AMBRA FLAVA

- *Pinus succinifer* (Pinaceae) fossilized resin.
- Baltic beaches.
- Yellow and good smelling resins.

- Kehribar contains diterpenic resin acids.
- Sucsocsiabietic acid.
- Also contains resens and some essential oil.
- Previously used as antispazmodic and stimulant but not used for medicinal purposes anymore.

MASTIX

- *Resin of Pistacia lentiscus* var. *latifolia* (Anacardiaceae)
- Aegean region, Mediterranean, Greece Islands, Çeşme etc.
- 1-3 m height, evergreen tree with greenish red flowers.
- Resin is obtained by vounding in V shape. Resin flows in 2 hours after application, and hardens in 2 weeks. Some of the resin drops to the ground, the others stay on the tree. Generally the resin on the tree is used for medicinal purposes. Greece is exporting 250000 kg mastix in a year.

MASTIX

- Mastix is a pale yellow, hard, transparent with special odour and taste. Resin has diterpenic resin acids.
- Masticodienic and oleanolic acid.

- Mouth antiseptic
- Used in perfumary.
- Preparing drinks and candies.

RESINA PODOPYLLI

Resin of *Podophyllum peltatum* (Berberidaceae). North America herbaceous plant. Resin is obtained from rhizomes.

Rhisomes 0.5—1 cm diameter,
rhizomes are extracted with 90% ethanol and precipitated by adding acidic water. Dried under 30°C. Pale brownish or greenish yellow resin is obtained. Resin yield is **2-8%**.

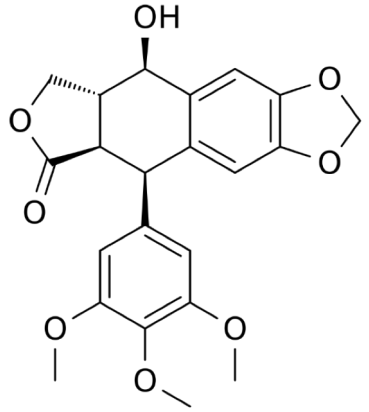
Main constituent of drug is podophyllotoxin which is a tetrahydronaphtalene derivative. α-peltatin and β-peltatin are the other constituents which do not contain hydroxyl on the 1st C atom.

Podophyllotoxin ratio in the resin is 20%.

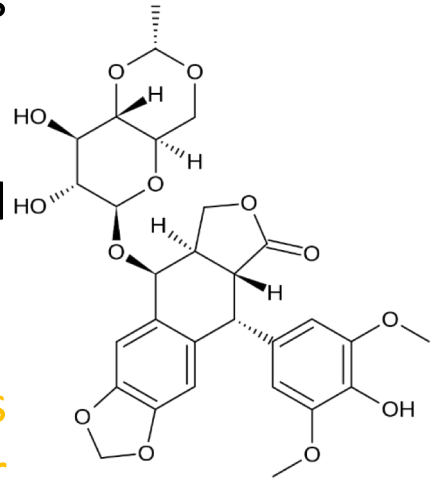
Demethyl and deoxy derivatives of podophyllotoxin are also exist in the drug. One of these **etopozit (VP-16)** is a cytotoxic compound especially used in testicular carcinoma. It is a mitotic inhibitör, has antitumoral property. Mostly used for genital papilloma treatment.

Podophyllotoxin has purgative, antirhomatic, antiviral and antitumoral activities.

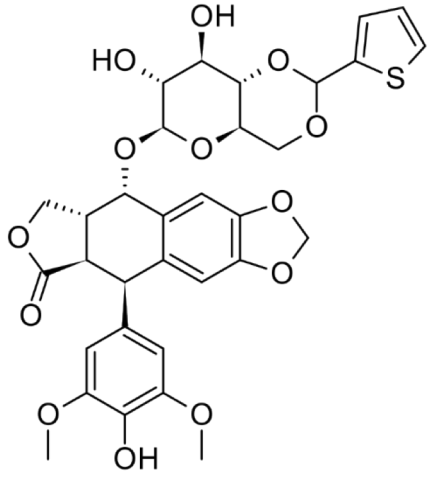
Etoposide is used as a form (iv or oral) of chemotherapy for cancers such as Kaposi's sarcoma, Ewing's sarcoma, lung cancer, testicular cancer, lymphoma, nonlymphocytic leukemia, and glioblastoma multiforme.



