Medical Botany
3: General Information

Synthesis and Metabolism

- Energy laws in plants, glycolysis, citric acid cycle, enzyme diversity, essential metabolic events and similar substances are similar to animals; The synthesis, destruction and conversion of the various substances are seen.
- • Enzymes (hydrolases, isomerases, ligases, lyases, oxidoreductases, transferases, etc.) have been identified in plant cells around 2000.
- • The most important aspects of animal cell separation are photosynthesis.
- O This reaction converts water (H2O) and carbon dioxide (CO2) to carbohydrates (CH2O units) through chlorophyll.
- O All plant materials are prepared from carbohydrates (Figure 2a).
- •

- Chlorophyll is greenish color; It absorbs the red and blue regions of the visible light and reflects the green region.
- O Chlorophyll; Photosynthesis converts light energy into chemical energy.
- O When chlorophyll absorbs light energy, an electron forms in a high energy form with low energy; Which facilitates transport of electrons from one molecule to another in the electron-flow path.
- As a result, the electron is transferred to CO2 in the Calvin cycle (the second phase of photosynthesis).
- O CO2 here; Rubisco (rubulose, 1,5-biphosphate carboxylase / oxygenase) is converted to carbohydrates using protein (the most common water-soluble protein found in annual plants when it leaves its leaves).
- O Two important products of photosynthesis are energy materials and sugars.
- □ In the cell biosynthetic processes,
- □ The second is used to prepare the primary and secondary materials in the

Storage

- Vegetative substances (primary and secondary substances) are found in some parts of the plant in a greater amount / density than the other parts.
- O This is in fact related to the dissolution of the substance / substance.
- • The places where some substances are stored / accumulated in the plant cell are as follows.
- • Water soluble substances
- O Vakuoller: Alkaloids, amines, aminoacids, anthocyanins, flavonoids, glycosides, glucosinolates, saponins, cyanogens, tannins, terpenoids.
- O Lacticifiers: Alkaloids, amino acids, cardiac glycosides and cyanogenetic glycosides.
- O Apoplast: Tannins.

- • Water-insoluble substances (substances soluble in oils and / or organic solvents)
- Candy: Candles and oil soluble flavonoids.
- O Trikhoma: Monoterpenes and sesquiterpenes.
- Resin channels: Terpenoids (C10-30) and oil soluble flavonoids.
- O Lacticifer: Diterpenes, quinones, polyterpenes, oil soluble flavonoids.
- O Fat cells: anthraquinones, terpenoids.
- O Plastid membranes: Tetraterpenes, ubiquinones.

Synthesis in plants and mammals / Similarities in terms of metabolism

- Plants and animals prepare some of the substances in their structure by following the same or similar routes.
- • Plants can imitate the substances used for physiological / biochemical events such as defense, communication, harmless reproduction, hormones in the mammals and neuromodulators.
- □ Flavonoids and isoflavonoids have hydroxyl groups in their molecules; Similar groups are also found in estrogens.
- O this situation; Causing a change in the estrogenic effect or stimulation of the development / alteration factor in tumor cells.

- • 5α-reductase in plants enters the metabolism of plant steroid hormones.
- O In animals, the same enzyme converts testosterone to 5a-dihydrotestosterone (DHT).
- O The steroids in 5α-reductase animals in plants and the enzymes in animals metabolize plant steroids (such as brassinosteroids).

- Some isoflavones inhibit 3β-hydroxysteroid dehydrogenase (3β-HSD) activity.
- O Enzyme; In mammals, steroid hormones (such as androgens, glucocorticoids, estrogens, progesterone) are synthesized.
- O Enzyme inhibition leads to reproductive / metabolic disorders.

- • Phytoecdisteroids are prepared for defense against insect attacks in plants; These materials in mammals;
- • Encourages protein synthesis (anabolic effect),
- • Immune stimulation (increased resistance to diseases),
- • Facilitates compliance,
- • Prevents mutation,
- • Lower cholesterol.

- • Carotenoids work in defense against harmful plants (such as plant parasites, UV light) and repair of DNA damage.
- O the capture of free-acting groups (such as active oxygen groups) in animals,
- O Epithelial touch development and protection of integrity,
- O They work in vision and immunity.

