



## A review on - The medicinal uses of CLOVE .

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## Abstract

Clove mainly originate in indonesia. Clove is one of the most valuable spices that have been used traditionally as food preservative and for many therapeutic purposes . The scientific name of clove is *Syzygium aromaticum*. clove which is belongs to the family myrtaceae. They have different medicinal properties.

They are mainly ayurvedic It a dark brown colour, taste pungent, odour is slightly aromatic.

This plant represents one of the richest sources of phenolic constituents as eugenol. The main chemical constituent of the clove is *Eugenol* . It used as expectorant, teeth care, as anesthesia.

*Eugenol* which is separate out from clove by using petroleum ether, chloroform, ethanol, methanol and water. Clove has containing more phytochemical constituents such as eugenol, acetyl eugenol, Alpha and Beta-caryophyllene, vanillin, tannins etc.

Clove shows many pharmacological activities such as anti-oxidantant, analgesic, anti cancer, anti -microbial, antiinflammatory, anti-pyretic, anti-viral, anti-diabetic, anesthetic, anti-carcinogenic, antibacterial, antifungal, antibiotics etc.

Key wards : Cloves, *Syzygium aromaticum*, Laung, Lavang.

# Introduction

The clove is usually known as "lavang. Clove (*Syzygium aromaticum*) a precious spice, is a member of Mirtaceae family which has been employed for centuries as food preservative and medicine because of its antimicrobial and antioxidant properties.

*Syzygium* is the largest genus of Mirtaceae family. This plant's importance increases in human life every day "because of the increase in nutrition and medicinal properties of plant. Which is derived from 'clove' and 'clou' meaning 'nail.' This is used mainly in Ayurvedics.

The color is small brown, floral buds, and a spice is used. It was used as food preservatives, flavoring agents and nutritional additives, medicinal coloring agent. It is commonly used for tooth care.

The clove is available in three of Phenolic compounds, including eugenol (80% -90%), eugenyl acetate (15% -17%), and beta-caryophyllene (5% -12%), alpha-humulene (0.55%), alpha-terpenyl

acetate (0.1%), and methyl eugenol (0.2). Eugenol is the clove's principal bioactive ingredient. For oral diseases, it is used as an antiseptic. This tree belongs to the family Myrtaceae which is same as that of guavas. Cloves are the dried flowers bud which are commonly used garam masala. Clove buds possess intense fragrance and burning taste.

They have deep brown color, powerful fragrant odour which is warm, pungent, strongly sweet and slightly astringent. A drop of clove oil is 400 times more powerful as an anti-oxidant than wolf berries.



## Synonyms

**Botanical Names - Syzygium aromaticum**

**Marathi - Luvang**

**Hindi - Laung, Lavang**

**Sanskrit - Devakusuma**

Malayalam	- Grampu,
Kannada	- Lavanga, Daevakusuma,
Tamil	- Kirampu, Ilavankam, Kiraambu,
Telgu	- Lavangamu, Lavangalu,
Bengali	- Lavanga.
Gujarati	- Lavang
Punjabi	- Laung
Oriya	- Labanga
Urdu	- Laung,

## Taxonomy :

kingdom	-plantae
Super Division	- Spermatophyta
Division	- Magnoliphyta
Class	- Magnoliopsida
Subclass	- Rosidae
Order	- Myrtales
Family	- Myrtaceae
Genus	- Syzygius
Species	- aromaticum

# Chemical constituents

Clove comprises of volatile as well as non-volatile constituents.

## Volatile Constituents-

Clove yields different types of volatile oil such oil extracted from

- 1) leaves
- 2) stem
- 3) buds
- 4) fruit

**Leaf Oil** - Clove leaves yield 3.0–4.8% essential oil.

**Stem Oil** - Clove stem yields 6% volatile oil. The oil is a pale to light yellow liquid containing 80.2% eugenol and 6.6%  $\beta$ -caryophyllene.

**Bud Oil** - Good-quality clove buds contain 15–20% essential oil. The oil is dominated by Eugenol (70–85%), eugenyl acetate (15%) and  $\beta$ -caryophyllene (5–12%), which together make up 99% of the oil.

