotic.
- Malabar cardamom, true cardamom, it belongs to cardamom family named as a zingiberaceae, of small cardamom are lesser cardamom.
- A rich spices called from the seeds of *elettaria cardamom*, small cardamom, as a queen of spices.
- Cultivated in three states, viz, Kerala, Karnataka & tamilnadu. Small cardamom is a native of Western ghats of South India.
- Marketing season in October to May & harvesting seasons of small cardamom is August to March.
- Beverages & food, perfumes preparation of medicine is small cardamom
- Middle East countries like japan & Russia & small cardamom is exported to West Asia, European countries.

### Large Cardamom

- Large cardamom known as (Aframomum & amnum spices) bada elalchi
- Perennial herbaceous plant is the dried fruits of large cardamom
- Black cardamom & its other name are big cardamom large cardamom also belongs to the family zingiberaceae
- Sugary pulp, held together by a viscid, dark red brown capsules contain several seed in each cell. Large cardamom is also referred to as black cardamom. The fruit is almost the size of nut meg. Curred and fresh fruits are hand picked when mature dried. Portion of rhizomes & propagation is by seeds.
- Assam & West Bengal is cultivation in India mainly in Sikkim, large cardamom is a native to eastern Himalayan region.
- Marketing season is October to February & the harvesting season of large cardamom in August to December
- Pan masaala & medicine & used for preparation of food
- Singapore & UK, Pakistan, Afghanistan to exported is large cardamom.

Others countries & cardamom is used for flavouring various food preparation confectionery, perfumes, liquors, beverages & preparations of medicine in India, diuretic but rarely used alone & it is used a powerful aromatic, stimulant, stomachic, carminative, Vomiting & nausea, combating digestive ailments. Support smooth digestion herbal lores on the spices suggest that it can be used to freshen breath. 16

Heart problem & cardamom is used to treat disorder of the stomach & asthma, bronchitis, urinary system. Camphor, cardamom is used as nasal preparation to treat colds & when mixed with neem & camphor. Antibacterial properties of its widely used as a flavouring for savoury & sweet dishes. Other savoury dishes & seeds of cardamom are used to add a unique taste to rice, vegetables & dried fruits. Baked goods & ground cardamom seeds are added to flavour tea coffee, confectionary. Sweet Kashmiri black tea & highly valued in

Kashmir as an essential in friends of drink gahwa, a fragrant. Small quantities in India is produced cardamom essential oil. Liqueurs & occasionally in perfumery & the flavouring of processed food & drink such as cordials. Such as sausages, used to flavour meat product with a short shelf life. Aromatic properties of cardamom are utilized as a breath freshener. Many sometimes be included as flavouring in a betal quid & frequently chewed after meals. Aid digestion & cardamom seeds & fruits have been used to treat skin condition. Widely used in ayurvedic medicine & used to treat cases of food poisoning. Range of preparation have been used cardamom. Nausea & roasted seeds are boiled with betelnuts to make a drink to be used to treat indigestion. A capsule of cardamom taken with honey is reputed to improve eyesight &, cardamom seeds are given to patients with bad breath. Attention of those developing plant based cosmetics have attracted traditional use of cardamom to treat skin condition. To treat areas of the body that have re- pigmentation. Hand creams & it is often incorporated into soaps. The essential oil in the flavouring of processed foods but it less extensively used & cardamom oleoresin which but is produced in India. When exposed to the air for prolonged periods. The oil & oleoresin tend to develop 'off - flavours.18

Mankind known as versatile spice is the most cardamom. Drinkable or flavourfully blend with anything edible. Alcoholic beverages, tea, milk, fruits juices, coffee well extremely goes cardamom. Meat preparation & enhances the taste & bakery products, vegetables curries. Simple or complex sweet or soft or hard, hot or cold - food or drinks cardamom makes it more tasty. Modifying some undesirable flavour inherent in the base product, substantial aromatic content, it is ideal for supplementing. On fortifying an existing flavour perfumes & paints, shampoos, toilets cleansers, colognes, soaps it also finds a place as an agent of fragrance in air freshener, cardamom in medicine, food and drink. 19

It is mainly used for the preparation of kawha or cardamom is prevalent in West Asian countries. Kawha is generally offered to guests at social & religious function & green capsules of cardamom & grinding it afresh. Processed meat product, scabinavians in the baking of coffee cake, cardamom in baked food, Germans in various spice - mixes for sausages & British & ham & Japanese in curry & sausages & Russians in pastries. Colognes & toiletries European countries cardamom is used in beverages including of alcoholic liquors. 20

Small extent in the flavouring of tobacco, Europeans countries some sausage product & canned fishes & in North American cardamom is used mainly in the ground form as an intruders in curry powder. 21