- • Nitric oxide (NO) released during oxidation events in plants is lethal to plant pests.
- O NO microorganisms that are released in the macrophages in mammals are lethal.

- Glucans on the cell wall of the plants give the inside of the plant a message that there is parasitic fungus or bacteria in the plant.
- O Glucans in plant fungi stimulate the immune system of the mammals (mitogenic effect).

- • Triterpenoids (triterpenoid saponins) in plants and steroid hormones in mammals are prepared by the same biosynthetic pathway.

- • Flavonoids and adrenaline in animals, noradrenalin, dopamine are synthesized through actinic tyrosine.
- □ Tyrosine; Mescaline (Lophophora williamsii) and myristicine (Myristica fragrans).
- It enhances the adrenergic stimulation of mescaline and myristic acid.

- • Oxylipins in plants and cytokines in animals (such as leukotrienes) are prepared via acetate.

- • Triptamines (such as N, N-dimethyltryptamine "DMT") are prepared by moving from tryptophan to plants and animals.
- O Tryptophan; (5-methoxy-N, N-dimethyltryptamine (5-methoxy-DMT, Virola theiodora), lysergic acid diethylamide (LSD, Convolvulus), serotonin (5HT) and melatonin as well as ergot alkaloids (Claviceps purpurea), psilocybin Tricolor), bufotenin (Bufo vulgaris, black frog).
- □ DMT and psilocybin form serotonin-like effects.

- • ibotenic acid (promuskimol) in the mushroom of Amanita muscaria and Amanita pantherina is linked to glutamic acid receptors; Gamma-aminobutyric acid (GABA).
- O This effect modifies the intensity of neuromodulators (such as dopamine, noradrenaline, serotonin), as in LSD.

- • Anandamide (arachidonic acid is bound to the body-forming hormone in the ethanolamide structure) and cannabinoids (Cannabis sativa) are bound to opioid receptors.
- O Anandamid is a journalist who acts on events such as hunger, pain, anxiety, vomiting in the brain.
- ▪ Fatty foods increase anandamide secretion.
- □ The person gives himself a better feeling and sleep.

- Anandamide is also found in small quantities in chocolate and cocoa powder.
- □ N-acylethanolamines in cocoa prevent anandamide breakdown.
- O The pleasant / pleasing effect of chocolate is partly due to anandamide and N-acylethanolamine.
- O Cannabinoids (δ9-tetrahydrocannabinol, THC) bind to the same receptors as the anandamide in neurons; With this effect
- □ Reduce the amount of serotonin,
- □ Corticotropin prevents the release of the releasing hormone,
- □ Causes short-term memory loss,
- □ Sex changes the release of hormones (testicles shrink, number of semen decreases, chest growth accelerates).

Communication in plants

- • Transmission of the stimulus and secondary communication is seen in the plant cells.
- • Internal and external stimuli stimulate receptors (protein, glycoprotein structure); It triggers the event related to the transmission of the warning.
- • The transmission of the warning and warning is likely to be in animal cells.
- • It is seen in memeliler;
- O Phospholipids,
- O Calcium alert network,
- O G-protein,
- O GTPase,
- O Protein kinases are also important parts of the stimulation processes of plants.

- • Plant flavonoids function as stimulant molecules in the formation of root nodes for nitrogen retention.
- • Flavonoids; They also use to prevent formation / reproduction of plants around / nearby.

- • Pollen / pheromones are important in communicating plants.
- O Communication / reproductive / fertilization is ensured through various insects, especially with various attractants (volatile, odoriferous substances).
- O The fact that insects need plant sterol precursors to synthesize hormones allows this communicator to knowingly or unintentionally occur.
- • Insects need nutrients, such as nutrition, reproduction, and neighborhood.

Circulation in plants

- • The circulation system in the plants was made as xylem (xylem) and floem (phloem).
- O Water moves up through the xylem system.
- O Floem mediates the transfer of the sap / substances formed in the leaves to other parts / organs of the plant.
- O Materials (such as starch) that are prepared in plants where they are synthesized and photosynthesized (cytosol, chloroplasts) are transported and stored via the floorm.
- O Animal stores energy as glycogen and fat.

