

OLEUM PAPAVERIS, HAŞHAŞ YAĞI, Opium oil

- *Papaver somniferum* (Papaveraceae) varieties are used to produce opium oil
- Cultivated in Iran, India,
- Jugoslavia and Anatolia
- Seeds contain fixed oil as
 - ---47-51%
 - By cold expression---25% fixed oil is produced

OLEUM PAPAVERIS, HAŞHAŞ YAĞI, Opium oil

- Hot expression is used for
- industry-----
- Opium oil is rich in unsaturated fatty acids
- Oleic acid and linoleic acid glycerides are found mainly
- Stearic, Palmitic acid glycerides are other constituents
- Used as constituent of some galenic preparations

OLEUM LINI (TK), KETEN TOHUMU YAĞI, Linseed oil

- *Linum usitatissimum* (Linaceae) seeds oil
- Cultivated in India, Egypt, Canada, Brasil, Europe and Anatolia
- Reddish brown colour
- Special odour
- Drying fixed oil
- “Bezir oil” other Turkish name

OLEUM LINI (TK), KETENTOHUMU YAĞI, Linseed oil

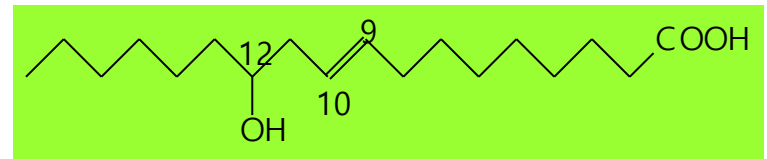
- Seeds -----35-45% fixed oil
- Constituents;
- Oleic (19%), Linoleic (15%), Linolenic acid (52%)
(Unsaturated)
- Myristic, Palmitic, Stearic acid (Saturated)
glycerides
- Laxative
- Linolenic acid---Vitamin F activity---used for skin
diseases

OLEUM RICINI (TF) (EP), Castor oil, HINTYAĞI

- *Ricinus communis* (Euphorbiaceae) seeds
- Native country is India and grows in Africa, south America, east Asia and Mediterranean
- Cultivated in India, Brasil, south and middle America, south Europe and south parts of the United States
- 2 variety;
- Tree with big seeds
- Herbaceous with small seeds

OLEUM RICINI (TF) (EP), castor oil, HINTYAĞI

- **Seed (endosperm)
fixed oil by
expression --30%
yield**
- **Fixed oil contains**
- **Ricinoleic acid (12-
hydroxy oleic acid)
(90%)**



OLEUM RICINI (TF) (EP), castor oil HİNTYAĞI

- Stearic acid
- Dihydroxystearic acid
- Castor oil---purgative
- After refined, precipitation of the toxic proteins, fixed oil can be used
- Sodium-salt of risinoleic acid: ----purgative
- In industry used as Jet fuel and brake fluid
- Used in dye and varnish industry

OLEUM RICINI (TF) (EP), castor oil, HINTYAĞI

- Methyl risinoleic acid-----undecylenic acid
- Undecylenic acid---polymerisation---
"Rilsan" obtained and used in yarn and
fabric production, textile industry
- RICILAKS and RICIPAN are the
preparations used for their purgative
effects

OLEUM LAURI, Daphne oil, DEFNE YAĞI

- *Laurus nobilis* (Lauraceae) fixed oil produced by expression of fruits mesocarp
- Widely distributed in Turkey, North, west and southwest parts of the Anatolia
- Fruits are berry
- Ripe Fruits are black ,
- Containing one seed,
- Wrinkled after drying

OLEUM LAURI, Daphne oil, DEFNE YAĞI

- Mesocarp contains fixed and essential oils,
- Therefore pulp is subjected to water distillation to obtain essential oil primarily
- Then by expression fixed oil is produced
- Yield 25%
- Fixed oil is hard in room temperature and yellow because of its chlorophyll content

OLEUM LAURI, Daphne oil, DEFNE YAĞI

- Fixed oil contains
- Oleic acid, Linoleic acid (unsaturated)
- Lauric acid, Palmitic acid (saturated) glycerides

- Usage;
- As antirheumatic
- Against Parasites
- To strengthen of the nails
- Soap industry

