FOLIA MELISSAE, Melissa leaf

- *Melissa officinalis* (Labiatae) leaves
- Widespread in West and North Anatolia
- Leaves ovate-lanceolate, 1.5 - 3.0 cm to 2.5 - 4 cm.
- Significant lemon odour outcomes when destructed.
- 0.10-0.15% essential oil yield. 41% of the essential oil is citronellal and 2% citral, so that plant has lemon odour.

FOLIA MELISSAE, Melissa leaf

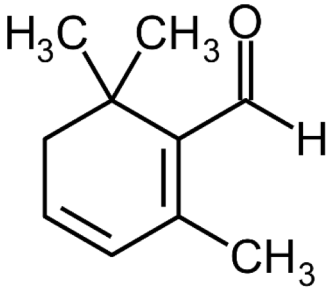
- Folia Melissae is antispasmodic. It can be used especially for the removal of cold symptoms.
- "hakiki melisa otu" *Lippia citriodora* (Verbenaceae) leaves. Entirely different physically from Melissa leaf. *Lippia citriodora* leaves are 1-1.5 cm to 8-9 cm, elliptic. Secondary veins are close and parallel to each other.
- *Lippia citriodora'*s essential oil yield is 0.5%. Citral is the important constituent with a ratio of 26%. Other constituents are citronellal, verbenone. Essential oil is called «Verven Esansı». It grows in West Anatolia. Originally it is a South American plant.

CROCUS

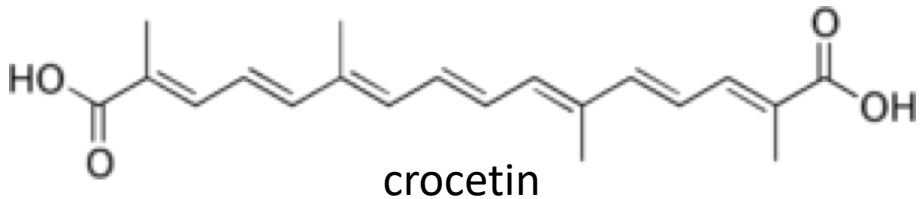
- ***Crocus sativus*** (Iridaceae), stigmas of *Crocus sativus* flowers.
- Naturally grows in Europe, Turkey and Iran, and also cultivated in France, Spain and Turkey (Safranbolu).
- Crocus sativus is 20—25 cm in height, and carries purple flowers. Stigma 1.5—2 cm, reddish-orange, and triparted. Stigmas should be collected in early morning and dried in low temperature. 1 kg safran could be obtained from approximately 100000 flowers.

CROCUS

- «Safranal» is an aldehyde compound responsible for the specific odour of Crocus. Safranal, is an oxidation product of beta cyclocitral The other constituents of the essential oil is eucalyptol and various terpenic compounds.
- «Picrocrocoside" which is a glucoside (glucoside 4-beta-hydroxy-cyclocitral) with bitter taste is another constituent of the drug.
- Safran is a strong pigment. Specific colour is due to crocin, a carotenoid. **Crocetin** is a natural apocarotenoid dicarboxylic acid with a reddish-orange colour that is found in the crocus flowers.



safranal



crocetin

CROCUS

- In pharmaceutical field, drug is used as colour and odour giving agent.
- Also it is emmenagogue and increases uterus motility.
- It is an expensive drug so that it is mostly mixed with other drugs and compounds. eg, *Carthamus tinctorius* (Compositae) which is called as «American Safran».

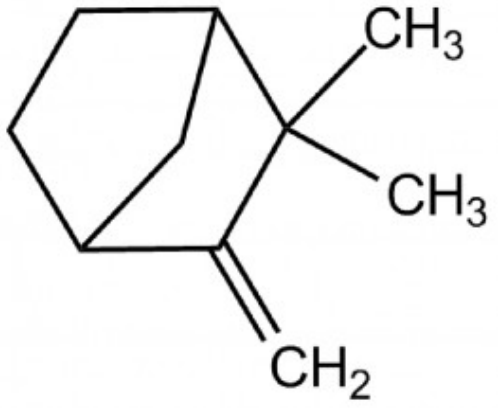
Myristica fragrans, Nutmeg

Myristica- fragrans (Myristicaceae) dried mature semen, Semen Myristicae.