Podophyllotoxin



Etoposide



Teniposide

HERBA CANNABIS

The aerial parts of *Cannabis sativa* (Cannabinaceae). In Turkish, the plant is called as "kendirotu", or "esrar otu".

The well known three varieties are *C. sativa* var. *vulgaris*, *C. sativa* var. *sativa*, *C. sativa* var. *indica*.

Dioic plant, so male and female organels are in different plants.

FOR MEDİCİNAL PURPOSE FEMALE PLANT İS USED.

The plant grows natively in Asia, mainly in Middle East. It is cultivated in India, Africa and America and cultivated in Turkey to obtain fiber.

It is known that the resin is mainly in the female plant. The resin is named as "esrar", "marihuana" and "haşiş" acoording to the obtaining process. Resin is found in the glandular trichomes of bracts, leaves and flowers.

Beam reaction:

Cannabis sativa resin can be dissolved in pethrolum ether easily. After dissolving in this solvent, solvent is evaporated. The residue is treated with KOH. Purple-red colour shows the presence of resin.

The resin amount increases in hot climate.
The resin amount is 15-20%.

The plant is mixed with tobacco in USA, and called as Marihuana. Consumed by smoking.

In Colorado, residents can grow their own marijuana, but no more than five plants, according to state law. (Associated Press)

Resin contains resinols.

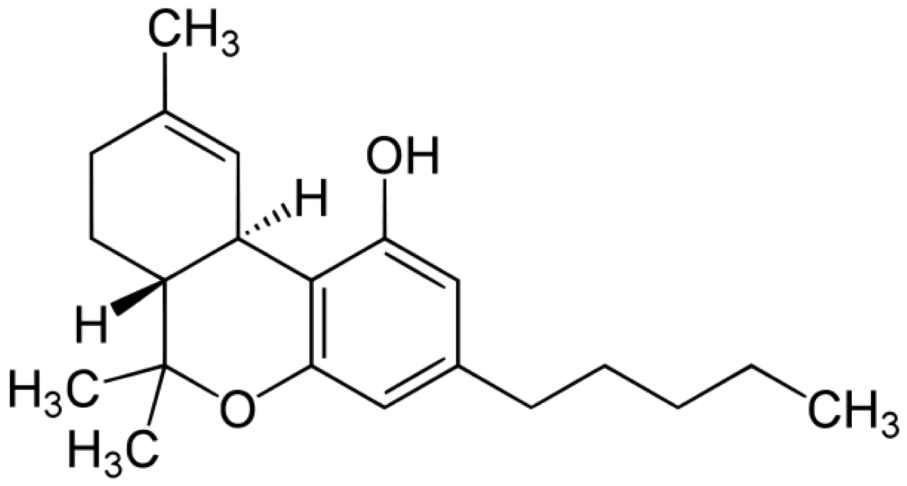
Tetrahydrocannabinol (THC) is the most effective one.
THC carries pyran ring, and it’s formed by conversion of cannabidiolic acid and cannabidiol. The pyran ring is open so cannabidiol and cannabidiolic acid are less active. The oxidized product of THC is cannabinol which is again less active.

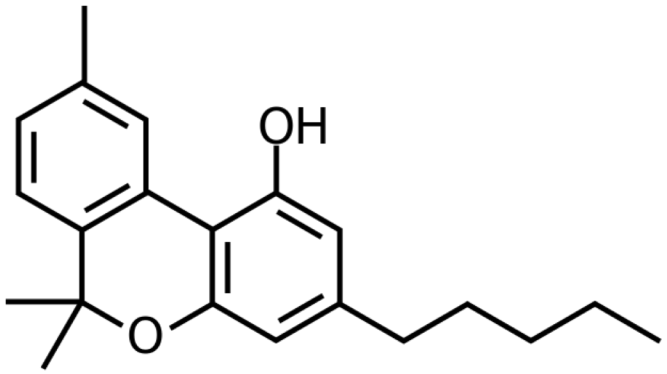
These compounds are called as cannabinoids and more then 60 cannabinoids identified.
Cannibene a sesquiterpenoid, cannabisativine an alkaloid and some flavonoids are also described.

