

Spices — ^① general description with special ¹⁹ reference to clove & black pepper.

1. Botanical name
2. Family
3. Morphology —
4. Parts used
5. Uses.

CLOVE — *Syzygium aromaticum* (L.) Merr. & Perry.

Vernacular Names —

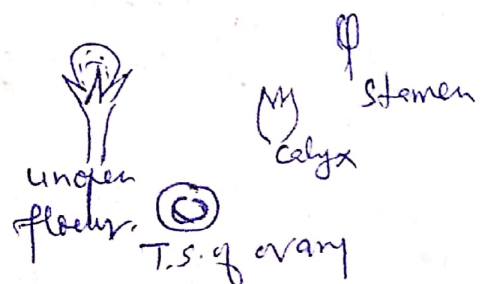
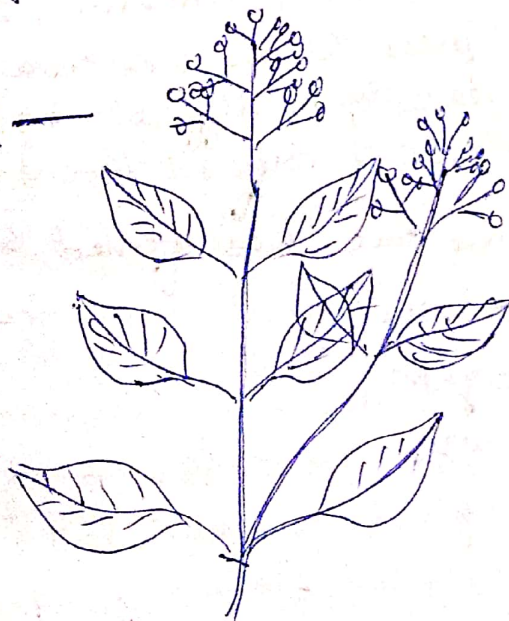
Hingli — Laung
Beng — Laung.
Eng — clove.

Systematic position: —

Kingdom — Plantae.
Division — Angiosperms
Class — Dicotyledons
Order — Myrtales
Family — Myrtaceae.

Botanical Name — *Syzygium aromaticum*
(L.) Merr. & Perry

Description: —



- i/ It is a small evergreen tree with large spreading branches
- ii/ Height about 12-15 meters
- iii/ Leaves opposite, lanceolate, glabrous & dotted with oil glands.
- iv/ Flowers crimson red, borne in clusters of three in wild state but under cultivation
- v/ Flowers are not bloom & seen unopened buds
- vi/ Fruits are purple drupes with oblong seeds grooved on one side.

Origin - & Distribution - Clove tree is believed to be native to the Maluccas or Spice islands (a group of volcanic islands in eastern Indonesia). During 16 to 17 century, Clove was under the control of Portuguese. During 17 to 18 century, it was taken over by British East India Company.

Clove is aromatic flower buds of a tree in the family Myrtaceae. They are native to the Maluccas islands in Indonesia, & commonly used as spices. Cloves are available throughout the year due to different harvest seasons in

Morphology of Clove Plant - different countries,



Clove tree has forked stem composed of 2-to 3 trunks that can reach 12 to 40 feet in height.

The clove tree is an evergreen, that grows up to 8-12 meters tall, with large leaves & crimson flowers grouped in terminal clusters.

The km clone arise from
clams means clone.

The flowers buds, are present in clams.

~~clone trees are always to be found~~

Warm climate

Cultivation -

Clone prefers tropical climate with warm & humid condition. It grows best in deep volcanic loamy soils with annual rainfall (150-250) cm & average temp of 16-38°C

Propagation & Planting -

- i/ clone is propagated through seeds. But -
it can be also propagated vegetatively by grafting on its own stock.
- ii/ seeds are collected during August to October & sown immediately after collection on raised nursery beds at a distance of 12 cm between row to row.
- iii/ The seeds can be sown with & without fruiting.
- iv/ delay in sowing of seeds may result into failure because seed lose their viability within 1 week after harvesting.
- v/ seeds begin to germinate in 4-5 weeks after sowing. Seedlings are very slender slow growing & quite delicate, therefore, proper weeding throughout the nursery period.
- vi/ After ~~six~~ about six months of nursery life, seedlings are transferred to mud spots or bamboo baskets & nurtured properly under moist & shade for about 12-18 months of age.
- vii/ there after planted in the field.
- viii/ the shade provide & adequate protection to clone from ^{the} sun.

II Harvesting & Curing:—

- 1/ ^{tree starts to yield} clove ~~are~~ ^{years} ~~are~~ ^{months} matured after 7 to 8 months
- 2/ buds appear about 15-20 yrs
- 3/ Flowers appear during September - ~~and~~ October in plains & Dec-Jan in high altitudes.
- 4/ Before flowering, a flush of young leaves appears which is followed by appearance of floral buds. & become ready for harvesting in about 4-5 months.
- 5/ The unopened buds are hand picked when they start to turn pink from green.
- 6/ The harvested buds are spread over cement floor for drying in the sun for 4-5 days or in artificial ~~clim.~~ dryer. It is dried 4-5 hours. with regulated fire.
- 7/ Fully dried buds become dark brown colour, crisp, fine ^{aroma} ~~aroma~~ fibre & ~~flavour~~ flavour. & exude oil. when the stem is pressed with the finger nails.
- 8/ one tree yields - 4-8 kg cloves & about 400 kg per hectare of plantation.

Chemical Composition

1/ Clove contain —

moisture	— 5.4%
Protein	— 6.3%
volatile oil	— 13.2%
fat	— 15.5%
Crude fibre	— 11.1%
Carbohydrates	— 57.7%
minerals	— 5.0%
ash	— 0.24%
Calcium	— 0.7%
Phosphorus	— 0.11%
Iron	— 0.1%

Sodium	— 0.25%
K ⁺	— 1.2%
Riboflavin	— 0.04
Niacin	— 1.5
Vit-C	— 80.9
Vit-A	—
on steam distillation	— 15.47%
of clove bud	
of essential oil	

(5)

(21)

uses

- i/ Cloves are highly aromatic with fine flavor and impart warming effects
- ii/ ~~used as flavouring~~ material & spice used for flavouring pickles, curries, sauces, Ketchup, Puddings, fruit cakes, etc.
- iii/ In ancient China, a ~~Court~~ ^{Court official} ~~sweet~~ to sweeten their breath with clove before addressing their emperor.
- iv/ In Indonesia, clove powder is mixed with tobacco to prepare a special brand of Cigarette, Keretek
- v/ In India, cloves are an important ingredient in Paan, dabra & Paan masala.
- vi/ Clove oil is used for flavouring foods & beverages.
- vii/ It is an ingredient of tooth-pastes, Soaps, in perfumery
- viii/ Medicinally, it is used as Local analgesic for hypersensitive dentures & Carious Cavities
- ix/ applied as sub-facient & Counter irritant and internally as Carminative & anti-