**Fruit Oil** - fruits yield 2% of oil, which is comprised of 50–55% eugenol.

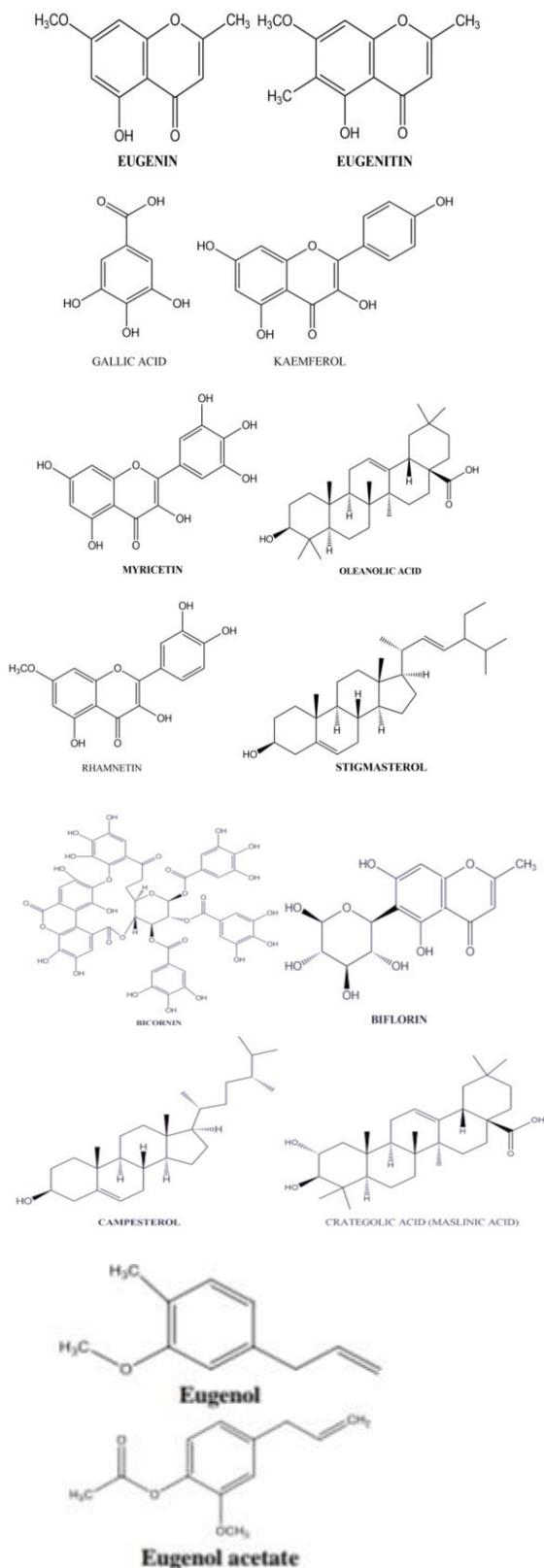
## Non-volatile Constituents-

**Tannins** - Cloves contain 10–13% tannins.

**Triterpenes** - Cloves contain about 2% of the triterpene.

**Sterols** - Sterols isolated from clove include sitosterol, stigmasterol and campesterol .

## Structures of some chemical compounds present in *Syzygium aromaticum*.



## Medicinal uses:

- 1) Clove which has antimicrobial properties hence it is used in tooth paste, dental creams, mouth washes used to relieve pain from sore gums and improves overall dental health.
- 2) Clove is used as an anti-inflammatory agent, due to its high content of flavonoids. Clove is used as a

carminative, to increase hydrochloric acid in the stomach and to improve peristalsis.

3) Apply the paste of clove powder in honey to treat acne.

4) Clove is used for upset stomach and as an expectorant. Expectorants make it easier to cough up phlegm .

5) Clove oil is used for diarrhea, hernia, and bad breath.

6) Clove and clove oil are used for intestinal gas, nausea, and vomiting.

7) clove extract reduce the incidence of obesity resulting from high fat diet.

## **Pharmacological activity:**

### **1) Anti-microbial activity:**

Cloves represent one of the Mother Nature's premier antiseptic. Clove oil was found to be more effective than sodium propionate against some food borne microbes. Clove oil was found to be very effective against Staphylococcus species. Clove is also included in Dr Huda Clark's protocol for elimination of parasites from the digestive system. It has been found that a 0.05% solution of eugenol is sufficient .to kill bacillus tuberculosis.

### **2)Anti-platelet activity:**

It was found that both eugenol and acetyl eugenol were more potent than aspirin in inhibiting platelet aggregation induced by arachidonate, adrenaline and collagen.

Clove oil inhibited human platelet aggregation induced by arachidonic acid (AA), platelet-activating factor (PAF) or collagen. Clove oil was a more effective inhibitor for aggregation induced by AA and PAF than collagen

### **3) Anti-stress activity**

The clove extract reduced the development of cold restraint induced gastric ulcers and prevented the biochemical changes .

Stress is a common phenomenon that is experienced by every individual. When stress becomes extreme, it is harmful for the body and, hence, needs to be treated. Stress is involved in the pathogenesis of a variety of diseases that includes psychiatric disorders such as depression and anxiety, immunosuppression, endocrine disorders including diabetes mellitus, male impotence, cognitive dysfunction, peptic ulcer, hypertension and ulcerative colitis.

### **5) Anticancer Activity:**

Showed cytotoxic effects of antimutagenic activity against cancer cell lines. Clove oil extracts demonstrated cytotoxic activity against cervical cancer. Scientists show that clove extract was able to slow the growth of multiple types of human cancer cells. Clove extract which also increases the cell death in colon cancer cells..

## 5)Anti Bactrial Activity:

The antimicrobial activities of clove have been proved against several bacteria and fungal strains. Sofia et al. clove extract which is always showed good inhibitory action. Clove oil was found to be very effective against Staphylococcus species. Amongst the fungi .Essential oil of clove, dispersed (0.4% v/v) in a concentrated sugar solution, had a germicidal effect against various bacteria like s Aureus, Klebsiella Pneumoniae, Pseudomonas aeruginosa etc

## 6) Toxicity:

The clove oil is considered as safe when consumed in doses (<1.5g/kg).according to World Health Organization established the acceptable dose of clove 2.5 mg/kg/day in humans.

The toxicity of clove oil was evaluated in aquarium fish species, Poecilia reticulata and Danio rerio. According to national Center for biotechnology information multiple hazards are associated with clove oil. It may causes eye, skin, respiratory irritation and allergic reaction on skin.

Cloves increases the chances of bleeding.

## Conclusion :

Clove is most important medicine used in ayurveda. A drop of clove oil is 400 times more powerful as an anti-oxidant than wolf berries or blueberries. Clove is a medicinally powerful herb with a solid traditional heritage and history. Clove has physical, mental and emotional health benefits. Clove possesses antioxidant, anti-fungal, anti-viral, antimicrobial, anti-diabetic, anti-inflammatory, antithrombotic, anesthetic, pain reliving and insect repellent properties.

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