Herba Cannabis and «esrar» are used as an analgesic against headache and stomachache. It was used previously to prevent nausea and vomitting. Because of its strong addictive charactersitic it is not generally used for medical purposes.

It’s forbidden to grow up Cannabis to obtain esrar in Turkey and in many other countries.

Cannabis sativa is used for obtaining fiber, and the fruits are used as bird food.





THC (TetraHydroCannabinol)) —O2→ Cannabinol

STRYAX LIQUIDUS

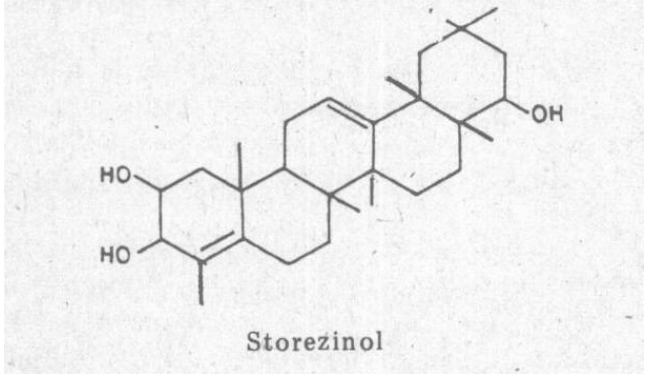
Balsam obtained from *Liquidambar orientalis* (Hamamelidaceae).

Styrax Liquidus is mostly obtained in Turkey.
Liquidambar orientalis is 8—10 m trees. It grows naturally in Muğla Marmaris, Fethiye, Köyceğiz, Antakya and Rhodes Island.

Styrax Liquidus is produced for 8 months starting from March. The balsam takes place in secretory cells. After wounding balsam forms pathologically.

Styrax Liquidus consists of resin, essential oil and free sinnamic acids. **30-40%** of balsam is resin which is called storesinol. Storesinol is a triterpenic compound containing hydroxyl groups.

Styrax Liquidus is used internally as respiratory antiseptic. Externally it is used for wound healing, antiparasidic and antiseptic. Also used in perfume industry for odour fixing.



Storezinol

BALSAMUM TOLUTANUM

Myroxylon balsamum var. *genuinum* or *Toluifera balsamum* (Leguminosae) cultivated in South America, Colombia, Venezuala, Antilles. Balsam is obtained from the plant by wounding in V shape.

Balsamum Tolutanum is initially viscose and fluent, later it hardens and takes a dark red-brown colour. The resin of the balsam is sinnamic acid esther of resinotannol and 70-80% of the balsam. Volatile part is 7-10% of the balsam and the main constituent is benzyl benzoat and little amount of vanilin exists. Free acids are 12-15% of the oleoresin and they are benzoic and sinnamic acids.