OLEUM LAURI, Daphne oil, DEFNE YAĞI

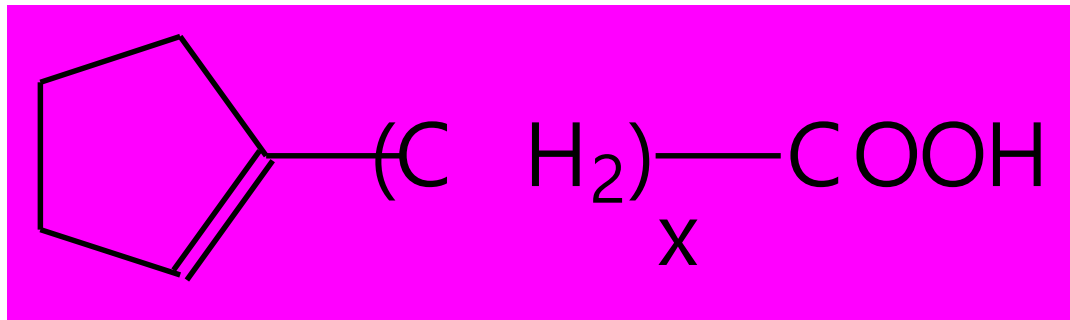
- **Factory in Mersin in Turkey,**
- **Essential oil obtained from the leaves**
- **Fixed oil produced from the fruits**
- **Fixed and essential oils of the daphne are exported**

OLEUM CHAULMOOGRAE, Hydnocarpus oil, (OL. HYDNOCARPI) (TF)

- *Taraktogenos kurzii*
 - *Hydnocarpus* sp. Ripe seeds are used for production of the oil
 - Plant grows in India and south east Asia
 - 15-20 m. length trees
 - Hydnocarpic acid
 - Chaulmoogric acid
 - Alepric acid (20 C)
 - Alepronic acid (10 C)
- glycerides

OLEUM CHAULMOOGRAE, Hydnocarpus oil (OL. HYDNOCARPI) (TF)

- Fatty acids are bactericidal, especially against bacteria resistant to acid
- *Mycobacterium leprae*
- *M.tuberculosis*
- -COOH functional groups replaced at symmetry axis is important for their activities. Cyclopentenic structure is not related activity
- Double bond placed at five member cycle induce toxicity

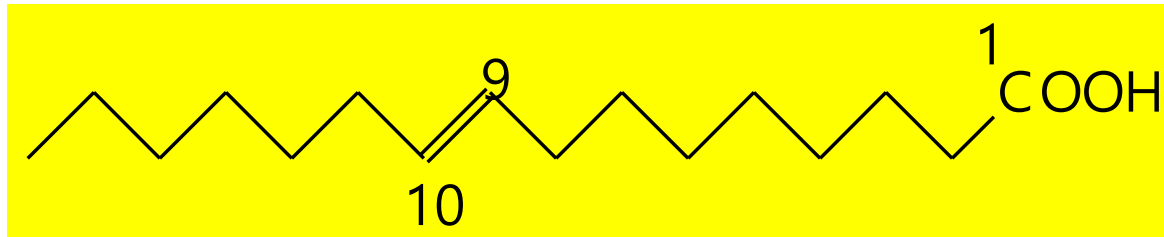


OLEUM CHAULMOOGRAE, Hydnocarpus oil (OL. HYDNOCARPI) (TF)

- Therefore they are used after hydrogenation of the double bond
- These fatty acids are insoluble in water
- Ethylester derivatives or Sodium or potassium salts are prepared for parenteral solutions
- Sodium or potassium salts are selected for I.V. usage
- Dihydrochaulmoogric acid diethyl ester is used for -- subcutaneous and I.M. injection
- Fixed oil is used for oral administration
- Fixed oil and fatty acids are useful for treatment of lepra

OLEUM MORRHUAE (OL. IECORIS ASELLI) (TF), Cod-Liver oil, MORİNA BALIKYAĞI

- *Gadus morrhua* (Gadidae), fresh livers are used for production
- These species live cost of Sweden, Norway, Iceland and Ireland
- Constituents;
- Oleic acid (70%), Palmitic acid (20-23%)
- Zoomaric acid (Palmitoleic acid)



OLEUM MORRHUAE, Cod-liver oil

- Fatty acids contain 4 or 5 double bonds;
- Eicosapentaenoic acid(20 C)
- Arachidonic acid (20 C)
- Clupanodonic acid (docosopentaenoic acid) (22 C)
glycerides
- Vitamin A and D in unsaponifiable part
- Medicinal fish oil contains---255 ug (85 U) vit D/g