The manufacture of perfumes & essential oil is used for flavouring certain liquors. Parts of Germany cardamom are used curry powder, especially in Russia, Sweden, Norway & flavouring cakes. Confectioneries & Scandinavian countries it is used in baked goods. 22

Modem & Asia it can add a lingering sparkle to every kind of dish, traditional. Combination with other drugs as an aromatic & European medicine they are chiefly used in tixture of cardamom as stomachic & culinary preparation, mainly used as a flavouring agent in cooking, bread, cakes, pudding, curry powder & common ingredient of special seasoning & flavouring sweetmeats, pastries. Diuretic & aromatic

stimulant, carminative, stomachic is a powerful cardamom.24 Cardamom prevents certain serious ailments like cancer & helps improve digestion health. You can with depression & aids in diabetes treatment. Even take cardamom milk also called elaichi milk & cardamom in your diet.

### 1. Digestive health

- Also for exchanging digestion is cardamom can be used in cuisines not just for flavour.
- Anti - inflammatory properties & it's antioxidants, spices also stimulates metabolism.
- Stimulates the secretion of hile acid in the stomach is known as cardamom.

### 2. Asthma

- Shortness of breath & tightness in the chest, cardamom a role in flighting asthma like wheezing, coughing.
- Numerous other respiratory issues & green cardamom can be used to treat asthma & bronchitis.

### 3. Blood cloths

- Cardamom contain several component that relieve blood cloths the central food technological research institute in India cardamom.

### 4. Diabetes

- A minerals that can lowers the risk of diabetes- cardamom is extremely rich in manganese.

### 5. Digestion

- Loss of appetite, constipation, acidity, nausea, gas, bloating, heartburn. Ginger can be used in much the same way to counter act digestive problems.

### 6. Detoxify

- The kidney is spices help the body eliminate waste.

### 7. Blood pressure

- Cardamom significantly lower blood pressure & diuretic & fiber rich spices.

### The like & cultivation of cardamom depend on climate rainfall condition, soil.

- Climate - Fairly well distributed annual rainfall (1500-4000mm) & cardamom thrives well in areas having warm humid climate. An altitude of 600- 1200 m above MSL is ideal & a temperature range of 18 - 28 C. Flowering and shade for proper growth. Crop requires 40- 60 percentage. Availability of moisture during dry period is essential, surface feeder.
- Soil - potassium content & cardamom requires laamy soil, which is acidic (PH range of 4.2 to 6.8) nitrogen & low to medium phosphorus & rich in humus.
- # Propagation - Also Vegetatively through suckers & pre largely through seedlings.
- Plantation - If it is replanting, old plants should be removed or planning is new area the ground should be cleared. The slopes before taking pits, terraces should be made across slopy areas. Heavy rains, diagonally to the slope & Plantaing should be done with commencement of

South West monsoon.

- Common disease - Chenthal are the common disease affecting the cardamom plants, caused by vims, fungi, Bacteria is cardamom plants are generally affected by the disease.
- After care - Irrigation & gap filling & various cultural practices to be followed after planting are mukhing, earthing up, fertilizer application, regulations, weeding trashing.

### Harvesting & Harvesting Operation

Harvesting 3 to 4 months after flowering. Ripening is the ideal stage for harvesting of capsules i.e when the seeds inside the capsule have became brownish / black. e.g, physiological maturity. Skin of the capsule at this stage will still be green & percarp i.e the seed cover. 30- 40 day internal depending upon the weathers condition rounds 6-7 in harvested capsules. Harvesting of cardamom is the hand picking method. The climatic condition & harvesting seasons generally begins in July & depending on the varieties cultivation & continues to March. Splitting at the time of drying both result in lower market value & ripening is avoided as it result in loss of green colour. Rodents, squirrels & the like capsule also get spoiled in the fields. The quality as well as the quantity of the harvesting. Sorting & post harvesting operation includes washing pre- treatment with chemicals, polishing curing & cleaning. Harvest after immediately take place pre treatment. Water to remove the dirt present with capsules after harvest, should be washed. Sulphur dioxide or cardamom capsules that do not have deeply green are bleached with bleaching powder or uniform grey white colour to have hydrogen peroxide, three types of curing system fluepipe system, eccard & solar drier. Coir mat to remove the stalks & dried remains of the floral parts.

