

Cardamom

By Salvatore Battaglia



BOTANICAL NAME

Elettaria cardamomum

FAMILY

Zingiberaceae



BOTANY AND ORIGINS

Cardamom is a perennial herb with lance-shaped leaves borne on long sheathing stems, up to 4 m high. It is native to tropical Asia and is now cultivated in Sri Lanka, India, Guatemala and El Salvador.¹ Guatemala is the largest producer of cardamom in the world followed by India.² The parts used are the dried, nearly ripe fruits with seeds. The small black seeds of cardamom are embedded in a thin papery outer shell or pod. They have a pleasant aroma and a characteristic, slightly pungent taste.² Numerous varieties of cardamom grow in the world and are cultivated in Madagascar, east and west Africa, Central Africa, China, Thailand and Indonesia. However, these have little or no importance as a source of essential oil.³

The scent of cardamom oil promotes clarity, motivation, focus, courage and confidence. Valerie Ann Worwood suggests using cardamom whenever we are overburdened with responsibilities. She explains that it gives us the strength and encouragement and is ideal whenever we are burdened by worries and responsibilities that challenge our endurance.

METHOD OF EXTRACTION

Cardamom oil is produced by the steam distillation of the seeds of *Elettaria cardamomum*. The seeds are enclosed in husks and should not be removed from the almost odourless hulls until prior to distillation.³

CHARACTERISTICS

Cardamom oil is an almost colourless or pale-yellow liquid, which darkens when exposed to sunlight. The odour of cardamom is warm-spicy with a slightly penetrating camphoraceous-cineole-like odour. It becomes balsamic-woody with a sweet and almost floral dryout.³

Essential oil produced from the 'green' types of cardamom smells more of cineole than the oil produced from the bleached or pale yellow coloured cardamom seeds.³

CHEMICAL COMPOSITION

The chemical composition of cardamom oil is reported as follows:

α -pinene (1.5%), β -pinene (0.2%), sabinene (2.8%), myrcene (1.6%), α -phellandrene (0.2%), limonene (11.6%), 1,8-cineole (36.3%), γ -terpinolene (0.5%), linalool (3.0%), linalyl acetate (2.5%), terpinen-4-ol (0.9%), α -terpineol (2.6%), α -terpinyl acetate (31.3%), citronellol (0.3%), nerol (0.5%), geraniol (0.5%), methyl eugenol (0.2%), and *trans*-nerolidol (2.7%).⁴

The composition of cardamom oil from south India mainly contained α -terpinyl acetate (56.7%), 1,8-cineole (15.13%), α -terpineol (4.67%) and limonene (4.05%).²

The major components that impart the sweet flavour to the oil are α -terpinyl acetate, geranyl acetate, nerol and α -terpineol, while 1,8-cineole imparts the harsh medicinal aroma.²

ADULTERATION

Arctander states that adulteration of cardamom oil takes place on a big scale. 1,8-cineole from eucalyptus or camphor oil is often used to adulterate cardamom oil.³ Adulteration is also done by the addition of α -terpinyl acetate and linalool.⁵

HISTORY AND TRADITIONAL USES

History

Cardamom is reputed to be one of the oldest spices known. Hemphill states that the Greek word *kardamomum* was used to describe the superior grade and the ancient Semitic word *amomum*, is a term used to describe 'very spicy'. In the first century AD it had become one of the most popular oriental spices in the Roman cuisine.⁶

Cardamom is valued as one of the most expensive spices in the world after saffron and vanilla due to its unique flavour and aroma. It has been one of the most important spices traded between ancient civilisations throughout western Asia (Middle East) to ancient Egypt, Greece and Rome.²

According to Mojay, the name *cardamom* is thought to have originated from the Arab word *hehmama*, a derivation of the Sanskrit term for something hot and pungent. The seeds have remained an important culinary spice not only in India but all over the world.⁷

Despite having many uses as a spice and traditional medicine in India, about 60% of the world's cardamom is exported to the Middle East where cardamom is mainly used in coffee preparation.²

Traditional medicine

Cardamom has been used in Ayurveda for over 3,000 years.² It was brought to Europe by the Greeks in the fourth century BC.¹

Greek physicians used cardamom for the treatment of coughs, abdominal pain, spasms and sciatica. In the Greco-Arab (Unani) system of traditional medicine, cardamom is considered a powerful stimulant, carminative, stomachic and diuretic.²

Cardamom is well-known remedy to treat impotence and improve low sexual response.²

Herbal

The German Commission E recommends cardamom seeds for the treatment of dyspepsia.⁸

Food, perfumery and flavouring

The spice is an important ingredient in genuine East Indian curry powder.

