



## Ayurvedic And Modern Therapeutic Aspect Of *Lavang Tail*

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### Abstract-

*Lavang* (*Syzygium aromaticum*) has antimicrobial, anti-inflammatory, anti-oxidant properties as well as anti-carcinogenic, anti-mutagenic properties. According to Ayurveda *lavang* has *tikta* and *katu* rasa and *sheet virya*. Due to *tokatu* rasa it acts as *kaphashamaka* and *pitta hara*, due to *sheetaveerya*. Therefore, *lepa* (local application of paste) of *lavang* is applied on forehead in *pratishyayjanyashirshoola* (sinusitis induced headache). It acts as *uttejak* (aphrodisiac) in *dhvajbhang* (erectile dysfunction) due to its *tikshnaguna*. It also acts as *krumighna* (wormicidal) therefore it is used in *dantshool* (dental carries). In *vyadhis* (diseases) like *amvaatkatishoolgrudhrasi* local application of *lavang tail* reduces the pain. Due to its *tikshnaguna*, the salivary secretion increases and also the fibroblastic activity of mucus membrane ceases. Hence it can be used in oro-dental conditions like sub mucus fibrosis as it increases fibroclastic activity of cell. Clove has two major chemical components, Euginol and *Beta* Caryophyllene, which constitute 78% and 13% respectively. Both have cytotoxic property towards human fibroblasts and endothelial cells. Clove also has been effective in inhibition of cell proliferation in carcinogenesis. Euginol also helps in inhibition of fungal growth. The leaves of clove contain betulinic acid, which also has cytotoxic property in certain cancers like breast cancer. This study aims at the therapeutic use of clove indicated in Ayurvedic literature and research studies conducted on the same. Comprehension of such literature is need of an hour for further clinical trials.

**Keywords** – *Lavang tail*, Chemical constituents, Therapeutic uses

### Introduction -

According to *kalidasa* (Ancient Ayurveda Acharya), *lavangpushpa* (clove flower) are firstly found in *dvipantara* i.e. island<sup>[1]</sup>. In *Charak* and *Sushrutsamhita* the therapeutic use of *lavang* indicated with *tambulsevana* (betal leaf chewing). It is *kaphachhedak* and *pitta shamak*. That's why it is used in Indian spices. *Lavang* has great antioxidant property. Clove actually means symbol of dignity. It is unopened flower bud growing on a tree belonging to Myrtaceae family. It is native of Indonesia but now days cultivated in several part of world. It contains phenolic compounds such as euginol, euginol acetate, gallic acid which are having great pharmaceutical and cosmetic uses. Clove is beneficial home remedy for several diseases. It possess antioxidant, anti-fungal, anti-viral, anti-microbial, anti-diabetic, anti-inflammatory, anesthetic, pain relieving, insect repellent properties.

**1.1 Aims** – Ayurvedic and modern therapeutical aspects of *lavang tail*

## 1.2 Objectives –

1. To collect and analyze the literature review of *lavanga*
2. To collect and analyze chemical component of *lavang* and its effect on body
3. To study the therapeutic uses of *lavang*.

## 1.3 Methodology

To fulfill the aims and objectives of the study this work has been carried out in the following phase wise manner.

1. Conceptual study
2. Comparative study
3. Discussion
4. Conclusion and summary

## 2.1 Clove synonyms -

**Sanskrit names**-devkusuma, devapuspa, lavanga, sriprasun, chandanpushpak, vaareej,

**English names** – clove, clovos, caryophyllus, carophyllus

**Botanical names** – *Eugenia caryophyllus*, *Syzygium aromaticum*.

**Family** –Myrtaceae

**Hindi** –lavang, laung

**Marathi** –lavang

**Malayalam** –grampu, karayampu

**Kannada** –krambu, daevakusuma, lavanga

**Tamil** –kirampu, kiraambu, grambu

**Bengali** –lavanga

**Gujrati** –lavang

**Oriya**-labanga

**Urdu**-laung

## 2.2 Phylotaxy of Clove tree-

**Height** - 30-40 feet in height,

**Leaves**-Oval shaped green leaves of 3-6 inch in length

**Flowers** – Aromatic, Lavender colored

**Fruits**- Clove like shape, Named as mother clove

**Clove buds**- In dry form used as spices

## 2.3 Collection-

After 7-8 years of age there is formation of buds.

Developing clove buds are collected before they get full grown.

## 2.4 Time of collection-

When clove buds turn pinkish from green color.

A tree yields 2.5 – 4.5 kg clove at one time.

These immature clove buds then dried for 4-5 days in sunlight. And then used.

