

ESSENTIAL OIL DROGS

Monoterpene Derivative Drugs

- *Oleum Rosae*
- *Folia Menthae*
- *Flos Lavandulae*
- *Folia Salviae*
- *Folia Rosmarini*
- *Herba Absinthii*
- *Oleum Sabiniae*

***Oleum Rosae* / Oil of Rose**



Oleum Rosae, is an essential oil obtained by distillation from the fresh flowers (petals) of *Rosa damascena* (*Isparta gülü*), *R. gallica*, *R. alba*, *R. centifolia* belong to the Rosaceae family.

***Rosa damascena* is the hybrid of *R. gallica* x *R. phoenicia*.**

Although *R. centifolia* (*Mayıs gülü*), which is grown in North Africa, contains only water-soluble substances, it is used only in the production of rose water.

The chief producing countries are Bulgaria, Turkey, and Morocco

Rose oil obtains from other other Rosa species ***R. gallica* (Turkey) and *R. rugosa* (China and Japan).**

Generally, *R. gallica* is used to obtain dried roses (dried rose petals) due to its red color.

Rose oil is produced from *R. damascena* in India, but the quality of this oil is different. The main producing countries are Turkey and Bulgaria rose oil from this species. In Iran, this type of rose water is produced as well as a small amount of rose oil.

The oil is obtained **in a copper imbics-distiller by villagers** (generally it is not so expensive, low price), on the other hand, large factories have been settled to produce the huge amount of the oil of rose (it is expensive mostly).

**The rose oil is very expensive and valuable.
3000 part of flowers yield only 1 part of oil.
Or 4000 kg flowers gives 1 kg oil.**

The oil is a pale yellow, and semisolid material.

Consisting of odourless stearopten containing principally saturated aliphatic hydrocarbons (%15-20)

The alcohols are, geraniol, citronellol, nerol, and 2-phenylethylalcohol and small amount of other components.

There are 2 ways to obtain rose oil

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graph TD; A[There are 2 ways to obtain rose oil] --> B[After the ripe fresh flowers are collected in the early morning, the waiting process is called as withering for a while. In the meantime, rose flowers relax. Copper distillation unit are distilled by boiling in open fire with water. The resulting distillation product is distilled off again and the oil collected on the water is separated. The bottom part is rose water. The rose oil obtained in this way has a smell of boiler, a smell of boiled cabbage. This odor disappears over time. Very similar to Bulgarian rose oil]; A --> C[The other is a factory process. The drop put into larger boiler is subjected to hydrodistilation. 1 kg rose oil is obtained from 4000 kg roses.];
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The other is a factory process. The drop put into larger boiler is subjected to hydrodistilation. 1 kg rose oil is obtained from 4000 kg roses.

Rose oil is one of the most important and most expensive raw materials of perfume and cosmetic industry and it is produced by steam distillation method of pink oil roses.

The rose, which is gathered in May and June every year, ensures the production of high quality rose oil as a result of the contribution of the weather conditions.

- Mix up:
- Geraniol, which gives the characteristic smell of rose oil, and essential oils containing geraniol are used.
- Since Rose Oil is an expensive drug, it is mixed with other essences.
- "Geranium-rosat essential oil" obtained by steam distillation from the leaves of some *Pelargonium* species is used instead of rose oil.
- This oil contains geraniol, citronellol and phenyl ethyl alcohol and is cultivated in France, Spain, Algeria.
- "Palma-rosa" essence obtained from *Cymbopogon martini* (Gramineae) grown in India contains 75-90 % geraniol and is used instead of rose oil.

Folia Menthae (TK, EP)

Dried leaves of *Mentha piperita* from Lamiaceae family

The oil from leaves and stems in flowering stage, obtained by water-steam distillation

in English, it is known as Peppermint.

This plant is a hybrid of *M. aquatica* x *M. spicata* and is grown in southern Europe, Russia, India, China, Paraguay and the USA.