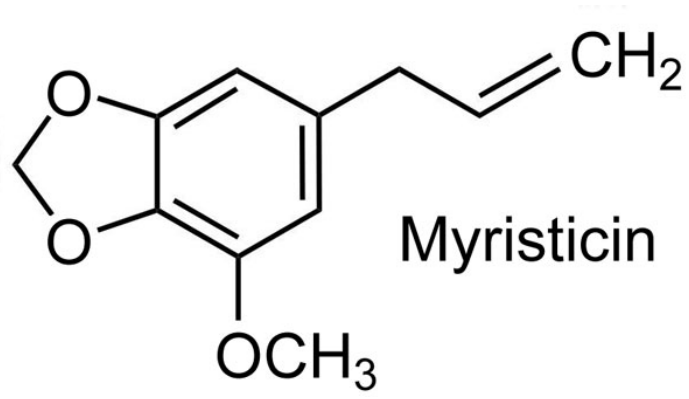
Myristica fragrans; 10—20 m evergreen (sempervirent) tree, naturally grows in Moluk Islands (Amboine Island).
In Mauritus, Malaysia, Ceylon ve Sumatra it is cultivated.

Fruits are collected in May and November. Pericarp is removed. A special cover (arillus=mace) is placed around the semen. Arillus is separated and seeds are dried and drug is obtained.
Semen is 3—4 cm height, 2 cm width, with a special odour.

8—15% essential oil yield. 80% of the oil is camphene, 4% eugenol, 5-12% myristicin.
Sabinen (14-29%), alpha-pinene (15-28%), beta-pinene (13-18%), limonene (2-7%) etc.



camphene



Myristicin

- Essential oil prevents platelet aggregation. Eugenol and isoeugenol are the activity responsible compounds. Antiaggregation effect of eugenol is comparable with indomethasine.
- Mace (macis) is antibacterial.
- Myristicin, is a narcotic compound with convulsant, halusinogenic and euphoric activity. Semen Myristicae can be used as carminative and spice. Both fixed and essential oil is antirheumatic externally.

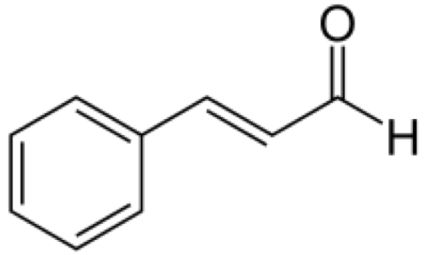
CORTEX CINNAMOMI CASSIAE

- ***Cinnamomum cassia*** (Lauraceae) dried cortex.
- Grows naturally in East and South East Asia.
- Cortex is 1—3 mm width, brownish colour, short broken, partially or entirely covered with a corky layer. Inner side is light brownish.
- Anatomicaly, it contains cork tissue, starch in parenchyma, glandular cells, sclerenchyma fibers , petrosal cells. Also mucilage cells and raphides could be observed.

C0RTEX CINNAMOMI CASSIAE

- Essential oil yield is 1—2 % with hydrodistillation. Essential oil is called Oleum Cinnamomi cassiae, with dark brown-reddish colour.
- Density is between 1.045 to 1.063.
- 75—90% of the essential oil is cinnamic aldehyde and minor amount of hydrocinnamic aldehyde. These compounds are propylbenzene derivatives.
- Cinnamomi Cortex is used as carminative and odour giving agent.

Cinnamic aldehyde



CEYLON CINNAMON

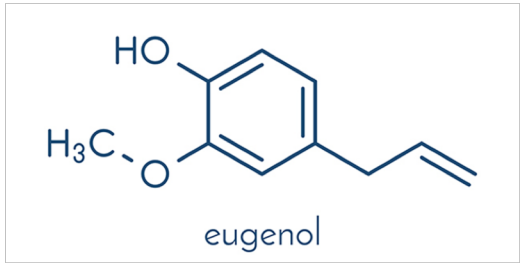
CASSIA

CORTEX CINNAMOMI CEYLANICI

- ***Cinnamomun ceylanicum*** (Lauraceae) young branches, peeled cortex.
- Grows naturally in India and Ceylon.
- After branches are cut, they are fermented for some days, cortex is peeled and corky layer discarded, dried for one day.
- Drug 0.2— 1 mm width, external layer is light brownish, inner side is dark brownish. It can be broken easily.