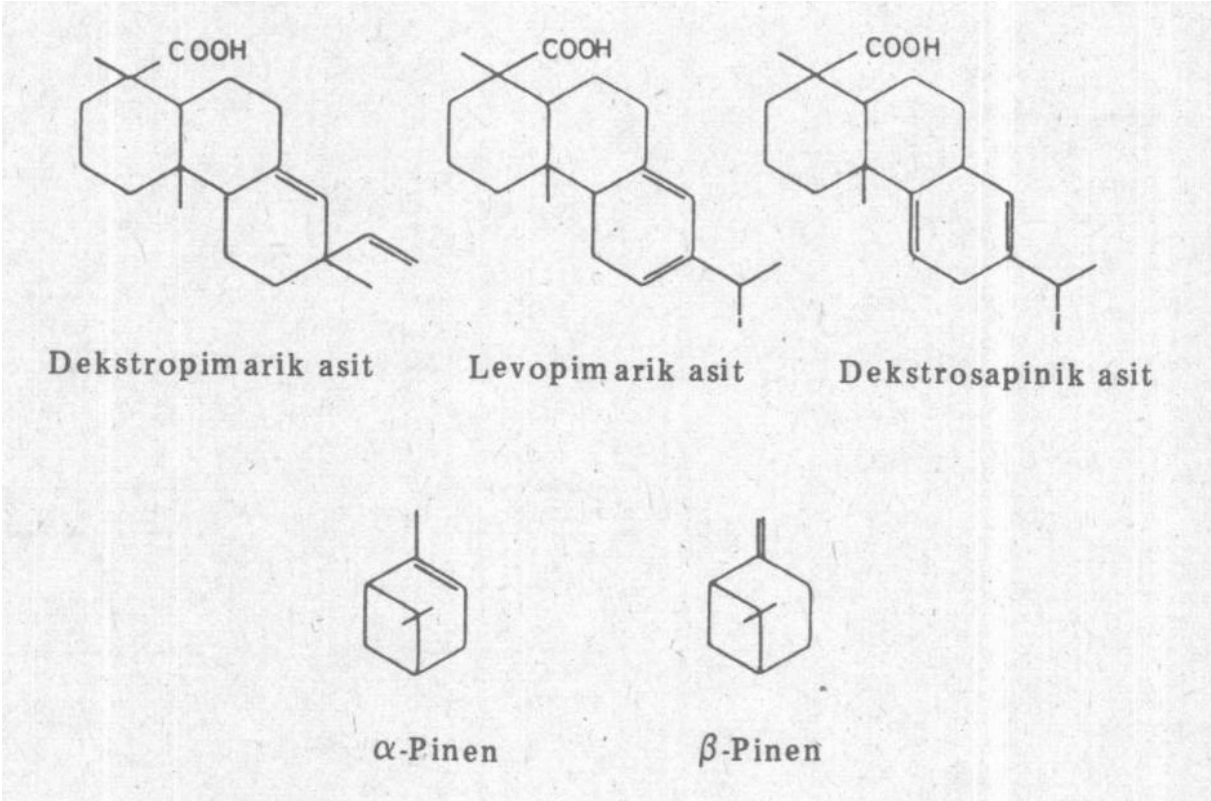
Balsamum Tolutanum is expectorant.
Respiratory system antiseptic.
Takes place in cough syrups.

TEREBINTHINA

Oleoresin obtained from various *Pinus* species such as
P. pinaster (*P. maritima*) in France;
P. palustris in USA;
P. halepensis in Italy, Spain and Greece;
P. nigra var. *Austriaca* in India;
P. longifolia in Pakistan.

In Turkey, (in South and South West Anatolia) *Pinus brutia* is the source for obtaining terebinthina. To obtain terebinthina the cork layer of the tree is removed, after wounding, the flowing terebinthina is taken. 1-1,5 liter of terbinthina is gained from one tree.

Terebinthina consists of 70% resin and 30% essential oil. Resin carries diterpenic resin acids, also 5% is resens. Most of the essential oil is composed of alpha and beta pinene. Resin asids are dekstropimaric, levopimaric (reten derivative), dekstrosapinic acids (reten derivative). Dekstropimaric acid is an unsaturated pimantrene derivative diterpenic acid.
Terebinthina is expectorant and urinary antiseptic.
It’s especially used for obtaining colophony.



COLOPHONIUM

The residue obtained after distillation of Terebinthina.
The resin is yellowish, broken surface is concoidal, can easily be powdered.
It melts at 85°C. Various types exist such as VVVV, WG, M, N, K, 1, X, Y, AA, 3A, 5A especially acoording to its transparency.

Colophonium carries diterpenic resin acids such as **abietic acid**, dekstrosapinic and dekstropimaric acids.

Colophonium is hemostatic.
Used to prepare pomads.
Used in paper, soap and match industry.