European Pharmacopoeia; *Mentha piperitae folium* and *Mentha piperitae aetheroleum* with leaf and volatile oil.

On a small scale culture of this plant grown in gardens in Adana in Turkey it has begun.

The leaves are dark green, 3-4 cm in length, 1.5 cm in width elliptic-lanceolate, with stem and teeth on the edges. Strong peppermint odour.

1-2% volatile oil.

This oil composition contains free alcohols calculated on menthol, not more than 44%, esters calculated on 4.5-10% menthyl acetate, and ketones calculated on 15-32% menton.

The structure of volatile oil varies depending on many factors, including internal and external factors. These are cultural conditions, climate changes and time of collection.

BUT!! The major compound is always MENTOL (30-40%, sometimes 50% higher).

In addition, menthol, (15-25%) menthyl acetate, menthofuran, isomentone, pulegon (young leaves are also found quickly disappear) neomentol, piperiton have been found.

The menthol has the asymmetric 3C atom (1,3,4) and thus 8 isomers.

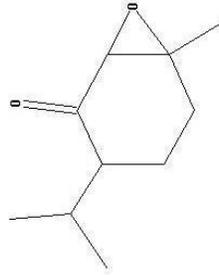
These 8 isomers refer to 4 pairs of diastereomers.

Menthol, neomentol, isomenthol, neoisomenthol.

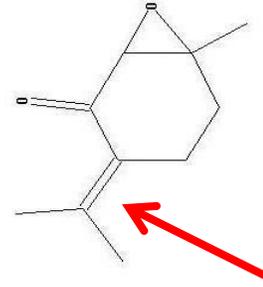
The ratio of these isomers in oil changes the quality of the oil.

The levojir is the menthol from the officinals, the polarized light turns to the left.

- piperiton oksit

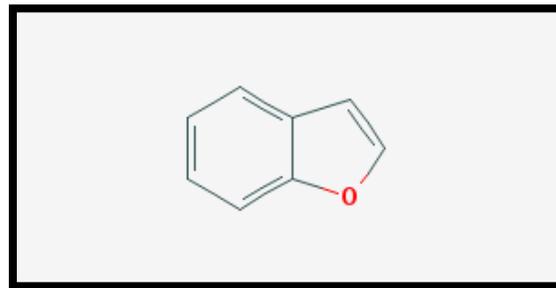


- piperitenon oksit



It can be called as a coumaron derivative, the menthofuran, just before the flowering time, is found in 1-2% in the plant.

Essential oil is both a bitter and quick resin, so if the menthol content is low, the oil quality is high.



Mentha has different species:

Japanese mint (Cormint oil): *M. arvensis*

Spearmint oil: *M. spicata*

It was cultured in USA (Oregon, Washington) .

The species that grow naturally in Turkey have 15 taxa.

The volatile oil of *M. spicata* (Spear-mint, Garden mint, Antep gentian, Curly mint) contains **40-70% (-)-carvone**.

***M. pulegium* (yarpuz) contain 80-90% pulegone .**

***M. aquatica* (Watermint, Water Mint) contain mainly menthol.**

***M. rotundifolia* and *M. longifolia* contain piperitone and piperitenone** and their oxides. These volatile oils can be reduced and converted into essential oil containing menthol.

Ziziphora tenuior, also a Lamiaceae plant, contains 87% pulegone. It is easily passed from the Pulegone to the menthol (use to obtain menthol)

***M. rotundifolia* ve *M. longifolia* are cultured in Turkey, (sold as nane).**

Piperiton ve piperitenon and their oxides.

Their odor is similar to the smell but not the menthol. (These substances are reduced to obtain menthol).

M. aquatica grows naturally, oil is rich in menthol.

Peppermint oil, 10 tons and 10 tons per year in Turkey menthol is imported.
3000-5000 tons of *M. piperita* are required.

Use of *Mentha folium*

•Symptomatic treatment of functional dyspepsia (digestive disorders, gas conditions) are traditionally used.