CORTEX CINNAMOMI CEYLANICI

- Anatomically similar to Cortex Cinnamomi cassiae but it does not contain corky layer.
- Essential oil yield is 0.5-1 % with hydrodistillation. Essential oil is called Oleum Cinnamomi ceylanici, with light brown colour.
- Density is between 1.023 to 1.040.
- 65—75 % of the essential oil is cinnamic aldehyde and minor amount of hydrocinnamic aldehyde. These compounds are propylbenzene derivatives. 4-10 % eugenol.
- Cinnamomi Ceylanici is used as carminative, antiseptic and odour giving agent.



Camphora, Camphor tree

Cinnamomum camphora (Lauraceae), big trees growing naturally in far East.

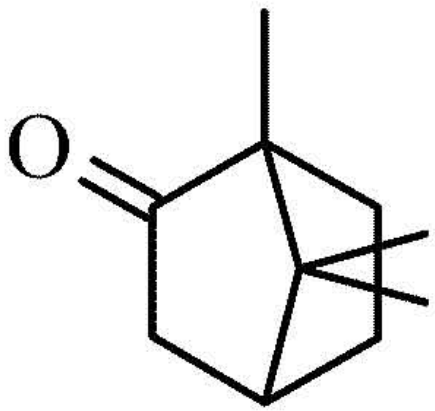
Camphor is obtained from the woods by hydrodistillation.

Racemic camphor is used as cardiac and respiration analeptic. It caneasily be synthesized.

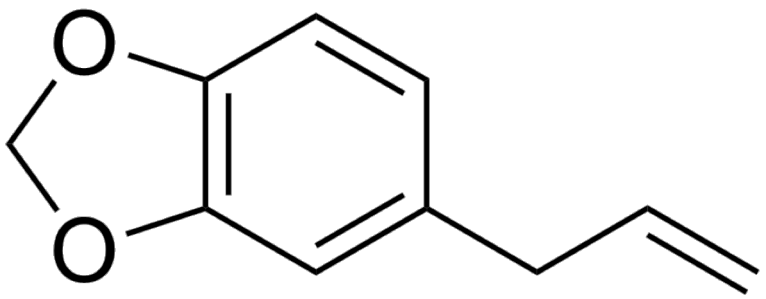
Natural camphor is dexstrogyral. Artificial camphor can be synthesized using pinene as precursor.

Both natural and artificial camphora can be used commercially.

Camphor is a caphane derivative, bicyclic, monoterpenic compound, with a ketone in second carbon.



Camphor



Safrole

Camphor was used as cardiac and respiration analeptic previously, now it is not used for this purpose.

Externally rubefacient.

In Turkey, *L. stoechas* and *L. cariensis* have important amount of camphor. *L. cariensis* essential oil carries 30% camphor, 18% phenchon.

Camphor is also obtained from *Dryobalanops aromatica* (Dipterocarpaceae) Borneol camphor, *Blumea balsamifera* (Compositae) Ngai camphor, from *Artemisia* (Compositae) species.

Flos Caryophylli, Cloves

Syzygium aromaticum= Eugenia caryophyllata (Myrtaceae)

Flower buds.

