

Fam: **Cruciferae**

(= **Brassicaceae, Cabbage Family, Hardalgiller**)

Herbaceous or small shrubs growing in the temperate or cold regions of the Northern Hemisphere.

Flowers hermaphrodite, calyx and corolla have 4 members each, stamens 6 and tetradynamous; ovary superior, formed of 2 carpels.

Seeds contain **mucilage**, **mirosinase (enzyme)** and **sulphurous heterosides**.

Fruit **siliqua, silicula, nut or lomentum**.

Has **bilateral symmetry** according to the arrangement of **stamens**.

Has **350 genera** throughout the world.

Brassica nigra

(Black mustard, Siyah hardalotu)

Grows in Mediterranean countries, annual, herbaceous plant up to 1-1.5 m.

Seeds yield **Semen Sinapis nigrae (Sinapis nigrae semen)**
T.K. (Siyah hardal tohumu).

This drug contains **sinigroside** and therefore pungent in taste and is irritating.

Poultice prepared from the leaves are used externally as rubefacient, therefore it is used externally to relieve rheumatoid pain.

(*rubefacient: A substance that irritates the skin, causing redness.)

Oil obtained from the seed by pressing - **Oleum Sinapis**- is also used for the same purpose.

Seeds are used to obtain mustard.

Sinapis alba

(White mustard, Beyaz hardalotu)

Seeds are dark yellow colored or blackish and known as **Semen Sinapis albae (Sinapis albae semen)**.

These seeds contain **sinalboside**.

Used mostly in the preparation of culinary mustard.

Order: Rosales

**Fam: Hamamelidaceae
(Witch-Hazel Family)**

Liquidambar orientalis

**(Sweetgum, Turkish Sweetgum, Sığla ağacı, sıgala ağacı,
günlük ağacı, amber ağacı)**

**Grows in Southwest Anatolia, a monoecious
tree up to 10-15, forming forests only in
Muğla-Marmaris and Köyceğiz.**

Liquidambar orientalis

The trunk is wounded and a balsam is obtained.

This balsam is collected with the bark, put into boiling water, transferred into pouches and pressed.

The water and balsam mixture flowing out of the pouch is left to stand.

Precipitating balsam is called **Styrax Liquidus** T.K. (**Sığla yağı, Sığala yağı**) or **Mia**.

Contains resin, volatile oil and cinnamic acid and is used as respiratory track antiseptic and expectorant and externally as antiseptic, antiparasitatory. It is also a good odor fixator in perfumery.

After the balsam is removed from the pouch, the remaining barks are called **Cortex Thymiamitis** (**Thymiamitis Cortex**) and are used as incense.

Hamamelis virginiana

(Witch hazel, Cadı fıncığı)

Widespread in North America.

Leaves resemble hazelnut leaves.

These leaves give the drug *Folia Hamamelidis* (*Hamamelidis folium*) T.K. (*Hamamelis yaprağı*).

Branch and trunk barks are known as *Cortex Hamamelidis* (*Hamamelidis cortex*) and are also used as drugs.

Both drugs contain *tannins*; are *astringent* and *haemostatic*; are found in the composition of pommades used for *varicose veins* and *hemorrhoids*.

Also used in cosmetic preparations against wrinkles.

Fam: **Rosaceae**

(Rose Family, Gülgiller)

Rosaceae flowers are perigynous or epigynous and usually hypanthium is present. General flower formula is:

$$a.K_5 C_5 A_{5/10/29} G_{(1-5-20)}$$

115 genera, 3200 species are found in the world.

Rosaceae is a big family, so it is divided into 4 subfamilies.

Subfamily: Spiraeoideae

Gyneceum apocarp,
carpels 5, one follicle type
fruit forms from each ovarium.

Flower formula is: $aK_5 C_5 A_{10}$
 G_{2-5}

Quillaja saponaria (Soapbark, Soapbark tree)

Grows in Chili and Bolivia.

Trunk and branch barks are peeled, the inner cortex is used as **Cortex Quillajae (Quillajae cortex)** T.K. (Panama Odunu, Panama kabuğu).