Also traditionally;

•As an adjunct in the treatment of painful, spasmodic colitis

•To speed up renal and digestive tract drainage
Some other local indications (oral hygiene, pain reliever, skin disease relieving itching).

Oleum Menthae-Mint Oil-Nane yağı

The essential oil obtained by distillation of water from fresh flowering branches and leaves of *M. piperita* is colorless, strongly scented, burning flavor.

The US market is largely occupied by essential oil of mentha.

The oil contain menthol, mentone and esters.

Although the essential oil obtained from *M. piperita* contains 50% menthol, the essential oil obtained from *M. arvensis* (Japanese mint, Japanese mint, red peppermint), which is tried to be cultivated in Turkey, contain 70-90% menthol and is used to obtain menthol. The menthol extracted oil is used as menthol-free mint essential oil.

There is a definite requirement that the amount of menthol in the French Pharmacopoeia should not be less than 44%.

Menton %17-35

izomenton %5-13,

Mentil asetat %2-7

limonen %1.5-7

mentofuarn %1'den az

pulegon % 1.5 ve

karvon % 2 olmalıdır.

- Toxic
- Aromatisan,
- in perfumery
- Tobacco
- In pharmacy it is given in drops against nausea. It is also a carminative (which relieves intestinal gas, relieves nausea, relieves swelling).
- Peppermint essence stomach pain, vomiting, nausea against 2-10 drops per day is used on drops of sugar. In the last years, colon syndrome has been used as a natural peppermint in the capsule opened in the bowel.

***Mentha piperita* in many forms**

The most important one is *M. piperita* var. *officinalis* forma *rubescens* commercially known as “**Mitcham Essence**”.

Mentol % 60-65 and the essential oil is the most favourite oil with its odour and smell.

Mentolum-Mentol-TF

Only one of the stereoisomers of menthol is used.

This is levo- menthol.

Menthol; is obtained from *M. arvensis var. piperascens* and *M. arvensis var. glabrata*

Artificial menthol is reduced by thymol, pulegon, piperitone or mentone.
Menthol; colorless, needle-shaped, hexagonal crystal structure, with peppermint odour
l (levojr)-menthol, 41-43 C; while racemic menthol is 32 C liquid.

Menthol; mild local anesthetic at nerve endings

Against itching; into the lotions, emulsions, pomades and creams (0.25-1%), burns and sunburns, as well as comfort for athletes' feet.

1-16% against irritation with acne, and pimples.

Menthol; in combination with camphor and eucalyptol in ointments, cough preparations, nasal spray, by inhalation (to reduce symptoms in bronchitis, sinusitis, and conjunctivitis)

Cormint oil

It is obtained from the branches of flower tops of *M. arvensis* var. *piperascens* and. var. *glabrata*

it is cultured in subtropical regions.

Culture in Japan, China (50% increase per year), N. Korea and Paraguay.

It is used as odorant in food industry.

Spermint oil

M. spicata

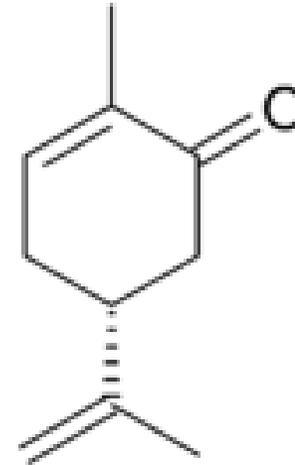
ABD cultured

After 24 h. Dried,

Steam distillation

Carvon % **55-67**

As a source of carvone.



Oleum Lavandulae ***Lavender oil***

The source is *Lavandula angustifolia* Miller (Labiatae)
(*L. officinalis* Chaix)

Originally, BP 1980, oil from this species was referred to as foreign oil to distinguish it from that of *L. intermedia* Loisel.

The second one has very fine fragrance.

France, principal producer, has been superseded by Bulgaria, the other parts come from, Russia, Australia, and other countries.