### Packing & Storages

Safe custody against pests & cured cardamom is to be protect against light & moulds & temperature to present deterioration of colour & air. Two just bags inside are good for long term storage of cardamom capsules between jute sack with polythene bag inside or colour polythene bag. Polypropylene woven sack with ( DPE 400 gauge bag would be effective) & five - ply muti - wall paper rack with LDPE - 200 gauge bag & gusset inner line coated or gussets with HMWDPE linear. The bags in a wooden box instead of the open air. Freedom from pests & low humidity the optimal Conditions for a store are low temperature. The doors should have close fitting & mosquito melting should be placed over the windows.

### Value added product

The central food techonological research institute (CFTRI) s the international trade center, the auspices of the spices board, India, Geneva. Its domestic as well as export market & R &R effort for diversifying the uses of cardamom Mysore India has made innovation. Cardamom are some of the product brought out by the CFTRI with instant pongal mix flavoured encapsulation of cardamom flavour cardamom cola, dry powder for cardamom soft drink mix, a fizzy drink, cardamom coffee, flan mix cardamom tea.

### Plantations Labour

Employment to more than a million workers provides plantation sector. More person are working or plantations labour's act 1951 is administered or more in which 15 by the state government & applied to any land used as plantations which measures 5 hectares. Employing less than 15 person to be covered by acts & state government aie however free to declare any plantation less than 5 hectares.

### Cardamom necrosis disease (Nilgiri necrosis disease)

The name nilgirinecrosis disease (NND) & disease was first noticed in reverse forms in nilgiris, Tamil Nadu.

### Symptoms

Broken streaks processing from the midrib to the leaf margins & manifested on the young leaves as whitish to yellowish continuous. These streak turn reddish brown leading to shredding of the leaves, the advanced stages of infection. Leaves reduced in sizes with disturbed margins. Capsule but in advanced stages of infection & capsules & infection plants produces few panicles & fail to bear panicles & tiller are highly stunted. Infected rhizomes of transmitted through planting.

### Flights of cardamom growers

Fall in exports & high cost of production & cardamom growers are facing multifarious problem arising out a fall in prices. They are detailed below:-

- Cardamom in the market which slashes market prices, the individual acectioneers dumped a huge quantity cardamom panter are facing problem. Cardamom in the domestic market is dumping of old stock on large scale too affects prices.
- Making cardamom cultivation non remunerative, coupled with higher ways have pushed up the cost of production & soaring cost of agriculture input.
- Marketing planning & cardamom growers due to lack of production of favourable monsoon affects. Marketing of cardamom & farmers schedules in the production.
- Non -remunerative price become mounting loan liabilities of farmers.
- Fall in prices continuous due to the affected cardamom growers.

Kerala is the major cultivation in cardamom. Cardamom production in Kerala state of the Kerala constitute more than 90 percent. productivity also become high & are of production. consist of around 14000 holding are there in udumbanchola taluk around 2000 hectares of yielding azhukal disease & viral disease affected in this area and katte & mosaic disease. Cardamom in the area of expansion for potential exist. Regular income & it provides people with employment & labour intensive is highly cultivation.

### Conclusion

The marketing of cardamom is greater have spices park in puttadi. Gurading centre, spices park consisting of a set of institution such auction centre, etc which enhance the marketing process, ware house, bank. The quality of product

for a long period of spices park. The quality of the product farmer are not conscious. Drying or without sorting, farmers always sell their produces & marginal. The main problem of cardamom cultivation in Kerala of absence of grading system at producer level. Traders do not have access to market information & marginal farmers. Body naykanur in Tamil Nadu is the main as area, where majority of our production assembled. It provides employment opportunities greater influence in the development of the people of cardamom cultivation. It gives earning to the growers & plantations are also attracted by the tourists. Commerical centre in Kerala & bustling spices trading activities have made kumily one of the important tourist & tea plantation

### References

1. Krishnamoorthy V, Baskar Kamick. Indian species teaste of paradise.
2. Kumar N. Introduction to spices plantation crops: Medical and aromatic plants, New Delhi: oxford 2 IBH publishing CO, 2000, 101
3. Krishna KVS. Quality standard for cardamom plants hortitech. 2002; 3(5):24-25.
4. Runachalam A, Wimpelupessey P. Can India cardamom regains its Enviabile status? Facts for you. 2005; (4):21-25.
5. A STA research committe natural composition of spices,as cited in spice India, 1977-2005, 8.
6. Johnya, Kallupurakal, Ravindranath. PN Hints for cardamom cultivation high production Technology plant hortitech. 2002; 13(6):21-26.
7. Singac VB, Kirt Singh. spices, bangalore: New age international pulishers,1996, 35-51
8. Rajagopal S, Padmanabh AB. Pk Cardamom & cardamom product spices India, 1999, (08).
9. Aranachalam P. win pelupessey. op. cit, 2005.
10. Henaryn, Ridly. Spices Dehardon: International bank distribution, 1999, 325-357.