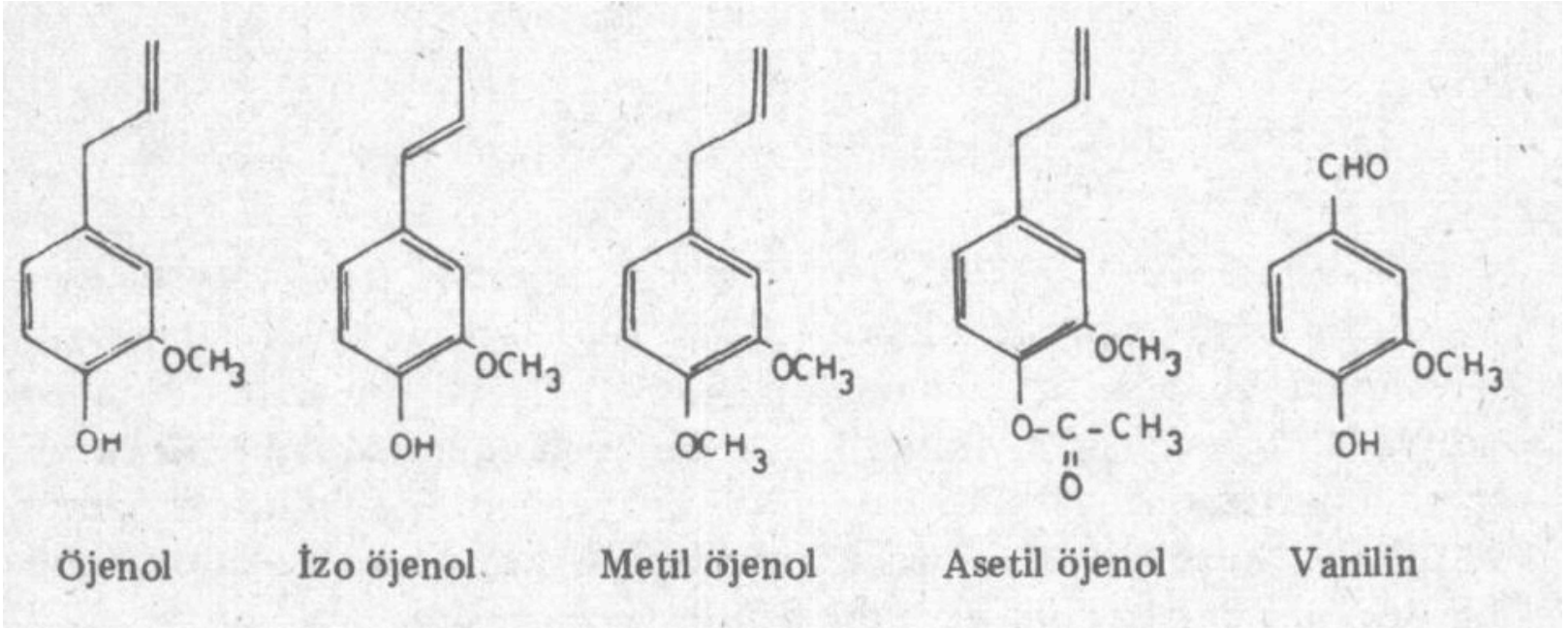
10—20 evergreen trees.

Grows naturally in Zanzibar.

Dried flower buds 10 mm, nail shaped, 4 cepale and 4 petals, brownish.

Oleum Caryophylli, essential oil yield is 14—20%.
80-90% of essential oil is eugenol and 3% acetyl eugenol, 10% beta-caryophyllene.

Eugenol is a strongly antiseptic and analgesic compound. It is used in dentistry. Carminative.
Eugenol is precursor of vanillin.

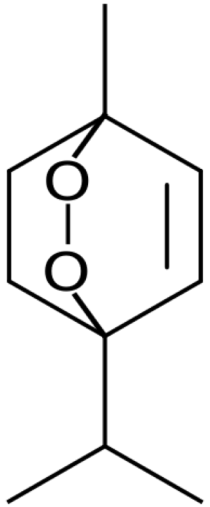


- Oleum Caryophylli prevents platelet aggregation.

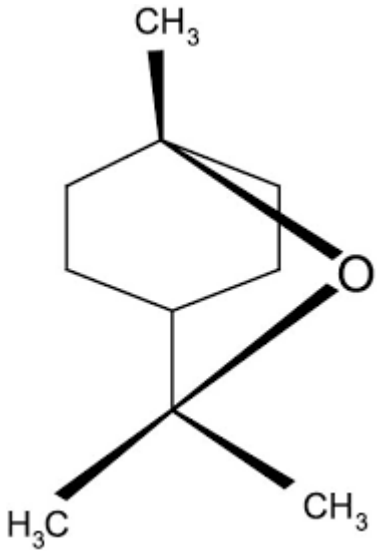
Oleum Chenopodii

- *Chenopodium ambrosioides* var. *anthelminticum* (Chenopodiaceae)
- Hydrodistillation of flowers, leaves and branches.
- Growing naturally in West India and USA.
- Essential oil yield 1-2%. Colorless or pale yellow, bitter taste.
- 60-80% of the essential oil is ascaridol and 20-22% eucalyptol.
- Ascaridol is a monocyclic moneterpene with a peroxide group.

Both ascaridol and Oleum Chenopodii is used as anthelminthic. Today, mostly used in veterinary.



ascaridol



eucalyptol

Folia Eucalypti, Oleum Eucalypti, Eucalyptus

- *Eucalyptus globulus* (Myrtaceae).
- Essetial oil is obtianed from the leaves.
- *E. globulus* is a 15—20 m tree.
- There are two types of leaves; young leaves are sessile and ovate, mature leaves are falcate with long petiol.

Essential oil yield is 3-5% obtained by hydrodistillation from falcate leaves.

80% of the essential oil is eucalyptol. The others are terpineol and isoborneol. Also pinocarveol (bicyclic monoterpene) and eudesmol (sesquiterpene) are the constituents of the oil.