It is evergreen plant flowers (July-September)

Flowers yield about 0.5% of volatile oil.

(of course the amount varies according to the conditions)

The steam distillation have been used to obtained the oil.

Lavender, also known as medicinal lavender, true lavender, or common lavender (*Lavandula angustifolia*, *L. officinalis*, *L. vera*), is an evergreen perennial plant.

Lavender is native to the Mediterranean region (France, Spain, Andorra, and Italy), but is grown in many other countries of the world, including Poland.

The name lavender comes from the Latin verb lavo, lavare and means to wash or to clean. Lavender has been known from ancient times, as evidenced by work of Dioscorides entitled “De Materia Medica,” which praises its medicinal properties.

Lavender grows to a height of 40–60 cm and forms compact, regular clumps. The lower part of stem is woody, while the upper part is green. Lavender has linear or lanceolate leaves with curled edges and a highly branched fibrous root system. Silver-green lavender leaves are covered with tomentum, which protects them from strong sunshine, wind, and excessive water loss. Lavender flowers grow in spikes, arranged in circles (3–5 flowers per circle) in the top part of the stem. They are of pale violet color, although, varieties with white flowers (Alba and Nana Alba) and pink flowers (Rosea) have also been bred.

Lavender (*L. angustifolia*) grows on well-drained, fertile and lime soils. It grows best in full sun with wind protection. In subsequent years of cultivation, lavender may be fertilized with manure or chemical fertilizers, but care should be taken not to acidify the soil or introduce too much nitrogen, as this causes excessive gain in the green parts with a simultaneous reduction in inflorescence. In Poland, lavender is not entirely hard to frost, so it needs a good cover for the winter.

CHEMICAL COMPOSITION OF LAVENDER

Lavender (*L. angustifolia*) contains essential oil, anthocyanins, phytosterols, sugars, minerals, coumaric acid, glycolic acid, valeric acid, ursolic acid, herniarin, coumarin and tannins.

The most valuable substance isolated from lavender (*L. angustifolia*) is essential oil, found in oil glands located on the surface of the calyx, in the furrows between fine hairs. Essential oil is present in amounts from 2% to 3%. It is obtained by hydrodistillation or steam distillation; it is yellow and has an intense floral herbal lavender scent with a delicate hint of fruit and wood.

The main ones are linalool (from 9.3% to 68.8%) and linalyl acetate (from 1.2% to 59.4%).

The taxonomy of Lavanders are confusing.

The true lavender is ***L. officinalis***, yield the best oil, grow at fairly high altitude, known as «petite lavande»

At a lower altitude «lavande moyenne» less esteemed oil
«Grande lavande» ***L. latifolia*** Villers. (***L. spica* DC**)-coarser oil

«Grosse lavande or lavandin» ***L. latifolia x L. Officinalis***

Lavandin oil market is controlled by the French with Spain the principal producer.

L. stoechas (fenchone, pinocarly acetate, camphor, eucalyptol, and myrtenol dominantly)

Uses:**Cosmetic:**

Lavandula oil, is principally used in perfumery and cosmetics.

ointments

mask

Insect repellent

Pharmaceutical:

Flatulent, dyspepsia, rheumatic pains (topically), wound healing

Aromatherapy

Sedative, improve learning

Lavender essential oil has good antioxidant and antimicrobial activities and a significant positive effect on the digestive and nervous systems.

Lavender extract prevents dementia and may inhibit the growth of cancer cells, while lavender hydrolate is recommended for the treatment of skin problems and burns.

Folia Salviae, Adaçayı Yaprağı

- 3 species important
- *Salvia officinalis*
- *S. sclarea*
- *S. lavandulifolia*
- *Salvia*, oblong lanseolate
- Greenish-grey leaves
- Purplish blue flowers

Folia Salviae, Adaçayı Yaprağı (EP)

SALVIAE FOLIA, Adaçayı

It is strong special scent and hot. Dried leaves of *Salvia officinalis* grown in southern Europe.