Defense in plants

- The plants have a similar defense system to the mammals; Through these systems they try to resist harmful insects, fungi or animals.
- • Attractiveness for hostile insects,
- • To prevent insect attack, kidnapping, breaking,
- • Disruption of important metabolic pathways,
- • Accelerating, slowing, decelerating growth and development.
- •

- Some of the primary substances are important for the defense of the plant.
- O Photosynthesis-related proteins are used in the synthesis of protective enzymes against external attack (such as fungi) in plants.
- • The induction of these proteins creates short-term systemic resistance to many disease-causing effects.
- O Some proteins found on the cell wall (such as napkins) defend the plant by inhibiting enzymes that form harmful substances to the plant.
- O Glycine hydrolases (polysaccharide hydrolases) plant cell wall of parasite mushrooms in the plant.
- O Kitinazides prevent chitin synthesis in the digestive tract of insects (insect growth regulatory effect).
- O Lectins (monosaccharide-oligosaccharide-binding proteins) are potent mitogenic (immune stimulant) substances.
- O Plants; (Including inhibition of digestion and feeding in herbivores) such as protease, amylase, or defense proteins (such as lipid transport proteins) that act on the cell membrane.
- • They cause damage to the cell membrane of parasitic fungi.

- Some other proteins in the cell wall destroy enzymes secreted by plant parasites.

- • There are receptors (sensors / sensors) on plants' leaf or cell wall that detect plant pests such as fungi.
- O Thanks to this system, defense systems are activated in plant.

- • Release of NO and free groups in plant cells (by oxidation) is an important form of defense to kill or prevent plant pests and herbivores.
- O Similar condition is seen in mammals in macrophages.

- • Plants protect themselves against groups (such as UV light, soil poisons, pathogenic microorganism damage) that occur or turn around during metabolism.
- O They do things like flavonoids and carotenoids.
- O Flavonoids and carotenes function not only in the color of fruits, leaves and flowers but also in defense against fungi and plants.

- • Many of the secondary substances in plants are prepared in response to the attack of plant pests (such as insects, fungi, herbivores).
- O A prepared substance is often not enough to counteract the harmful effect.
- O However, there is the same defense or synergistic interaction between these substances.

- • In plants, important substances (phytoecdisteroids) are prepared for defense against plant-eater (phytophagous) parasites.
- O These substances are the exact replicas of the ecdysteroids (hormones used in the reproduction / maturation process of arthropods and molluscs).
- O As insects can not adapt to the defense system built with phytoecdysteroids, they are weak, unable to thrive and die.

- • salicylic acid in plants; Is important for systemic natural resistance; It serves to defend against pathogenic infections.

- • Legumes synthesize many nitrogen-defensive substances (such as alkaloids, amino acids, lectins, protease inhibitors, cyanogens) using nitrogen.
- O These substances protect plants against harmful insects and animals with neuromodulator or receptor agonist / antagonist effect.
- O Numerous toxic / harmful substances (such as alkaloids, glycosides) for mammals in plants or plant fungi; They do their job to protect themselves against herbivores.

- • There are numerous alkaloids (DMT, ibotenic acid, cannabinol, LSD, mescaline, myristin, psilocin, psilocybin) derived from aromatic amino acids (phenylalanine, tyrosine, tryptophan) derived from some of the brain hormones (adrenaline, serotonin) in hallucinogenic plants .
- O These help to protect the plant itself against ingestion, harmfulness.

Effects of active substances in plants

- In plants, certain primary substances play an important role, especially secondary substances.

- Primary substances
- • Phytosterols (steroidal saponin-like substances such as campesterol, sitosterol, stigmasterol), which are the primary products in the structure of plants, are important for permeability and fluidity of cell membranes and intracellular organelles.
- • They function as hormonal-growth factors in plants.
- • They go into many things related to cell-membrane (stimulation, flow of vesicles, regulation of writing and translation, differentiation of cells, proliferation).
- • Some of them perform important tasks in the defense system of the plant (look for defenses in plants).

Secondary substances

- Responsible for plants
- Reproduction and development,
- O Communication with simbiotic microorganisms,
- O protection against UV light and other stresses in the environment,
- O They act as attractants / attractants for pollinators and seed carriers.
- O Provide the protection of the plant against millions of external pests (1.5 million mushrooms, 30 million insect species), most of which are plant pests.