OLEUM MORRHUAE, Cod liver oil

- In the relief of rheumatic pain, joint and muscle stiffness, against bone diseases (rachitism) and as vitamin for treatment of weakness
- Morhuic acid, a fatty acid mixture and its sodium salt is used for treatment of varicosis as IV

ADEPS SUILLUS (TK) (EP), (AXONGE) (LARD), DOMUZYAĞI, Lard

- *Sus scrofa var. domesticus* (Suidae), hog abdominal fat
- White and like ointment
- Melting point 34-42°C
- Nonrancid odour, sweet taste
- Insoluble in water
- Soluble partly in alcohol
- Soluble in apolar solvents

ADEPS SUILLUS (TK) (EP), (AXONGE) (LARD), DOMUZYAĞI, Lard

- **Constituents;**
- **Oleic acid (60%)**
- **Myristic acid**
- **Palmitic acid**
- **Stearic acid triglycerides**
- **Excipient for ointment**
- **To prepare blisters**
- **Turkish Codex (T.K.)**
- **To prepare Karakavak Ointment and Mercury ointment**
- **Cotton oil, starch, paraffin and powder can be used for adulteration**

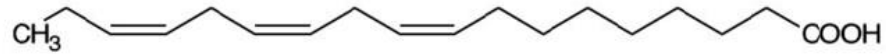
Essential Fatty Acids

- For skin and hair health
- Lowering effect on blood pressure
- To prevent arthritis
- Cholesterol and triglycerides lowering effect
- Against arteriosclerosis
- To prevent cardiovascular diseases
- Eczema
- Psoriasis
- Candidiasis treatment

Essential fatty acids

- Omega-3 fatty acid: α - Linolenic acid, eicosapentaenoic acid (EPA)
- Cod-liver oil
- Plant derived fixed oils (Rapeseed oil, walnut oil)
- Omega-6 fatty acid: Linoleic acid, γ -Linolenic acid

Omega-3 fatty acids



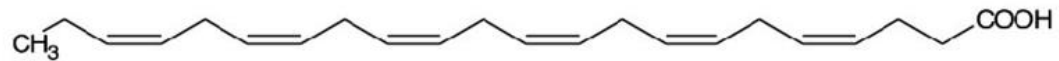
ALA: α -Linolenic acid

C18:3 n-3



EPA: Eicosapentanoic acid

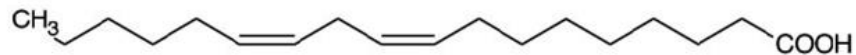
C20:5 n-3



DHA: Docosahexanoic acid

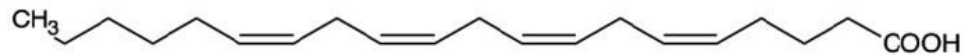
C22:6 n-3

Omega-6 fatty acids



LA: Linoleic acid

C18:2 n-6



AA: Arachidonic acid

C20:4 n-6

OLEUM HELIANTHI, AYÇİÇEK YAĞI, Sunflower oil

- *Helianthus annuus* (Compositae), ripe seeds by expression
- Widely cultivated
- Constituents;
- Seeds contain fixed oil as ----35-40%
- Oleic acid---15-20%
- Linoleic acid-----65-70%
- Linolenic acid less than 1 %

OLEUM HELIANTHI, AYÇİÇEK YAĞI, Sunflower oil

- Myristic acid---0.1%
- Palmitic acid----6-6.5%
- Stearic acid-----1.5-4%
- Iodine value= 125-136
- Usage:
- As a food
- Cosmetic preparations
- Lipstick, oil for body and bath
- Sun protective lotions
- Hydrogel against sunburn and burn

OLEUM HELIANTHI, AYÇİÇEK YAĞI, Sunflower oil

- **Export product, especially after refined**
- **Soap production**
- **Carrier in aromatherapy**
- **In dye industry to produce alkali resin**

OLEUM HELIANTHI, AYÇİÇEK YAĞI

- Oleic-type sunflower oil: The triglycerides of which contain not less than 80% oleic acid. Their dietary oil is more heat resistant than the classic linoleic type sunflower oil.
(40%)

OLEUM MAYDIS, MISIR YAĞI, Corn Oil

- *Zea mays* (Gramineae)
- During the starch preparation process, separated embryo
- expression resulted to obtain fixed oil, after refining can be used
- Yield 2 %
- Constituents:
- Oleic acid----19-49%
- Linoleic acid---34-62%
- Linolenic acid----1%
- Palmitic acid----8-12%
- Stearic acid---2.5-4.5%
- Myristic acid---- 0.1-1.7%