## 2.5 Nutritive value of clove<sup>[2]</sup>.

Content	Nutrient value per 100gm
Protein	5.98gm
Fat	20.07gm
Carbohydrate	61.21gm

Energy	323 kcal
Calcium	646 mg
Phosphorous	105 mg
Iron	8.64 mg
Carotin	84 mcg
Thiamine	0.115 mg
Riboflavin	0.267 mg
Niacin	1.458mg
Folates	93 mcg
Copper	0.347 mg
Magnesium	264 mg
Manganese	30.033 mg
Zinc	1.09 mcg
Potassium	1102 mg
Sodium	243 mg
Vit A	530 IU
Vit C	80.8 mg
Vit E	8.52 mg
Vit K	141.8 mcg

### 3.1 Ayurvedic properties-

**Guna**-snigdha, laghu

**Rasa**-tikta, katu

**Vipak**-katu

**Veerya**- sheet

**Karma**- dosh karma- due to tiktakatu rasa it is kaphashamak, due to its sheet veerya it is pitta shamak

**3.2 Local action-** Due to its *tikshnaguna* it is *raktotkleshak*(blood agrevator), *uttejak*(stimulant), *krimighna*(wormicidal)

### 3.3 Internal action<sup>[3]</sup>-

No	System	Guna	Karma
1.	Digestive	<i>Katu, tikta rasa</i>	<i>Deepanpachan</i> (appetizer), <i>ruche vardhan</i> (taste improver)
		<i>Teekshaguna</i>	Salivary secretion increases
		<i>Snigdha guna</i>	<i>Vatanulomak</i> (carminative), <i>shoolprashamak</i> (analgesic)
2.	Circulatory	<i>Tikta rasa</i>	<i>Raktadushtinashan</i> (blood purifier)
3.	Respiratory	<i>Katutikta rasa</i>	<i>Shleshmaputihar</i> (mucolytic)
4.	Reproductive	<i>Prabhav</i>	<i>Vajikaran</i> (aphrodisiac).
		<i>Katuvipak</i>	<i>Stanyajanan</i> (lactogenic),
5.	Excretory	<i>Prabhav</i>	<i>Mutrajanan</i> (diuretic)
6.	Fever	<i>Tikta rasa</i>	<i>Jwaraghna</i> (antipyretic)

### 3.4 Therapeutic uses by *Samhitas*<sup>[4]</sup> –#

1. *Shirshooljanyapratishtay*(sinusitis induced headache)- Local application of lepa on forehead
2. *Mukharoga,kantharoga* (orodental disorder) – Chewing of clove
3. *Aamvata*(Rheumatoid Arthritis), *katishool*(Backache), *grudhrasi* (Sciatica), *vaatvikar*(Neurological Disorder)– Clove oil massage for local pain relief
4. *Dantshool*(Toothache)- Cotton plug of *lavang tail*
5. *Dhvajbhang* (Erectile Dysfunction) – Oil application on penis for aphrodisiac action
6. *Aamplapitta*(Hyperacidity) – *Aampachan* , *Agni deepan*(appetizer) *Pitta vidah shanti* (Reducing Burning Sensation), *Shoshan of drava pitta*.
7. *Kaas, shwas, hikka*(respiratory disorder)
8. *Jwara*(Fever) –*LavangodakinJwara*. *Aruchi*(Anorexia), *Agnimandya*(Loss of appetite), *Ajeerna* (Dyspepsia),*Chhardi*(Vomitting),*Trushna*(Excessive thirst), *yakrutvikara* (liver disorder)
9. *Firang, upadansha*(soft chancre) – *raktadushtinaash*(purification of vitiated rakta)
10. *Lavangambu* – In *visuchika, pipasa*(cholera oinducetrushna)<sup>[5]</sup>
11. *Koshnajalapishtvalepa*(local application of paste)- In *vaatvikara* (Neurological Disorder) for pain relief.

### 4.1 Chemical composition of clove-

Clove contains volatile and non volatile constituents<sup>[6]</sup>-

### 4.2 Volatile constituents-#

Clove part	Constituent
Bud oil	Essential oil - 15-20% Eugenol - 70-85% Eugenol acetate- 15% Beta caryophyllene - 5-12% Methylamylketone, Methylsalicylate-responsible for odour of clove
Leaf oil	Essential oil – 3.0-4.8% At different stages of leaf growth eugenol content increases from 38.3 to 95.2% WhereasEuginyl acetate decreases from 51.2 to 1.5 % and caryophyllene from 6.3 to 0.2%
Clove stem oil	Essential oil- 6% Eugenol- 80.2% Beta caryophyllene- 6.6%
Fruit oil	Essential oil- 2% Eugenol – 50-55%

### 4.3 Nonvolatile constituents-

Constituents	Percentage
Tannins	Tannin 10-13% isolated from clove Eugenin, ellagitannin isolated from clove Eugenolglucosidegallate, Chromone C-glycoside isolated from leaves

	Syzyginin A, syzyginin B isolated from leaves
Triterpenes	Clove contains Triterpenes and oleanolic acid 2% Maslinic acid isolated from clove buds 2- alpha hydroxyoleanolic acid isolated from clove
Sterols	Sitosterol, stigmasterol and campesterol
Flavonoids	C-glucoside, isobiflorin isolated from ethinolic extract of cloves Apigenin isolated from ethanol extract of the seeds