- • Chlorophyll is an oxidation inhibitor.

- • Omega-3 fatty acids (such as □-linolenic acid-ALA, docosapentaenoic acid-DPA, eicosapentaenoic acid-EPA, eicosatetraenoic acid-ETA) are anti-inflammatory.

- • Carotene protects against UV light and infections, restoring DNA damage.

- • Ethylene (plant hormone) triggers the fruit to mature; The formation of special stem cells towards the periphery, the prolongation of the plant body, the protective effect against fungal attack; Except for the latter, ethylene plays a primary role in others.

- • Anthocyanins (such as delphinidin, malvidin, cyanidin) give plant color and are attracting to pollinators.
- • Salicylic acid works when the heat is released to allow the insect attractant / herbicide to release from the flowers.
- • Flavonoids (including proanthocyanidins) enter reduction-oxidation reactions in plants.
- O It is believed that the plants are involved in the growth and maturation of the plants.
- It protects against UV light, plant parasites (such as fungi) and herbivores.
- For insects;
- The attractant (isoorientin, such as carlinoside) or
- Kidnappers (such as eriodictiol 3'-methylether, hesperetin) are effective.
- • Tannins lack sufficient information about the plant's mission.
- O It is thought that they are substances, they are working in plant defense.
- They are linked to proteins; They protect it from herbivorous plants through their bitter tastes.
- • The role of essential oils is unknown.
- O Plant protection (they can play a role in disposal of useless metabolism products) are effective.
- O Solvents (they provide the resin that is formed by the injury of the plant).
- For insects;
- Kidnap (defense of the plant) or
- They also affect the attractiveness (help to pollinate).

The effects of plant materials on living organisms

- • Some primary substances, especially secondary substances, have very important effects on animals, including humans (mammals, wings, fish).
- • Some of the effects are beneficial, others are harmful.
- O Useful effects
- □ Protective / healer in various diseases
- □ Supporting / accelerating healing
- □ To reduce / prevent tissue / organ damage
- □ Immunity stimulator / emitter
- □ Body cleansing / strengthening / adaptation

- O Harmful effects
- □ Toxic effect
- □ Carcinogenic effect
- Teratogenic effect
- □ Body water, salt retention (edema formation), etc.
- • While the active substance groups / plants are described individually, the effects / effects of each substance / plant will be addressed separately.

- Classification of plants
- • Previously living;
- O the plants and
- He was gathered in two realms as an animal kingdom.
- Then, according to the information obtained, many division and classification were made.

- • Plants are multi-celled organisms in the world, eukaryotes (covered with organelles such as nuclei, mitochondria); Here are the following realms.
- • Plant kingdom (Plantae)
- • Animalia (Animalia)
- • Real mushrooms (Fungi)
- • Mushroom mushrooms, Yellow-green algae and Protozoa alem (Protista)
- • Monera kingdom (Prokaryot, single-celled creatures)
- O Bacteria (Schizophyta)
- O Blue-green algae (Cyanophyta)

- More than 750,000 of the plant community produce seeded plants; Most of the medical plants are seeded plants.

Plantae	Bryophyta (Kara algleri)	16.000
	Chlorophyta (Yeşil algler)	7000
	Lycophyta	1000
	Phaeophyta (Kahverengi algler)	1500
	Psilophyta	10
	Pterophyta (Eğreltiotları)	12.000
	Rhodophyta (Kırmızı algler)	4000
	Spermatophyta (Tohumlular)	750.000-900.000
	Sphenophyta (Equisetophyta)	15
Animalia		>1.233.000
Fungi	Ascomycota	>70.000 tür tanımlanmış; tür sayısının 1.500.000 olduğu tahmin edilmekte
	Basidiomycota	
	Chytridiomycota	
	Oomycota	
	Zygomycota	
	Lichenes	>20.000
Protista	Bacillariophyta (Diatomeler; Silisli su algleri)	>250.000
	Chrysophyta (Altın-sarısı algler)	
	Ciliophora (Kirpikli protozoa)	
	Euglenophyta (Kamçılı algler)	
	Gymnomycota (Cıvık mantarlar)	
	Mastigophora (Kamçılı protozoa)	
	Pyrrophyta (Dinoflagellata; Ateş-rengi algler)	
	Sarcodina (Amipsi protozoa)	
Monera	Bacteriophyta (Bakteriler)	>10.000
	Cyanophyta (Mavi-yeşil algler; Cyanobacteria)	
Altuner Z. 2005.		