OLEUM MAYDIS, MISIR YAĞI, Corn oil

- Unsaponifiable part (1-3%) contains:
- γ -tocopherol 0.1 %
- Steroids
- Waxes (Myricyl and ceryl alcohol)
- Iodine value= 110-130
- Used to balance serum cholesterol level
- As a food
- Margarine preparation

OLEUM MAYDIS, MISIR YAĞI, corn oil

- **As Pharmaceutical agent;**
- **Excipient for preparations of parenteral solutions**
- **Diet supplement which contains 67% of corn oil with high calories**
- **As Enteral nutrition**
- **Production of ENSURE and other preparations**

SOYA YAĞI, soybean oil

- *Glycine soya* (Leguminosae), expression of ripe seeds
- Constituents;
- Fixed oil ---20%
- Oleic acid---19-30%
- Linoleic acid---40-60%
- Linolenic acid---4-11%
- Palmitic acid---7-14%
- Stearic acid---1.5-5.5% glycerides
- Free fatty acids-- >1%
- Lecithin (phospholipid)
- Iodine value= 127-138

SOYA YAĞI, soybean oil

- Refined soybean oil is deodorized and filtered
- At 0°C the soybean oil should be clear after 16 hour
- As a food
- Production of Margarine
- Used together with olive oil
- Used to produce soap and wax
- Used production of dye, varnish, polish, waxcloth and ink for printer

SOYA YAĞI, soybean oil

- Used as a source of lecithin. Lecithin is used for cholesterol and lipid metabolism diseases
- Unsaponifiable parts contain steroids such as stigmasterol, used as precursor for hormone semi-synthesis

OLEUM RAPAE, KANOLA YAĞI, rapeseed oil

- The varieties which erucic acid level is lower than 2% is used to production of rapeseed oil
- Canola---commercial name
- "Kolza"----*Brassica napus var.oleifera* (Cruciferae) . And cultured variety of *Brassica rapa* are the sources.
- Oleic acid---61%
- Linoleic acid ---21%
- α -Linolenic acid---11%
- Vit. E

OLEUM RAPAE, KANOLA YAĞI, rapeseed oil

- As a food and diet
- Oleic acid induce decreasing ---serum cholesterol level
- α -Linolenic acid induce decreasing ---serum triglycerides—platelet aggregation
- Vit E---antioxidant

OLEUM RAPAE, KANOLA YAĞI, rapeseed oil

- **Used in skin preparations**
- **Moisturizing and emollient**
- **Protective against irritation**
- **The remain parts after oil production is used as forage**

OLEUM GOSSYPII, PAMUK TOHUM YAĞI, Cottonseed oil

- Cottonseed oil is expressed from the seeds of *Gossypium* sp. (Malvaceae)
- Production:
- Under pressure and hot the obtained product is reddish, blurry and intense. Refined oil should be used. For this purpose filtration, decolorization and winterization should be applied.
- Pale yellow, odourless fixed oil is obtained with sweet taste.

OLEUM GOSSYPII, PAMUKTOHUM YAĞI, cottonseed oil

- Cold expressed oil contains gossypol which is toxic compound should be removed by alkali treatment
- The yield of cottonseed oil --30%.
- Constituents;
- Linoleic acid---45%
- Oleic acid----30%
- Palmitic acid---20%
- Myristic acid--- 3%
- Stearic acid---1%
- Arachidic acid---1% glycerides

OLEUM GOSSYPII, PAMUKTOHUM YAĞI, cottonseed oil

- **Excipient for parenteral solutions**
- **Hydrogenated and used instead of lard**
- **Liniment and ointment preparation**
- **Soap industry**
- **As a food**

OLEUM CORYLI, FINDIK TOHUM YAĞI, Hazelnut oil

- *Corylus maxima* (Corylaceae) expression of ripe seeds in cold
- Seeds contain 50% fixed oil
- Constituents:
- Oleic acid----75-81%
- Linoleic acid---8-18%
- Palmitic acid---5-6%
- Stearic acid---1.5-3.5%
- Arachidic acid---trace amount
- Linolenic acid (some species)
- Vit. E
- Sitosterol
- Fe

OLEUM CORYLI, FINDIK TOHUM YAĞI, Hazelnut oil

- As a food
- Instead of olive oil in treatment
- Pharmaceutical industry and perfumery
- Astringent and used in skin preparations and for massage
- Carrier fixed oil in aromatherapy
- Soap production
- 100 kg fixed oil resulted in---150-155 kg soap

OLEUM CORYLI, FINDIK TOHUM YAĞI, Hazelnut oil

- Fixed oil can be mixed by grapeseed oil and sunflower oil
- Should be kept in cold and dark as well as tight head drum.
- Without opening can be kept for one year
- In Turkey ;
- *Corylus maxima*
- *C.avellana*
- *C.colurna*
- *C.pontica* species grow naturally.