Has an irritating and toxic saponoside called **quillaic acid**. Used as cleanser (especially in cosmetics) and emulgator.

Subfamily: Rosoideae

Rosa damascena (Damask Rose, Isparta gülü, Şam gülü)

Leaves imparipennate, has 3-7 folioles and with stipule.

Flowers pink, petals in layers and with strong smell.

Petals yield **Oleum Rosae (Rosae aetheoleum)** T.K. (Rose oil, Gül yağı) with steam distillation. Has **geraniol**, **eugenol** (terpenic compounds).

3500-4000 kg flowers yield **1 kg** rose oil.

In Isparta, **650 kg** rose oil is produced per year.

Rose oil is an important industrial export product for **Turkey** and **Bulgaria**.

While Rose oil is obtained, the remaining aqueous layer is called **Aqua Rosae** T.K. (**Rose water, Gül suyu**). This drug is a good anti-inflammatory, and is especially used in itchiness and redness in ophthalmology; also laxative.

Flores Rosae (Rosae flos) T.K. (Rose petals, Gül petalleri) are used fresh; contains tannins, quercetol (flavonoside) and anthocyanoside.

Rosa canina (Dog Rose, Yabani gül, köpek gülü)

- Widespread.
- Petals 5.
- Mature fruits are big as olives, many nuts are present within the red hypanthium.

Gives *Fructus Rosae caninae* (*Fructus Cynosbati*)

(rosehip, kuşburnu, gülburnu).

Rich in vitamin C, also contains tannins and flavonoside.

Astringent and diuretic, has vitamin P* activity.

(*vitamin P: A water-soluble vitamin, found as a crystalline substance especially in citrus juices, that functions as a bioflavonoid in promoting capillary resistance to hemorrhaging. Also called *capillary permeability factor*.)

Rubus idaeus

(Red Raspberry, Ahududu, ağaç çileği)

Grown for its fruits. Shrub up to 1-1.5. Leaves contain **tannin**, **flavonoid** and **vitamin C**.

Fruits contains **malic acid**, **citric acid**, **sugars (levulose)** and **pectin**. Antidiarrheic and astringent.

Syrup prepared from the fruits are called **Sirupus Rubi idaei (Rubi idaei sirupus)** T.K. (**Ağaç çileği şurubu**, **Ahududu şurubu**) and is used as colorant in pediatric medications.

Succus Rubi idaei is also used in pharmaceutical practice.

Rubus fruticosus

(= *R. tomentosus*) (Common blackberry, böğürtlen)

Folia Rubi fruticosi (Rubi fruticosi folium) consists of leaves and flower buds of the plant. Contains **tannin, flavonoside, vitamin C** and **organic acids**.

Antidiarrheic, antihemorrhoidal and astringent; used in the inflammations of the mouth and the throat in the form of a gargle.

Fructus Rubi fruticosi (Rubi fruticosi fructus) has **citric acid, pectin, sugar** and **mucilage**.

Fragaria vesca (Strawberry, Çilek)

Perennial, herbaceous plant, spreads with its stolons.

Has trifoliate leaves and many apocarp ovaries.

Radix Fragariae and **Folia Fragariae (Fragariae folium)**, are used due to their tannin contents.

Fructus Fragariae (Fragariae fructus recens) has **pectin, sugar, organic acids, vitamin C** and aromatic substances.

Subfamily: Pomoideae

General flower formula: $a K_5 C_5 A_\infty G_{(2-5)}$

***Crataegus* sp.**
**(Hawthorn, Aliç,
yemişen)**

Crataegus monogyna
(Common Hawthorn, Yemişen)

Flower buds
(*Crataegi folium cumflorae*)
And immature fruits (*Fructus*
***Crataegi-Crataegi fructus*) are**
used as drugs.

Contains **proscyanidols,**
flavonoids, rutoside,
hyperoside, quercetin, vitexin;
catechin, epicatechin;
triterpenic acids, ursolic acid,
oleanolic acid, chlorogenic and
caffeic acid.