- • The plants are named / classified in a certain system.
- • In the plant kingdom (Plantae), the plants are divided into many branches towards the basement in a sample scheme; This branch is called taxonomy, and taxonomy (systematic) is called taxonomic separation.
- • According to this, the genus (species) and species from plant to plant area; (Plant Sorting, Plant Sorting) is known as Plant Systematics - Plant Taxonomy (Plant Sorting, Plant Sorting).
- • The plants are named according to certain rules according to the International Code of Botanical Nomenclature (ICBN).
- • In botanical plants are systematically named from top to bottom (towards big to small, ie from Alemden to Türe).
- • Systematically, subgroups are added to parent groups.

Türkçe	Latince	Takı	Örnek
Alem Kütük	Regnum Phylum	-ae	Plantae (Bitkiler)
Alt-alem	Subregnum	-phyta	Embriyophta (Embriyolu bitkiler)
Bölüm	Divisio	-phyta	Tracheophyta (İletim borululer)
Alt-bölüm	Subdivisio	-sida, -pytina	Pteropsida (Yapraklılar)
Sınıf	Classis	-ae (cetes)	Angiospermae (Kapalı tohumlular)
Alt-sınıf	Subclassis	-eae	Monocotiledoneae (Tek çenekliler)
Takım	Ordo	-ales	Liliales (Zambaklar)
Alt-takım	Subordo	-ineae	Ginkgoineae (Ginkgolar)
Aile	Familia	-aceae**	Liliaceae (Zambakgiller)
Alt-aile	Subfamilia	-oideae	Festucoideae (Yumakotları)
Cins, Soy	Genus	-	Triticum (Buğday)
Tür	Species (spe.)	-	Triticum aestivum
Alt-tür	Subspecies (subspe.)	-	-vulgare
Çeşit	Varietes (var.)	-	-erythroleucon

*. Altuner,Z. 2005'den küçük değişikliklerle alındı.
**. Baklagiller (Leguminosae), Buğdaygiller (Graminae), Turpgiller (Cruciferae) gibi bazı aileler bu kurala uymaz.

Kütük	Regnum vegetabile (Bitkiler alemi)
Bölüm	Spermatophyta (Tohumlular)
Sınıf	Ginkgoinae
Aile	Ginkgoaceae (Mabetağacıgiller)
Cins	Ginkgo (Kızsaçı)
Tür	Biloba

Naming/nomenclature of plants

- Naming of plants
- • The plants are called the Latin in the scientific direction.
- • The Latin name of each plant consists of two words; This is known as two names (binomial naming).
- O From these;
- □ Province name / family name,
- □ The latter type
- (As opposed to people named by last name).
- O The Latin name of the knot is the Atropa belladonna.

- O Species / family names: Shapes, flowers, and fruits that are similar to each other, with a kinship between them and a conjunction of species refers to the union.

- O Species name: refers to a plant association that consists of individuals who resemble each other with their figure and biological characteristics, and whose traits also extend to those who follow them.

- • The subunits of the genus are named after the genus name, then the subunit (subspecies "subsp.", Variant "var"), as in the genus name, and then the subunit's name.
- O There are various kinds of communities that grow / spread in the field that are separated by small differences and overlap with each other.
- O Communities that grow / spread in different geographical areas are known as subspecies "subsp."

- • Some examples of naming / writing subdivisions linked to the genome are as follows.
- □ Abies nordmanniana (Stev) Spach subsp. Nordmanniana (Fog of the East).
- □ Abies nordmanniana (Stev) Spach subsp. Bornmüelleriana (Mattf) Code et Cullen (Uludağ).
- □ Beta vulgaris L. (Wildflower).
- □ Beta vulgaris L. var. Altissima (Doll) Helm. (Sugar beet).
- □ Beta vulgaris L. var. Cicla (L.) Moq. (Chard).
- □ Beta vulgaris L. subsp. Rapa f. Rubra
- □ Brassica oleracea L. var. Oleracea (Cabbage, Principal).
- □ There is Brassica oleracea. Botrytis L. (Cauliflower).
- □ There is Brassica rapa L. Rapa (turnip).
- □ Pinus nigra Arn subsp. Pallasiana (Lamb) Holmboe (Larch).