EVENING PRIMROSE OIL (EPO)

- *Oenothera biennis* (Onagraceae) seeds fixed oil.
- Grows in Europe and north America
- Fixed oil ----14%
- Constituents;
- Cis Linoleic a.---%70
- Cis γ -Linolenic a.-----%2-16
- Oleic a.---%5-25
- Palmitic a.---%7
- Stearic a.-----%3

EVENING PRIMROSE OIL (EPO)

- Usages:
- Source of essential fatty acids in diet
- Precursor of prostaglandins
- Atopic eczema
- Psoriasis
- PMS (Premenstrual syndrom)
- Multiple sclerosis
- Hypercholesterolemia
-

EVENING PRIMROSE OIL (EPO)

- Diabetic neuropathy
- Rheumatoid arthritis
- Can be used with oil, milk and other liquids
- Roots of the plant can be also used as a food
- Contraindication: Patients used phenothiazine with schizophrenia and epilepsy diseases

OLEUM COCOIS, COONUT OIL, BÜYÜK HİNDİSTAN CEVİZİ YAĞI

- *Cocos nucifera* (Palmae) seeds endosperm expressed to obtain fixed oil
- Semi-drying oil
- Melting point=20-24°C
- Iodine value= 7-11
- Saponification value is high.

- Constituents: Saturated fatty acids (80-85%)
- Lauric a. (12C)----43-53%
- Myristic a. (14 C)---15-21%
- Palmitic a. (16 C)---7-11%
- Stearic a. (18 C)---2-4%

OLEUM COCOIS, COONUT OIL, BÜYÜK HİNDİSTAN CEVİZİ YAĞI

- Capric a. (C₁₀)----5-10%
- Caprylic a. (C₈)---5-10%
- Caproic a. (C₆)
- Unsaturated fatty acids
- Oleic a.---%6-8 glycerides
- Shampoo and soap production
- Hair care products
- Sun protection products
- As moisturizer
- Preparations for enteral feeding

GRAPE SEED OIL, ÜZÜM ÇEKİRDEĞİ YAĞI

- *Vitis vinifera* seeds
- Yield ---%6-20
- Constituents:
- Palmitic a.
- Stearic a.
- Oleic a.---%37
- Linoleic a.---%55 free or glycerides
- Sitosterol
- Tocopherol
- Lecithin
- Cephalin

GRAPE SEED OIL, ÜZÜM ÇEKİRDEĞİ YAĞI

- Semi-drying oil
- Usage:
- Laxative
- Antasit
- Cholagogue
- Against burns
- Wounds with pain
- Ulcer treatment
- Carrier fixed oil in aromatherapy and cosmetic
- Grape seed oil can be heating to 250°C without free radical originating
- Used as cooking oil

OLEUM JUGLANDIS, CEVİZ TOHUM YAĞI, Walnut seed oil

- *Juglans regia* (Iran walnut) seeds
- Seeds contain ---65% fixed oil
- Constituents:
- Linoleic a. ---73-74%
- Oleic a. ---18%
- Linolenic a. ---3-4%
- Palmitic a. ---5%
- Stearic a. ---0.9%

OLEUM JUGLANDIS, CEVİZ TOHUM YAĞI

- *Carya illinoensis* (Pikan cevizi, pecan walnut)—grows in United States
- Fixed oil ---65-70%
- Constituents:
- Oleic a.----60-79%
- Linoleic a.---16-30%
- Linolenic a.
- Palmitic a.--3.5-8%
- Stearic a.---1-2%

OLEUM JUGLANDIS, CEVİZ TOHUM YAĞI

- Walnut seed oil is drying oil
- (Iodine value= 162)
- Choleric
- Laxative
- Against arteriosclerosis
- Carrier oil aromatherapy

APRICOT KERNEL OIL, KAYISITOHUM YAĞI

- *Prunus armeniaca* (Rosaceae)
- Fixed oil is produced from seeds by expression
- Seeds contain 40-50 %
- Unsaturated fatty acids:---95%
- Oleic a.---55-75%
- Linoleic a.----20-35%
- Linolenic a.---0.1-0.2%
- Palmitoleic a.---0.3-7%
- Saturated fatty acids----5%
- Palmitic a.----4-7%