Used in **congestive heart diseases**,
arteriosclerosis*, to lower blood sugar (not so
high) and in **angina pectoris****

(*arteriosclerosis: any of a group of chronic diseases in which thickening, hardening, and loss of elasticity of the arterial walls result in impaired blood circulation. Also called *arterial sclerosis*; ** angina pectoris: Severe constricting chest pain, often radiating from the precordium to the left shoulder and down the arm, due to insufficient blood supply to the heart that is usually caused by coronary disease. Also called *stenocardia*).

***Cydonia vulgaris* (Quince, Ayva)**

Quince seeds **Semen Cydoniae (Cydoniae semen)** has **mucilage**; used traditionally for its sedative and antitussive effects.

Fruit is known as **Fructus Cydoniae (Cydoniae fructus recens)** and contains **tannin, pectin, vitamin C**. Used in stomachaches and as antidiarrheic.

Subfamily:
Prunoideae

General flower formula:
 $K_5 C_5 A^\infty G_{1-}$

Prunus laurocerasus

(= *Laurocerasus officinalis*, Cherry laurel, taflan, karayemiş)

Leaves simple, wide elliptic, leathery and short petiolated. Sparsely serrate, 2 small glands are present on the back side of the leaf near the petiole, near the midrib.

Folia Laurocerasi recens (Laurocerasi folium) T.K. (Taflan yaprağı), consists of fresh leaves.

Leaves yield Aqua Laurocerasi (Laurocerasi aqua normata) T.K. (Taflan suyu) with steam distillation.

These drugs contain cyanogenetic heterosides (prulaurasoside) and are used as sedative, antitussive and aromatizer.

Hydrocyanic acid is released with hydrolysis of the heteroside, therefore leaves are poisonous!!.

Prunus amygdalus

(*Amygdalus communis*, Almond, badem ağacı)

Drupe type young fruits (green almond, çağla) have a soft pericarp, the inner part becomes woody gradually and turns into a hard, porous endocarp.

This plant has 2 varieties:

1. *Prunus amygdalus var. dulcis* (sweet almond)
2. *Prunus amygdalus var. amara* (bitter almond).

These 2 varieties are only differentiated by the compounds that the seed contains, so these are **chemical varieties**.

Seeds contain 40-55% fixed oil and 20% protein.

**The fixed oil obtained by pressing is called *Oleum Amygdali T.K.*
(Almond oil, Badem yağı).**

**It is laxative if internally used and found in the composition of many
cosmetic preparations.**

**Bitter almon seeds contain a cyanogenetic heteroside called
amigdaloside (2.5-4%) (is not found in sweet almond seeds).**

Purified almond oil does not contain this heteroside.

Prunus armeniaca

(*Armeniaca vulgaris*, Apricot, kayısı)

The oil obtained from *Prunus armeniaca* seeds are rich in **vitamin E** and also contains 60% **oleic acid**, 30% **linoleic acid**. Recently it is found in many skin preparations under the name “**Apricot Kernel Oil**”.

Prunus mahaleb

(Mahaleb cherry, Mahlep)

Seeds are known with the name **Semen Pruni mahaleb**. Seeds contain **fixed oil** and **coumarins**, are used as tonic and antibiotic.

Fam: Leguminosae **(Legume, Pea or Bean Family,** **Baklagiller)**

The second biggest family of Spermatophyta after Compositae. Has more than 600 genera and neary 13000 species. This big family is divided into 3 subfamilies.

Subfamily: Mimosoideae **(Mimosaceae)**

This subfamily plants are mostly shrubs or trees.

They grow mainly in tropics and subtropics.

Leaves mostly bipennate, sometimes phylloclads are seen.

Acacia senegal

(Gum Arabic, Gum Senegal Tree)

A small tree with stipules turned into thorns. Grows wild in Senegal, Sudan, Tropical Africa. Has small folioles.

A gum comes out of the cracks or wounds on the trunk.