Cardamom oil is also used in the canning industry for pickles, meat sauces and seasoning. Cardamom is used as a flavouring ingredient in the popular Indian tea known as chai.¹ Saudi Arabia has the highest per capita consumption of cardamom where the spice is used in the preparation of *gahwa*, a blend of cardamom seed powder and coffee with a ratio varying between 30:70 to 50:50 (w/w). It is also very popular in other Arab countries such as Kuwait, Oman and Qatar.²

PHARMACOLOGY AND CLINICAL STUDIES

Analgesic activity

Cardamom oil was found to have significant analgesic activity, and had a suppressive action on carrageenan-induced oedema in animal studies, exerting its effect by reducing the synthesis of eicosanoid mediators of inflammation.⁹

Antiemetic activity

A randomised study was conducted with patients who experienced nausea in the postanesthesia care unit using ginger essential oil; a blend of essential oils of ginger, spearmint, peppermint and cardamom; and isopropyl alcohol. The study confirmed that postoperative nausea was significantly reduced with inhalation of ginger oil and the blend of essential oils. It was suggested that aromatherapy could be used as an inexpensive and non-invasive treatment for postoperative nausea.¹⁰

A clinical trial using an inhalation of a blend of ginger, cardamom and tarragon essential oils in equal parts investigated whether the negative effects of anaesthesia could be alleviated. The results found that 75% of cases had a favourable outcome by completely blocking nausea and/or vomiting within 30 minutes.¹¹

Antifungal activity

An in vitro test confirmed that cardamom essential oil had considerable antifungal effect against seven pathogenic moulds.¹²

Antimicrobial activity

An in vitro test confirmed that cardamom essential oil had moderate antimicrobial effect against a range of gram-positive, gram-negative and pathogenic bacteria.¹³

Other studies have confirmed that cardamom essential oil displayed strong antibacterial activity against

microorganisms such as *Listeria monocytogenes*, *Staphylococcus aureus*, *Escherichia coli*, *Yersinia enterocolitica*, *Pseudomonas aeruginosa*, *Lactobacillus plantarum*, *Aspergillus niger*, *Geotrichum candidum* and *Rhodotorula*.²

An in vitro study investigated the effects of cardamom essential oil and antibiotics against methicillin-resistant *Staphylococcus aureus*. Antagonistic interactions were noted particularly with 1,8-cineole. The researchers suggested that using 1,8-cineole-rich oils could diminish the antibacterial activity of amoxicillin or ciprofloxacin in infections with *S. aureus* isolate.¹⁴

Antispasmodic activity

Cardamom oil has been reported to have antispasmodic activity on excised mouse intestine.¹

Gastroprotective activity

Cardamom oil significantly inhibited gastric lesions induced by ethanol and aspirin but not those induced by pylorus ligation in rats.¹⁵

Hepatoprotective activity

The influence of essential oils on the activity of the hepatic carcinogen-metabolising enzymes of P-450, aryl hydrocarbon hydroxylase (AHH) and glutathione S-transferase (GST) was investigated in mice. Cardamom essential oil significantly elevated GST activity. It was suggested that cardamom oil has potential as a 'blocking agent' in chemoprotective strategies. Cardamom oil also elevated hepatic levels of acid-soluble sulphhydryl, which augmented the antioxidant defence mechanism.¹⁶

Insecticidal activity

At a concentration of 1000 ppm, four essential oils — coriander seed, cardamom, rosemary and sandalwood essential oils — had insecticidal activity ranging from 68% to 98% at 1 hour after treatment.¹⁷

Skin permeation enhancer

The effects of the cardamom oil as a penetration enhancer on percutaneous absorption was investigated using three drugs — indomethacin, piroxicam and diclofenac. The penetration index of piroxicam was extremely increased by a 1% solution of cardamom oil. The researchers confirmed that the skin permeation enhancing effects of cardamom was dependent on the kind of drug, pH value of the solvent system and the concentration of cardamom oil.¹⁸

PROPERTIES

Antiseptic, antispasmodic, carminative, cephalic, digestive, diuretic, expectorant, general tonic, stimulant, stomachic.^{7,19}

AROMATHERAPY USES

Digestive system

Cardamom is recommended for the treatment of digestive complaints such as colic, cramps, dyspepsia and flatulence.^{19,20,21}

Schnaubelt explains that cardamom oil contains the acetylcholine antagonist, borneol, which is important in disrupting the pathways that trigger nausea and vomiting. He explains that it also prevents the formation of intestinal gas, reduces pain, and that it has a relaxing effect on a spasmodic colon and can help alleviate painful diarrhoea.²²

Nervous system

Cardamom oil has been described as a cephalic and a gentle tonic of the nervous system.⁷ It is also recommended for nervous exhaustion and depression.²⁰

Respiratory system

Cardamom oil is recommended for catarrhal conditions of the respiratory system such as chronic bronchitis.²⁰

Skin care

Cardamom is generally not used in skin care.