APRICOT KERNEL OIL, KAYISITOHUM YAĞI

- Unsaponifiable part;
- Vit. E
- Vit. A
- Semi-drying oil, Iodine value= 100-115
- Used as a nutrition in India
- Cholesterol lowering effect
- Laxative
- Skin care products
- Moisturizer
- Carrier oil in aromatherapy
- Soap production

JOJOBA OIL, HOHOBA YAĞI

- *Simmondsia chinensis* seeds
- Solid in room temperature therefore can be called as wax
- Seeds contain ---45-55% fixed oil, mixture of ester
- 11-eicosenoic a. (20 C, a=1, n=9)
- 13-docosenoic a. (22 C, a=1, n=9)
- 11-eicosen-1 ol
- 13-docosen-1 ol
- Vit. E

JOJOBA OIL, HOHOBA YAĞI

- Antibacterial effect
- Non Oxidized
- Antiinflammatory activity and used in mouth and throat infections
- Eczema, psoriasis, acne and skin problems
- Hair and skin preparations
- Moisturizer
- Skin protection for hands and babies
- Wax similar to spermaceti , produced by hydrogenation

GLUCO-RESINS

- Active metabolites obtaining from Convolvulaceae family plants and they have purgative activities
- Hydroxy fatty acids as aglycone constitutes glycoside with the sugars and hydroxyl groups are esterified by lower molecular-weight acids
- Resin
- Insoluble in water
- Soluble in ethanol and ethyl acetate

GLUCO-RESINS

- Extracted from plants using ethanol and then precipitate by adding water
- Example:
- Convolvulin---hydrolysis---
Rhamnoconvolvulic acid +tiglic acid
+isovalerianic acid+ methyl ethyl asetic acid

GLUCO-RESINS

- Rhamnoconvolvulic acid --dil. Acid hydrolysis.--- CONVULVULINOLIC ACID (3,12 dihydroxypalmitic acid) +4 mol glucose+ 2mol rhamnose

GLUCO-RESINS

■ Usage

- Cathartics which cause an increase in water elimination and in peristalsis.
- In high doses;
- Nausea
- Vomiting
- Gastrointestinal bleeding

TUBERA JALAPAE (TK), CALAPA TÜBERİ

- *Exogonium purga* (*Ipomoea purga*)
subterranean parts.
- Grows in south America-Mexico-Andes
Mountains
- Constituents;
- Resin (¼-12): Convolvulin
- Starch
- Oil
- Sugar

TUBERA JALAPAE (TK), CALAPA TÜBERİ

- Laxative---100-400 mg dosage
- Purgative---1-2 g dosage
- In high doses (4-5 g)---toxic

RESINA JALAPAE, Jalap

- Resin which is extracted from *Tubera Jalapae* by 90° ethyl alcohol and then concentrated and precipitated by water addition
- Constituents;
- Convolvulin (80)----
- Used for its purgative effect

RADIX SCAMMONIAE (TK), MAHMUDE KÖKÜ, Scammoni Radix

- ***Convolvulus scammonia* (Convolvulaceae) dried roots**
- **Grows naturally west and south parts of Anatolia-- Bursa, İzmir, Antalya, Antakya**
- **Syria, Iraque, The Balkans, Caucasia**

RADIX SCAMMONIAE (TK), MAHMUDE KÖKÜ, Scammoni Radix

- Resin (3-13%)---soluble in ether:
Scammonin---hydrolysis—12-
hydroxypalmitic acid +gl+
rhamnose+rhamnose
- Purgative
- Used as tincture
- Used for Tinctura Jalapae Compositae (TK)
preparation

SCAMMONIUM, MAHMUDE

- Juice which is obtained from *Convolvulus scammonia* roots
- 75-85% resin (soluble in ethyl alcohol)---
Scammonin
- Used as purgative

RESINA SCAMMONIAE, MAHMUDE REÇİNESİ

- Obtained from Radix Scammoniae or Scammonium by extraction of boiled ethyl alcohol and then precipitation by adding water
- *Ipomoea orizabensis*---Mexico Andes Mountains
- *Ipomoea turpethum*---Ceylon are also used for production of the drug

WAXES

- **Waxes, are containing appreciable quantities of esters derived from higher monohydric alcohols combined with fatty acids.**
- **Alcohols;**
- **Aliphatic series**
- **Steroids**