Gummi Arabicum T.K. (Gum Arabic, Arabistan zamki) is used in the making of granules, tablets, pastils, sugar coated tablets and in cosmetic industry. Also used in food industry.

Acacia catechu

Small tree growing in India.

Wood is boiled with water and an extract is prepared, then the water is evaporated and the remaining dry black extract is called **Catechu** T.K. (kaşu) or **Cachou**. Rich in **phlobatannin**, has astringent effect.

Used in tanning in the leather industry.

Subfamily:
Caesalpinioideae

(Caesalpinaceae)

Cassia acutifolia
(= *Cassia angustifolia*)
(Senna, Sinameki)

Fruits of the plant are also used for the same purpose **Folliculi Sennae (Sennae folliculi)** (actually the fruit is a legume).

Pennate leaves of the plant are known as **Folia Sennae (Sennae folium)** T.K. (Sinameki yaprağı).

The drug actually consists of folioles and contains **sennosides (anthracene derivatives)**, therefore is purgative (acts on the large bowel).

Tamarindus indica (Tamarind, Demirhindi)

A big tree growing in Tropical Africa and India.

Stamens 3, monadelphous;
fruit legume, does not open up
when mature.

Eaten as fresh where it
grows.

Fruits are crushed with the seeds: **Pulpa Tamarindorum (Tamarindorum pulpa)**
T.K. (**Tamarind pulp, Demirhindi pulpası**).

Contains **sugar** and **organic acids** and therefore is **laxative**.

Krameria triandra (Rhatany, Ratanya)

Origin: South America (Peru and Bolivia).

A small tree with entire leaves.

Red colored roots are called *Radix Ratanhiae (Ratanhiae radix)* T.K. (Rhatany root, Ratanya kökü).

Rich in *tannins* therefore used as *antidiarrheic* and *astringent*.

Found in the composition of skin lotions and toothpastes.

Ceratonia siliqua

(Carob Tree, St. John's-bread,
Keçiboynuzu, harnup)

Grows in Mediterranean region.

Has paripennate leaves, leathery
folioles.

Flowers are polygamous, i.e. Male,
female and hermaphrodite flowers are
present on the same plant.

Sepals small, petals are absent, stamen
5.

Fruit is a legume, 10-20 cm, that does not
open up when mature.
Green when young, brown when mature, has
sweet pulpa.

Dried fruits are ground and used in
chocolates for children instead of cacao; is
also antidiarrheic in pediatric diarrhea.

Seeds contain vast amount of mucilage; when boiled in water and then water is evaporated, an easily swelled gum is obtained. This gum is used in industry like Tragacantha. It has been recently used in cosmetic preparations as thickening agent under the name “Locust bean gum”.

The size and weights of the seeds are equal and was used as the unit of weight in jewellery (carat).

Subfamily: **Papilionaceae** (Fabaceae)

The most prominent feature of this subfamily is its zigomorph flowers resembling a butterfly.

General flower formula: **z. $K_{(5)} C_{3+(2)} A_{10,(10), (9)+1} \underline{G}_1$.**

Astragalus sp. (Wild licorice, Geven)

Tragacantha (Gummi Tragacanthae)

The stem of the plant is scarred with special blades, the plant produces gum, gets harder in a couple of days and then collected.

This product swells with water and is used in pharmaceutical technology.

Astragalus membranaceus

Radix Astragali (Astragali radix) is the roots of 4-7 plants collected in the spring, and is yellow colored.

Contains triterpenic saponosides (**astragaloside**), poliholosides (**astragalan, astragaloglucan**) and are **immunostimulant***.

Used as tonic in flu, common cold, uterine bleeding, chronic diarrhea, diabetes and loss of appetite in TCM.