#### 4.4 Pharmacological uses-

1. **Anti-oxidant activity**-Clove has the highest anti-oxidant property. It has inhibitory effect against hydroxyl radicals and it also act as iron chelator. The anti-oxidant activity of eugenol and euginolacetate were comparable with alpha Tocopherol like natural anti-oxidants<sup>[7]</sup>.
2. **Anti-microbial activity**- Clove posses great antiseptic property. Clove oil is effective against *Styphylococcus* species, *Aspergillusniger*, *Klebsiella pneumonia*, *Pseudomonas aeruginosa*, *Clostridium perfringens*, *E. Coli* and *Candida albicans*<sup>[8]</sup>. Eugenol is effective against tuberculosis.
3. **Anti-viral activity** -Eugininalso shows antiviral activity against herpes virus at a concentration of 10 mcg/ml<sup>[9]</sup>
4. **Anti-inflammatory**-Euginol functions as Anti-inflammatory agent. Clove contains large number of flavonoids such as Beta caryophyllene, Rhamnetin which initiate clove's anti-inflammatory and anti-oxidant properties<sup>[10]</sup>
5. **Antipyretic** -Euginol, main component of clove oil reduces fever through a central action similar to that of acetaminophen.<sup>[11]</sup>
6. **Anti-carcinogenic**- It is found that, aqueous infusion of clove reduces lung carc-inogenesis strain in mice. it significantly reduces number of proliferating cells.<sup>[12]</sup>
7. **Anti-diabetic**- Clove regulates the expression of same genes in similar manner to that of insulin.<sup>[13]</sup>
8. **Antiplatelet**- It was found that both eugenol and euginol acetate are potent in inhibiting platelet aggregation.<sup>[14]</sup>
9. **Anti-stress**- Clove extract found to be usefull in releiving anoxic stress induced convulsions in mice.<sup>[15]</sup>
10. **Aphrodisiac**-Ethinolic extract of clove found to be effective in increasing sexual sexual activity of normal male rats.<sup>[16]</sup>
11. **Mosquito repellent**- Clove oil is found to be potent mosquito repellent<sup>[17]</sup>
12. **Hepato-protective**-Ethinolic extract of clove is found to be hepatoprotective in paracetamol induced liver injury.<sup>[18]</sup>
13. **Cytotoxic activity**- Clove oil has cytotoxic property towards human fibroblastsand endothelial cells.<sup>[19]</sup>
14. **Fungicidal activity**-It has been seen that euginol has anti candidial effect in oral candidiasis<sup>[20]</sup>
15. **Bactericidal activity**-Euginol has bactericidal effect against both positive and negative bacteria like *streptococcus pyogenes*,*proteus vulgaris*, *Escherichia coli* by disrupting their outer membrane<sup>[21]</sup>
16. **Tooth ache**-Euginol has analgesic effect in dental caries. Clove oil cotton plugs is been used in dental carries traditionally<sup>[22]</sup>

17. **Anti-ulcer activity-** Clove oil and eugenol are capable of significantly enhancing mucus production therefore they found to be gastroprotective in function. In indomethacin ethanol induced ulcer eugenol displays anti-ulcer activity.<sup>[23]</sup>
18. **Reducing high fat diet induced obesity-**Eugenol found to effective in downregulation of adipogenic and lipogenic gene .<sup>[24]</sup>
19. **Anti-carcinogenic in cervical cancer-**Eugenol in clove found to be anti-carcinogenic in breast cancer cells.<sup>[25]</sup>
20. **Stress-** Clove oil is excellent stress reliver. Having stimulating effect on mind and it removes mental exhaustion and fatigue. It is also helpful in patient suffering from insominia.<sup>[26]</sup>
21. **Muscle cramps and headache-** Flavonoids present in clove oil has anti-inflammatory effect in general therefore clove oil is used for muscle cramps and headache.<sup>[27]</sup>

### Discussion-

This article basically focus on *samhitagranthas* reference of *lavanga* and its therapeutic uses describe in *nighantugranthas*. Along with that it also focuses on chemical constituents of clove oil and their pharmaceutical actions on human body. Clove has many important systemic effects, such as anti-inflammatory actions, anti-pyretic actions, anti-carcinogenic actions, aphrodisiac action, stress releasing actions. With that it also has *aampachaka*, *krumighna*, *sheershoolnashak*, *kaphachedana* action due to its unique *rasa panchak*. It is very important to have some clinical trials on postulated pharmaceutical actions for further studies. So that it will help us to confirm its usefulness in treating patients

### Conclusion -

*Lavang* being a major and most widely spice used in indiansub-continent. It possesseugenol like chemical constituents with many flavonoids which are having large effects on physiology of normal human being. Its *tiktakatu rasa* makes it best *aampachak* in various disorders. It acts as *vaatshamak* due to its *sheet veerya*. With its *krumighnaprabahava* it becomes more usefull in orodental disorder. And due to its aromatic flavonoids it act as *mukhavaishadyakar*. Eugenol and eugenol acetate has great fibroclastic activity on mucosal membrane. Clove is usefull as anti canrcinogenic agent in lung as well as in cervical cancers. So it is very important for us to have sound knowledge of its active principles and their actions. This article concludes that the herb which is described in our *nighantugrantha* as *lavanga* has great pharmaceutical applications. And it requires further clinical evaluation of the same.

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