1-2% volatile oil, 50% tuyen, 15% borneol, camphor 4.5-24.5% cineol 5.5-13%. Since Tuyen is poisoned, this drug is banned in some countries (causing convulsions and unrest). The volatile oil is antiseptic. Droge used in tea or essential oil obtained (very rare in Turkey)

The Salvia species are multi-branched, half shrub plants
Sage oblong-lanceolate greenish-gray elliptical-ovate, flowers are blue-violet color, forming triple groups on the tops of branches.

The leaves are very hairy and dull green-gray in color and soft.

Strong cineol is fragrant and bitter flavor.

From Lamiaceae fam.

The drug, carrying its characteristic elements, is easily recognized by its thickened perilla hairs near the base.

Experimentally, antispasmodic effect have been proven

The antioxidant property comes from the diterpenes and rosmarinic acid.

it is important in the preparation of foods.

The volatile oil is neurotoxic (due to the tuyen, there is this additive contribution if there is a small amount in the camphor).

Aqueous preparations have toxicity.

The officinal sage (*S. officinalis*) traditionally has digestive.

It is also beneficial for local hygiene. Hot infusions are applied as disinfectant and astringent in the mouth as a medicine. Essential oil is a strong antiseptic and also used in perfumery

- ***SALVIAE FOLIA* (EP) Tıbbi Adaçayı**
- Dried leaves of *Salvia officinalis* grown in southern Europe.

Salvia triloba (=S. fruticosa) EP

- West Anatolia

- Salvia triloba* (=S. fruticosa)

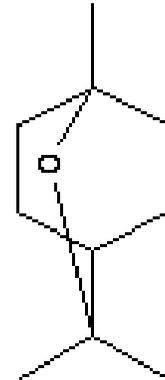
- % 3 essential oil, **% 50 1,8-sineolden.**

- Elma yağı**

- This oil, known as apple oil, is drunk by dripping in water as a diuretic, carminative, and urine enhancer.

- Bu yağa "elma yağı" denmesinin sebebi bitkinin bazı dallarında elmaya benzer esmer-yeşil renkli mazıların bulunmasıdır.**

Sage is one of Turkey's major export products.



- *Salvia triloba* (= *S. fruticosa*) -elma yağı
- *The most important export product from western Anatolia.*
- ***S. triloba*, major compound is cineol %70, kafur, borneol, terpineol %7 kadar tuyen. Have strong odour.**
- Inflammatory
- Carminative,
- Diuretic
- impede sweat
- in mucosa antiseptic and astrenjan
- strengthening

S. sclarea (Misk Adaçayı),
linalol (% 10-20) linalil asetat (% 7-70)
A Diterpenoid siklareol (% 70).

Türkiye’ de yetişen *Salvia* tür sayısı 89 olmasına rağmen hepsi kokulu değildir, bu nedenle hepsi kullanılmaz.

S. triloba (= *S. fruticosa*) (Anadolu Adaçayı) % 3 Uy % 50 ökaliptol (Elma yağı)

Batı ve güney Anadolu’da

S. cryptantha (tapir) % 20-30 ökaliptol, % 17 geranil asetat, % 15 kafur, % 7 borneol taşır

S. aethiopsis (Yünlü adaçayı)

S. dichroantha (Kutnu)

S. forskahlei

S. multicaulis

S. sclarea (Ayı kulağı)

S. tomentosa

S. verbenaca

S. viridis

S. virgata

S. tomentosa ve *S. aramiensis*’ de aynı amaçla kullanılır. Ancak ülkemizde özellikle Akdeniz ve Ege bölgesinde yetişmektedir.

Folia Rosmarini, Biberiye/Kuşdili Yaprağı

Rosmarinus officinalis (Labiatae) is the dried leaves of the plant.

The plant is 50-100 cm long, with a bushy appearance, with no leaves in winter, with pale blue flowers, perennial

It grows wild in southern Europe and the Mediterranean region.
It is found in North Africa.