(*immunostimulant: An agent that stimulates the immune system)

Glycyrrhiza glabra

(Licorice, Meyan, piyan, buyan)

***Glycyrrhiza* species has cylindrical fibrous roots and rhizomes underground; the inner part of the rhizomes is fibrous and yellow colored.**

These underground parts are called licorice roots and are known as **Radix Liquiritiae (Liquiritiae radix) (T.K.).**

Contains saponoside and flavonoside; **glycyrrhismic acid (triterpenic saponoside) that it contains is 60 times sweeter than saccharose.**

Used in stomach ulcer and as antibacterial (against *Staphylococcus aureus*) and as aromatizer in various phytotherapy products.

Licorice roots are extracted with water, water is then evaporated and **Succus Liquiritiae (Liquiritiae Succus) T.K. (Liquorice, Meyan balı) is obtained.**

This drug is used for the same purpose and is also used in hoarseness*.

(*hoarseness: Rough or grating in sound (ses kısıklığı))

Arachis hypogea

(Peanut, Amerikan fıstığı, yer fıstığı)

Origin: Brazil.

Seeds are rich in oil, is obtained by pressing and is called

**Oleum Arachidis
(Arachidis oleum)
(arařıt yađı).**

Used in pharmaceutical technology and for culinary purposes.

Trigonella foenum-graecum

(Fenugreek, Çemenotu, buyotu)

Seeds **Semen Trigonellae (Trigonellae foenugraeci semen)** are angular, resemble prisms, contains mucilage and oil.

The strong and persistent smell of the plant comes from **trigonelline (alkaloid)**, therefore plants are collected during flowering period and are used as spice.

Used in spice mixtures and also in pastrami; it is an appetizer*.

(*appetizer: a small amount of food or drink taken to stimulate the appetite)

Seeds contain a saponoside called **diosgenin**, this compound is a valuable compound that is used in the synthesis of **corticosteroids**.

Myroxylon balsamum

(=*Toluifera balsamum*)
(Balsam tree, Black balsam,
Balsam of tolu)

**Grows in Colombia and
Venezuela.**

A balsam flows from the wounds made on the tree: Balsamum Tolutanum T.K. (Balsam of Tolu, Tolu balsamı), used against coughing and found in the composition of expectorant medications. Contains **cinnamic acid and **benzoic acid**.**

Toluifera pereira

(= *Myroxylon pereira*) (Peruvian Balsam)

Grows in Central America.

The trunk is burnt with torches and a balsam forms: Balsamum Peruvianum T.K (Peruvian balsam, Peru balsamı) contains the same organic acids, however in different amounts.

This drug is used externally as antiseptic and found in the composition of medications against scabies*

(*scabies: a contagious skin disease caused by a parasitic mite (*Sarcoptes scabiei*) and characterized by intense itching)

Sophora japonica

(Chinese Scholar, Japanese Pagodatree, Japon soforası)

Origin: Far East, China.

Flower buds of this plant are rich in rutoside (flavonoside) (15-20%), therefore the plant is used as rutoside source.

Physostigma venenosum
(Calabar Bean, Kalabar baklası)

This is a climbing plant growing in West Africa. Flowers are red and bent like a snail.

Both seeds and the plant as a whole is poisonous, used as arrow poison where it grows.

Seeds are kidney shaped, 1-2 cm long; since the seed shape resembles a broad bean, seeds are called **Faba Calabaricae** (kalabar baklası) or **Semen Physostigmatis**.

The drug contains an alkaloid called physostigmine (eserine) that constricts the pupil of the eye, and it is also used to lower eye pressure in glaucoma*.

(*glaucoma: a disease of the eye in which the pressure of fluid inside the eyeball is abnormally high, caused by obstructed outflow of the fluid. The increased pressure can damage the optic nerve and lead to partial or complete loss of vision)

Derris elliptica **(Poison vine)**

***Derris elliptica* is also climbing plant growing in Southeast Asia. Roots of this plant contains a flavonoside called **rotenone**. This compound is a strong insecticide*, however it is harmless for warm blooded animals.**

(*insecticide: a chemical substance used to kill insects)

Glycine max

Glycine max (=Soja hispida) (Soy, soya fasulyesi)

**The fruit is rich in
protein and oil.
Consumed as fresh or
used for obtaining oil.**