- • The names of plants and plants are written in capital letters or abbreviations (L. for the Swedish botanist Carl von Linné / Carolus Linnaeus "1707-1778").
- O This is the first letter or abbreviation of the name of the person who named / identifies the plant.
- O When the scientific name of the plant is written, it also needs to be written (Cannabis sativa L.).
- O Plant names in Latin are written in italics.

- To distinguish between researchers carrying the same surname, the first letter (s) of their name must be written before the surname.

- The Latin name of the plant; If it has not been published by the originally proposed person, this name may be published with preservation; In this case the name of the first author is added after the name of the publisher by writing "ex".
- O Phoenix canariensis Hort. Ex Chabaud (palm tree-palm tree) is the name of the hound. But not published; Then Chabaud published this species in the name of the first investigator and published it.

- In the case where the investigators are father and son, at the end of the surname of the son investigator, (Filius, son).
- O Aesculus indica (Wall. Ex Camb.) Hook.f.
- O Carum copticum Bent. Et Hooker f.

- • Plant specific name can also be given according to the following conditions.
- O A feature (such as smell, color, shape)
- • Akdut (Morus alba)
- • Black mulberry (Morus nigra)
- • Viola tricolor
- • Fragrant violet (Viola odorata)
- • Trifolium pratense (Trifolium, because it is a three-part leaf)
- • Large leaf magnolia (Magnolia grandifolia)

Geographical distribution

- • Ankara çiğdemi (Crocus ancyrensis)
- • Oriental beech (Fagus orientalis)
- • Lebanese sedge (Cedris libanotica)

- O The place where he grew up (such as swamp, pasture, forest)
- • Meadow creeper (Trifolium pratense; Pratense, pasture, means ending in pasture)
- • Marsh velvet flower (Caltha palustris, meaning palustris, swamp)
- • Western beech (Fagus sylvatica; meaning Silva, forest)

- O The species of soil it is growing (such as gypsum, rock slits)
- • Gypsophila (Gypses, Gips, Philos means friendly): Some species are named because they grow on gypsum soils.
- Saxifraga (Saxum, rock, frangere, refers to the crush): This name is called because it is found in many types of rock slits.

- O Mythology
- • Artemisia (Rabbit): The term is the forest goddess in Greek mythology; The daughter of Zeus, the god of gods, the sister of Apollon.
- • Artemis is considered to be the goddess of the forests as well as the goddess of the virgins.

- • Relative plants are gathered in one family; The following plants are found in Solanaceae.
- O Banotu (Hyoscyamus niger)
- O Wild tobacco (Nicotina glauca)
- O Fertility (Physalis alkekendi)
- O Glorious (Atropa belladona)

- • In books or sources, each plant is given a family name in parentheses following the Latin name. Organ;
- O Porsukagaci-Taxus baccata (Taxaceae; Porsukgiller)
- O Conidium-Conium maculatum (Apiaceae / Umbelliferae; Maydanozgiller)
- O Urtica-Urtica dioica (Urcicaceae;
- O Poppy-like Papaver somniferum (Papaveraceae).

- Similar name / Other name
- • Some plants are known by different names according to scientific and country / locality; This is known as similar name (s) or other name (s).
- • They are also given in texts / publications to avoid confusion.
- • in the book; Latin synonyms are given either in the "Other names" or "Similar types" section.
- • Some examples are as follows.
- • Fireball (Tanacetum parthenium (L.) Schultz beep.)
- O Silver button. Chrysanthemum parthenium (L.) Berhn.
- • Split (Agropyron repens (L.) Beauv.)
- O Triticum repens L.
- • Cascara Frangula purshiana (DC.) J. G. Cooper
- O The kitchen is on the right. Cascara sagrada / Rhamnus purshiana DC.
- • Tea (Thea sinensis L.)
- O Camellia sinensis (L.) Kuntze
- • Burdock (Arctium tomentosum Mill.)
- O Kelu, Uluavratu. (Lappa tomentosum (Mill.) Lam.)