PIX

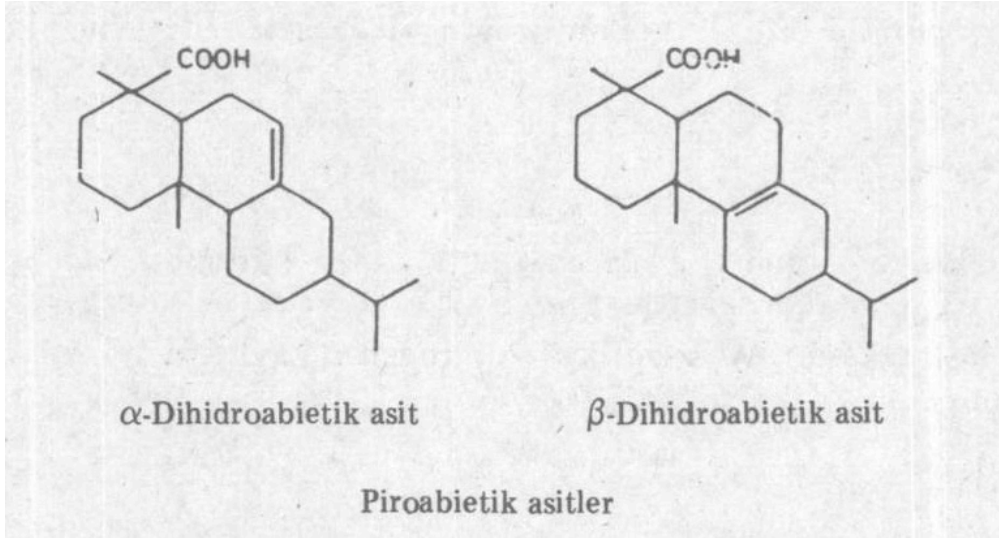
Pix is a product obtained by distillation of Coniferae woods in dry manner. Pix has two layers, upper part is fluent and called as **«pirolinyö»** and contains acetic acid, acetone and methanol. Dark coloured, d>1 lower layer is called as **«katran**». The pix yield is 10% of the wood.

PIX LIQUIDA

Pıx obtained from Pinus sylvestris (Pinaceae) wood. Pix Liquida slightly soluble in water and gives acidic reaction. It has strong odour, black and semi liquid.

15-20% of the pix is pyroresinic acids especially pyroabietic acid. Also, furfual, pyrocatechol, benzene, toluen and naphtalen exist.

Antiseptic.
Eczema treatment.



PIX JUNIPERI

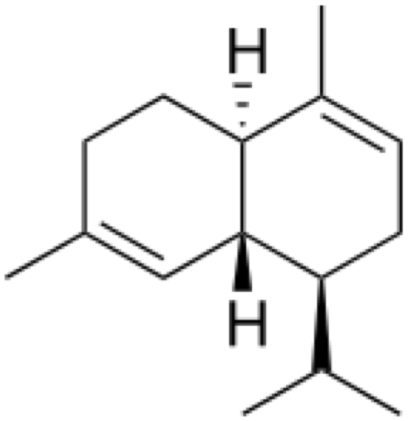
Pix obtained from *Juniperus oxycedrus*, growing natural in Anatolia and called as «katran ardıcı».

It is homogenous, black, and has bitter taste and special odour. Guaiacole, creozole and cadinene are the other constituents. It is abietic acid free and does not give abietate reaction.

Antiseptic.

Eczema treatment.

α-cadinene



LATEX

Natural emulsions which has milky apperance and obtained from the source by wounding.

CAOUTCHOUC

Caoutchouc is dried milk of plants from Euphorbiaceae, Compositae, Apocynaceae and Asclepiadaceae families.

Hevea brasiliensis (Euphorbiaceae) is the main caoutchouc source. 90-95% of World caoutchouc requirement is from this tree. *Hevea brasiliensis* is naturally growing in Brasil and cultivated in SouthEast Asia.

30-40 % of latex is caoutchouc. Latex is coagulated using acetic and formic acids to obtain caoutchouc. Vulcanization of caoutchouc with sulphur at 135-160°C results formation of rubber. Coutchouc containing 12-20% sulphur is named as rubber. If the sulphur ratio increaeses to 30% ebonite forms.