Eucalyptol is a monocyclic monoterpene with an epoxy group between 1 and 8 carbon.

Oleum Eucalypti and eucalyptol are used for their antiseptic properties. Strong antimicrobial. Eucalyptol is also antihelminthic. It can be placed in some tooth care preparations.

E. rostrata, *E. viminalis* and *E. amygdalina* are the species which grows in Turkey.

- *Salvia triloba* essential oil contains 50% eucalyptol which grows in West and South West Anatolia.

- *Eucalyptus citriodora* contains oxygenated monoterpenes like citronellal (90%).

Oleum Lauri
Folia Lauri

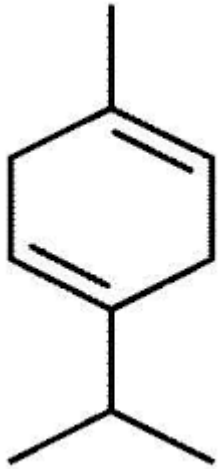
- *Laurus nobilis* (Lauraceae)
- Evergreen Mediterranean tree.
- Essential oil is obtained from leaves and fruits.
- *Laurus nobilis* leaves are our export source.
- Essential oil yield is 2%.
- 45-50% of essetial oil is euacalyptol, 30% geraniol and citronellol, 5% eugenol, methyl eugenol, and acetyl eugenol.
- Leaves also contain sesquiterpenes and isoquinoline alkaloids.

- Leaves are 5—7 cm length and 2—3 cm width, having short petiol, with a shining upper layer, glabrous.
- Fruits are 1 cm, firstly green than black, bacca type.

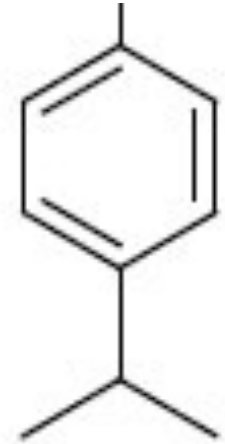
- In Turkey, there are facilities obtaining Olem Lauri. Also fixed oil is obtained by pression.
- Leaves are also exported.
- Oleom Lauri is aromatic and antiseptic. Used especialy in food industry for its conservant properties.
- Leaves are traditionally used for GI problems.

Tea Tree Oil

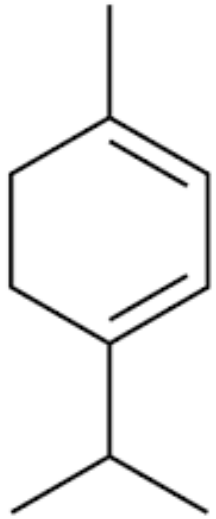
- *Melaleuca alternifolia* (Myrtaceae).
- Essential oil is obtained from leaves and branches.
- Naturally grows in Australia, South Wales.
- The major constituent of the essential oil is terpinene-4-ol. Some chemotypes has eucalyptol (60%) as major constituent. Other compounds are γ-terpinene, p-cymene, α-terpinene.



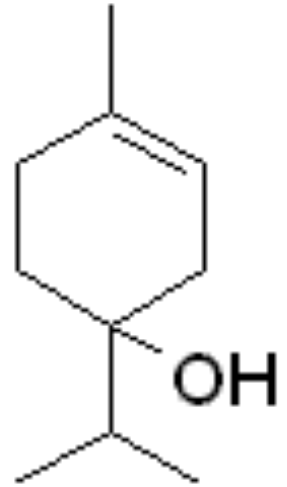
γ-Terpinene



p-cymene



α-
Terpinene



Terpinene-4-ol

- Antibacterial effect against *Staphylococcus aureus and Escherichia coli*.
- Antifungal effect against *Candida albicans*, *Aspergillus niger* ve *Trichophyton mentagrophytes* due to terpinene-4-ol.

- Antiseptic so that it is one of the main ingredients of gels, creams, lotions, personal care products, soaps etc.

- Rarely, it can cause skin irritations.

Gomenol

- *Melaleuca viridiflora* (Myrtaceae)
- Essential oil is obtained from leaves and branches.
- Naturally grows in Australia. Essential oil which is obtained from the leaves by hydrodistillation is called as "Oleum Niaouli".
- Gomenol is obtained after notralization and redistillation.
- The major constituent of Gomenol is eucalyptol (60%). Minor amount of terpineole also exists.

- Due to eucalyptol, it can be used as respiratory system antiseptic and antihelminthic.