Energetics

Cardamom oil is a *Qi* tonic. It has a *warming* quality, which makes it an excellent choice as a digestive stimulant and as a remedy for mucolytic damp catarrhal conditions of the respiratory and digestive system.⁷

Cardamom strengthens *Spleen Qi*, the main organ responsible for transforming food and drinks into *Qi* and *Blood*. Cardamom oil is recommended whenever there is a *Spleen Qi deficiency*. Typical symptoms associated with *Spleen Qi deficiency* include feelings of lethargy, poor appetite and loose stool.⁷

According to the principles of Five elements, cardamom is indicated for problems associated with the Earth element. The external pathogenic factor that weakens the Earth element is *damp*. Excess *damp* leads to lethargy, indigestion, abdominal distention and worry. Cardamom's *warming* property helps to

expel *dampness*. The spirit associated with the Earth element is the *Yi*, which is associated with our intellect and ability to think clearly.

Cardamom is ideal for individuals with poor concentration, overthinking and burdened by worries.⁷

Personality

The cardamom personality is strong, forthright, motivating and enthusiastic; they instill inspiration in others and tend to make good leaders.²³

Worwood states that cardamom personality types often wear an air of detachment most of the time and that nothing seems to worry them. She explains that they are good in leadership roles, provided that they can learn to delegate. They are often good teachers. While they are not creative, they have the stamina to carry ideas forward. As a result, they can achieve much more than a creative personality type.²³

According to Myers-Briggs personality types, the cardamom personality is likely to be an ESTJ. ESTJs love responsibility and control. They love to be in charge. They are good at making objective decisions. They love challenges and know how to get things done. They have an opinion for everything and are rarely at a loss for words. ESTJs like to spend their free time in ways that are productive. They are good at seeing what is illogical, inconsistent and impractical. They are willing to make sacrifices in order to honour their commitments. They tend to be workaholics and drive themselves and others very hard. They like to be involved in community service organisations and volunteer activities. They enjoy spending time with their friends and family.

Subtle

Worwood recommends cardamom whenever we need clarity, motivation, focus, courage and confidence. She explains that cardamom gives us wisdom when we are overburdened with responsibilities. She suggests that we use it to give us the strength and encouragement whenever we need to offer our friendship to a person in need. It is ideal when we are burdened by worries and responsibilities that test our endurance.²⁴

Keim Loughran & Bull state that cardamom oil helps us to accept life as it is while encouraging an enthusiasm for it. They also recommend using it to help teach others with a grounded, clear, heart-centred perspective.²⁵

Mojay states that cardamom helps to restore our 'appetite for life'.⁷ Worwood states that cardamom gives us wisdom when we are overburdened with responsibilities and when we need to tap into our generosity of spirit to allow our hearts to be open and expansive in order to be gracious in our dealings with others.²⁴

Blending tips

Aromatherapy

For mental fatigue and dispelling worrying thoughts consider blending cardamom oil with essential oils such as bergamot, black pepper, geranium, ginger, fragonia, frankincense, lavender, lemon, sweet orange or rosemary.

To alleviate nausea and vomiting consider blending cardamom oil with essential oils such as ginger, peppermint or spearmint.

To alleviate mucous congestion of the respiratory system, consider blending cardamom oil with essential oils such as aniseed, broadleaf peppermint eucalyptus, 1,8-cineole-rich eucalypts, Atlas cedarwood, sweet fennel, fragonia, frankincense, ginger, lemon, myrtle, niaouli, pine or thyme.

Perfumery

In perfumery, cardamom oil imparts a warm, sweet spicy note which complements floral bases. Cardamom oil blends well with bergamot, frankincense, ylang ylang and labdanum. Arctander states that coriander seed oil is an excellent modifier for cardamom oil in perfumery and that this combination imparts warmth in oriental style and chypre perfumes.³

How to use

Bath

Full body bath, foot bath

Topical

Compress, massage, ointment

Inhalation

Direct inhalation, diffuser, oil vaporiser

SAFETY

General safety

Cardamom oil is non-toxic, non-irritant and non-sensitising.^{19,26}

No contraindications known.

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