- Name changes
- • Some plants have had changes in breed / species and family names over time.
- • If the genus / species name changes in such a case, the name of the first nameer / investigator is written in parentheses, followed by the name of the person who made the change.
- • Albizia lebbeck (L.) Benth
- • Aloe vera (L.) Burm
- • Arctostaphylos uva ursi (L.) Spreng.
- • Brassica nigra (L.) Koch.
- • Camellia sinensis (L.) Kuntze
- • Filipendula ulmaria (L.) Maxim
- • Petroselinum crispum (Mill.) Mansf.

- • The same plant was named by another name over time by the same or different person (s).
- Some examples are as follows (current name, previous name in order).
- Actaea racemosa L .; Previously Cimicifuga racemosa (L.) Nutt.
- Agathosma betulina (Berg.) Pillans; Previously Baromsa betulina (Berg.) Bartl. And Wendl.
- Centella asiatica (L.) Urban; Previous Hydrocotyle asiatica L.
- • Lavandula angustifolia Mill .; Previously Lavandula officinalis L.
- • Plectranthus barbatus Andrews; Previously Coleus barbatus (Andrews) Benth.

- The same is true for family names; Examples of new and previous names of some plant families are as follows.
- • Legumes: Fabaceae / Leguminosae
- • Ballibagagiller: Lamiaceae / Labiatae
- • Compositions: Asteraceae / Compositae
- • Wheatgrass: Poaceae / Graminae
- • Swordchugiller, Reçinedamlillerler, Sarıkantarongiller: Hypericaeae / Guttiferae
- • Maydanozgiller: Apiaceae / Umbelliferae
- • Turpgiller, Crusader, Hardalgiller: Brassicaceae / Cruciferae

- Naming plant parts / drogs
- • The medicinal plant part (drug) is named by its name / name.
- • Bulb scillae is used to crown the bulbous (Urgina maritima-Scilla maritima); here;
- O The first name refers to the medically used droplet / plant part,
- O The second name refers to the plant (genus name).
- • Some examples are.
- O Sage leaves (Folia salviae)
- O Adamotu root (Radix mandragorae)
- O Leuconthorn (Flos crataegi)
- O Anise fruit (Anisi stellati fructus)
- O Rye (Oleum rosae)
- O Hibiscus leaves (Folia malvae)
- O Lavender flower (Flos lavandulae)
- O Lavender oil (Oleum lavandulae)
- O Lemon essence (Oleum citri, O.limonus)
- O Lohusaotu seed (Semen aristolochiae)
- O Mahmudekökü resin (Resina scammonium)
- O Parsley plant (Herba petroseleni)

- • In some countries and sources, the name of the genus is first, and the part of the plant used is the second name.
- O Senegae radix is an example of this.

- • Sometimes irrelevant naming is done.
- O Fruit-Glycyrrhiza glabra root for Radix liquiritiae,
- O Saparna-Smilax ornata root is the main example of Radix sarsaparillae.

- • If the drug is a finished product, it can sometimes be expressed in one word.
- O Opium (Afyon, Succus papaveris) obtained from the poppy plant (Papaver somniferum),
- O Tragacantha (Kitrezamki, Gummi tragacanthae) obtained from Kitrezamiki plant (Astragalus gummifer) are examples of such a designation.

- Herbarium
- • Plant libraries of dried plant specimens (plant collections).
- It is the most important memory of your plant variety in a country and / or region.

- • The plants are arranged and stored in a certain system here.
- • Plant samples collected;
- O Drying between paper or paperboard; Are affixed to special cartons.
- O the cardboard is the etiquette planted;
- The name,
- Family,
- Meeting place, height, date,
- The name of the collector,
- The name of the name and
- Other features (such as habitat) are written.

- • Cartons are placed horizontally in special cabinets.
- • Plant samples are used for identification of new plants and scientific studies.
- • There are Herbariums in various universities including the Pharmacy, Science and Forestry Faculty and some public institutions' Institutes of the plants that grow in our country.