Waxes

- **Quality control;**
- **Methods are similar to fixed oils**
- **The main differences between waxes and fixed oils:**
- **Waxes saponifiable with alkali and alcohol**
- **Fixed oils saponifiable with alkali and alcohol furthermore with water and alkali (Adulteration method)**

Waxes

- **Waxes;**
- **Iodine value is lower than fixed oils**
- **Unsaponifiable content is higher;**
- **Free acids**
- **Free alcohols**
- **Hydrocarbons**
- **Steroids**
- **Acid values are higher due to high free fatty acid contents (whitebeeswax contains 15 % cerotic acid)**

Waxes

- Fatty acids found in waxes:
- Palmitic acid (16 C)
- Stearic acid (18 C)
- Carnaubic acid (24 C)
- Cerotic acid (26 C)
- Melisic acid (30 C)

Waxes

- Aliphatic alcohols:
- Cetyl alcohol ---16 C
- Stearyl alcohol-----18 C
- Ceryl alcohol----- 26 C
- Myricyl alcohol---30 C

Waxes

- Usage;
- In pharmaceutical industry
- Strengthen of ointment
- Preparation of cosmetic creams
- In industry
- Waxes can be classified according to their sources:
 - Plant waxes
 - Animal waxes

CERA CARNAUBA (CERA PALMARUM), KARNAUBA MUMU, Carnauba wax

- *Copernicia cerifera* (Palmae) leaves
- Also known as Brazilian wax palm and % 50 of the production is delivered from Brasil.
- White, greeny-white, odourless, tasteless, melting point is 83-86°C.
- %80 ester contain; chiefly myricyl alcohol (30 C) and ceryl alcohol (26 C) + cerotic acid (26 C)-----esters.

CERA CARNAUBA (CERA PALMARUM), KARNAUBA MUMU, Carnauba wax

- **In pharmaceutical technology**
- **Tablet-coating agent**
- **In cosmetic industry**
- **In industry;**
- **Paper and carbon paper**
- **Ink**
- **Wax**
- **Varnish preparation**

CERA CANDELILLA

- *Euphorbia antisyphylitica* and other species stems are used
- Plant grows in Mexico, Texas and Arizona
- Production of the wax is mainly in United States and Mexico (70%)
- In cosmetic industry
- In gum
- Ink for printer
- Isolation of electric
- Leather process
- *Pedilanthus pavonis* is another source.

CERA FLAVA (TK), SARI BALMUMU, Yellow Beeswax

- Beeswax is obtained by melting and purifying the honeycomb of *Apis mellifera* (Apidae) and other bees.
- Yellow beeswax is prepared after removal of the honey by melting the comb under water (residual honey dissolving in the water and solid impurities sinking), straining and allowing the wax to solidify in suitable moulds.
- Yellowish-brown or yellowish-white solid. It breaks a granular fracture and has a characteristic odour, similar to honey, m.p. 62-65°C. Insoluble in water, sparingly soluble in alcohol, but dissolves in chloroform, in fixed and essential oils.
- Constituents;
- 70-75% Myricin---Myricyl palmitate (30C alcohol+16C acid)
- CERIN----Ceryl cerotate (26 C alcohol +26 C acid)+
- Ceryl melisate (26 C alcohol + 30 C acid)

CERA FLAVA (TK), SARI BALMUMU, Yellow Beeswax

- Free cerotic acid---15%
- Ointment and blister preparation, In cosmetic industry
- In varnish industry

CERA ALBA (TK), BEYAZ BALMUMU

White Beeswax

- White beeswax is prepared from yellow beeswax by treatment with charcoal, potassium permanganate, chromic acid, chlorine etc.
- In pharmacy;
- Preparation of cream and ointment
- Preparation of suppository