1-3 cm in height; 2-4 mm wide; the lower face is dark green with the open upper face. Linear shaped, curved edges to bottom surface.

Anatomically there are abundant amounts of plum and feathers of Labiatae type. The middle vein is very prominent.

Odor is like camphor.

According to the pharmacopoeia, UY should not be less than 1.2%, 1-2.5% of the oil will be carried.

15-30% of camphor, 15-30% of cineol, 10-25% of α -pinene and borneol.

The amount of water-soluble extract should not be less than 15%

More than 3% of phenolic acid is transported, provided that it is calculated on the basis of rosmarinic acid.

The French Pharmacopoeia has two types.

Spanish type 18-26% α -pinene, 8-12% camphor

Morocco and Tunisian type α -pinene 9-14% and camphor 5-15%

Because it is thought that memory and concentration are strengthened;

The students of Anatolian Civilizations (Ancient Greek) drank tea and use its garland.

Drog has coloretic effect (confirmed by animal experiments).

Its essential oil has antibacterial and antifungal, diüretic

Toxic

Drog is traditionally used for the treatment of gastrointestinal system symptoms due to the effects of choloretic and collagoggue.

It is useful as topical oral hygiene and cold.

In addition, antiviral and antioxidant effects (derived from rosmarinic acid and diterpene o-diphenols) have been used predominantly against headache, but today, It is included in the composition of hair preparations.

According to Commission-E, it is used in moderate gastrointestinal problems (orally) and externally in rheumatic pain.

Extracts are used as antioxidants and preservatives in food technology.

Herba Absinthii, Pelin Otu (EP)

Artemisia absinthium L. (Asteraceae) flowering and leafy branches; 40-120 cm high, feathered, strong scented and used as drug

North, Central and South Anatolia.

Essential oil, is blue-green color with a ratio of 0.2-0.6%. In the old records it is stated that the tuyo is the major compound.

It has been understood that the studies were carried out in a-osimen and b-tuyo.

sesquiterpen lactone absintine, artabsin

In the past, anthelmintic, antipyretic, antibacterial,

It was supposed to be emenagogue effects. There are no pharmacological studies on this effect.

People use it as an appetizer.

Overdose is a long-term use causes digestive and urinary system diseases.

It is used in Germany as an appetizer and indigestion.

It has been reported that neurotoxicity has progressed from the head.

Alcoholism-like symptoms are observed when the liquor is tested 65-75 times.

This is called absinthism.

Oleum Sabinæ

Juniperus sabinæ (Cupressaceae) Central Europe

Black juniper (It is found in the Black Sea

Sabinol acetate and sabinol, sabinen and sesquiterpen cadinene..

Use as a diuretic

Emmenagogue

Abortive

A poisonous drug, the oil is not use internally.

It externally participates in the treatment of warts in the form of pomade or solution, and the medicines for hair removal.

- *Juniperus communis*; diüretik, karminatif, hazım problemlerinde ve antiromatizmal olarak kull. (diyabetlilerde glukoz düzeyini artırır) meyvalar kull
- *J. nana* (cüce ardıç)
- *J. oxycedrus* (ardıç katranı)
- *J. foetidissima* (kokar ardıç)
- *J. excelsa*

J. drupacea Lab. in Taurus ve Amanos mountains

This kind of tree is a dioecious tree that does not bear leaves in winter. The cone is 20-25 mm in diameter before the green, then the brown color.

As a result of boiling young cones in mountain villages with water, an extract called “andız molasses” e.e. This extract is used as a fortifying and aphrodisiac because of the sugars and vitamins it contains.

Toz edilmiş kozalak bal ile karıştırılıp dahilen kurt düşürücü olarak alınır.

Antihelmintic

Andız katranı (*Pix Juniperi drupaceae*)

The burning of the branches and trunk parts of the the plant, It is a special, pungent liquid with a black syrup has been obtained.

Andız katranı

It is used alone for respiratory and urinary tract diseases or by mixing it with black seed oil.