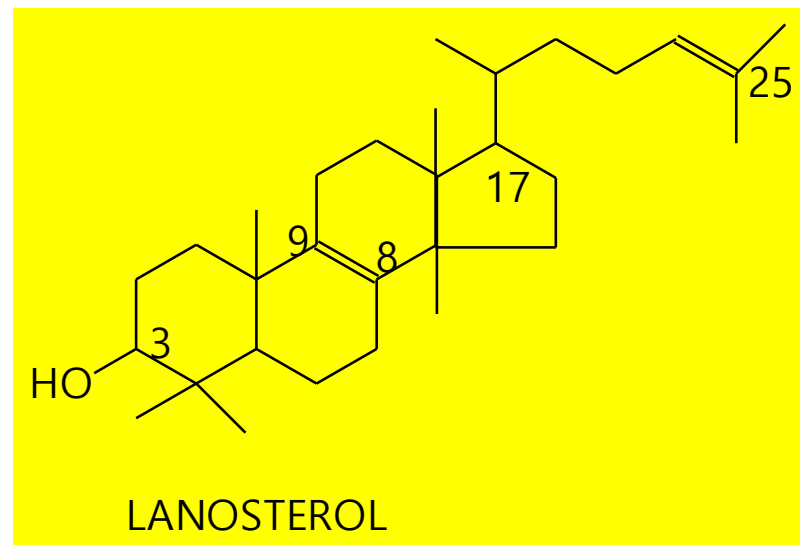
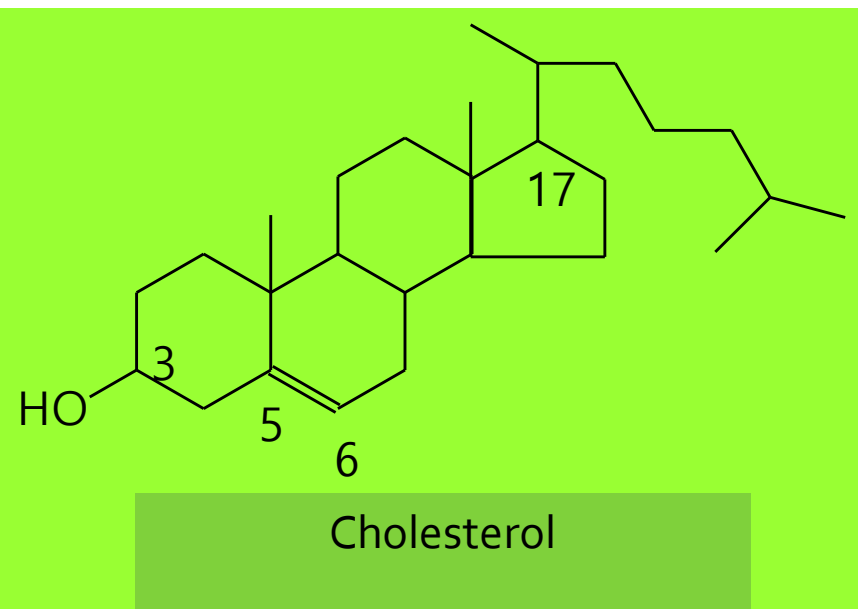
- Adulteration:
- Japan wax obtained from *Rhus* species can be used instead of or mixed with beeswax. Japan wax saponified by strong alcoholic potas , Bees wax can not be saponified by alcoholic potas

CETACEUM (TF), SPERMACETI, ISPERMEÇET MUMU

- Spermaceti is produced by refining of fatty compounds in headroom of *Physeter macrocephalus* (Physteridae) (Kaşalot balığı)
- White, odourless, sweet and m.p. 45-54°C. Spermaceti has odourless and shiny flame
- Constituents:
- Cetyl palmitate (16 C alcohol+ 16 C acid)
- Cetyl alcohol, myricyl alcohol, stearyl alcohol + Myristic acid, Stearic acid esters
- Used for production of cream and ointment
- Production of candle

ADEPS LANAE ANHYDRICUS (TF), Wool fat, SUSUZ LANOLIN

- Wool fat is obtained from the wool of the sheep, *Ovis aries* (Bovidae).
- Pale yellow, characteristic odour, sweet taste.
- Contain water lower than 0.25%
- Solid in room temperature, m.p. 36-40°C
- Soluble in ether and chloroform and sparingly soluble in ethyl alcohol
- Like other waxes it is not readily saponified by aqueous alkali
- Constituents; The chief constituents are cholesterol and isocholesterol, unsaturated monohydric alcohols 27 C contains, both free and combined with lanoceric, lanopalmitic, carnaubic and other fatty acids.



ADEPS LANAE ANHYDRICUS (TF), SUSUZ LANOLIN, Wool fat

- **Anhydrous lanolin;**
- **Water retention value is important for pharmaceutical preparations**
- **Absorbation from skin is easy**
- **Used as emollient base for ointments and creams**
- **In cosmetic preparations**
- **Induce allergy in sensitive people**

LANOLINUM (TK)

- Anhydrous lanolin + water + liquid paraffin mixture
- Excipient for ointment
- Adulterations are possible with water, glycerin, soap and vaseline.