Medical Botany
8: Common plants used in veterinary herbal medicine

Autumn crocus (*Colchicum autumnale* L.)

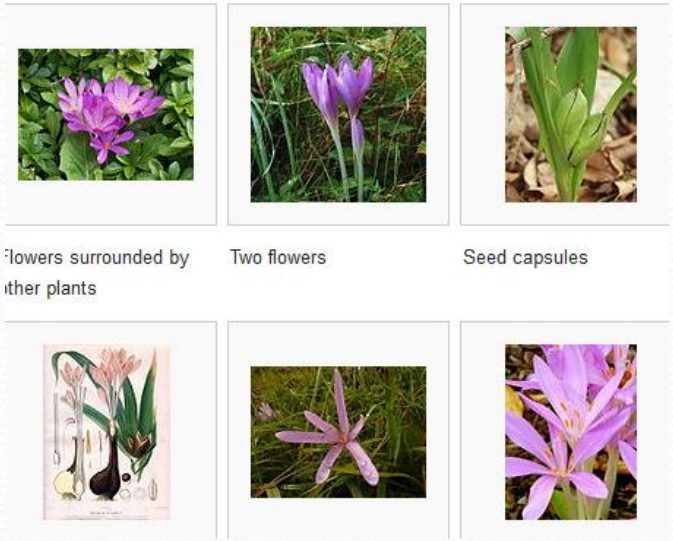
Turkish name: Acı çiğdem
Other names: autumn crocus, meadow saffron or naked lady

Family: *Liliaceae*.

Usage: Semen colchici, Bulbus colchici

Content
Seed
Alkaloidler (colchicine, demecolchine)
Sugar
Tannin
Oil

Seed contain2-4 mg/g, bulbus 0.8-2 mg/g, leaf 0.1-0.3 mg/g colchicine.



Effect
Narrow therapeutic index
Antinociceptive
Diuretic
Treatment of some types of cancer (breast, bowel, lung, prostate)

Usage/Dosage
Antinociceptive
Colchicine is approved by the US FDA for the treatment of gout and familial Mediterranean fever

Crocus root tenture
Horse and cattle: 15-45 ml
Sheep and pig: 4-6 ml

Adverse effects
Colchicum plants have been mistaken by foragers for ramsons, which they vaguely resemble, but are deadly poisonous due to their colchicine content. The symptoms of colchicine poisoning resemble those of arsenic, and no antidote is known.
Carcinogenic

Sage (*Salvia officinalis* L.)

Flowers of *Salvia officinalis*

Scientific classification	
Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Lamiales
Family:	Lamiaceae
Genus:	*Salvia*
Species:	***S. officinalis***
Binomial name	

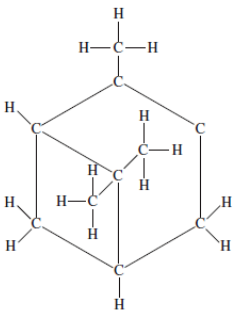
Turkish name: Adaçayı

Used parts:
Folia salviae
Oleum salviae

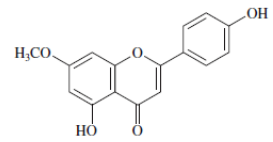
Other Names: Sage, garden sage, red sage, dalmatian sage, broad leaved sage, sawge, salbeiblätter, edelsalbei, gartensalbei, *Feuilles de sauge officinale, Feuilles de sauge commune*
Family: Lamiaceae
Similar Species: *S. officinalis* is native to the Mediterranean and was brought to North America as a garden plant; many subvarieties are now available for culinary use. *Salvia triloba* may have similar properties.
Parts Used: Leaves
Selected Constituents: Essential oil, which contains thujone, pinene, and other volatile constituents, as well as diterpene bitters, flavonoids (salvigenin, genkwanin, etc.), phenolic acids, and salviatannin (a catechin)

Main content
Folia
Bitter substances
Diterpenler (%0.2-0.4 carsolonic acid, carno
Phenolic acids
Flavonoidler (apigenin, genkwanin, salvigeni
Tannins (salviatanen)
Triterpenes (%5 ursolic acid)
Volatile oil(%1-3.5)

Volatile oil
%35-50'si α-thujon, β-thujon
%15'i borneol
%5-15'i oecaliptol
%15-35'i cafur
Caffeic acid derivates(%3-6; clorogenic acid, rosmarinic acid)
Thujol
Bornilasetat
Pinan
Sabinan



α-pinene



Genkwanin

Clinical Action: Carminative, antispasmodic, anti-inflammatory, antimicrobial

Effects

- Human
- Improved memory, attention/executive function, alertness and mood following single doses of cholinesterase-inhibiting sage extracts or essential oils, Anti-Alzheimers

Sage preparations have

- Antimicrobial
- Adstringent
- Carminative
- Reduce blood pressure
- Increase bile secretion
- Antispasmotic

- Food producing animals %29.4 sage extract is used in wounds in skin and inflammations.

Indications: Pharyngitis, gingivitis, stomatitis; topically for wounds; gastrointestinal disorders such as flatulence, diarrhea, enteritis. May improve memory. Suppresses sweating and lactation

Potential Veterinary Indications: Stomatitis, gingivitis, flatulence, diarrhea, cognitive dysfunction, adjunct to azathioprine treatment

Contraindications: Pregnancy, may induce uterine contractions; lactation, unless drying off is desired

Toxicology and Adverse Effects: AHPA class 2b, 2d. Large doses or prolonged use may lead to tachycardia, hot flashes, seizures, and dizziness. Approved by the US Food and Drug Administration (FDA) as GRAS (generally recognized as safe) for flavoring. Sage leaf contains thujone, which may be neurotoxic with long-term use of very high doses.

Small Animal:

Dried herb: 25-200 mg/kg, divided daily (optimally, TID)

Infusion: 5-30 g per cup of water, administered at a rate of ¼-½ cup per 10 kg (20 lb), divided daily (optimally, TID)

Tincture (usually 40%-60% ethanol) 1:2-1:3: 0.5-1.0 mL per 10 kg (20 lb), divided daily (optimally, TID) and diluted or combined with other herbs. Higher doses may be appropriate if the herb is used singly and is not combined in a formula.

Squill (*Urginea maritima* (L.) Baker)
Drimia maritima

Turkish name: Adasoğanı

Bulbus scillae albus

This herb was formerly used as a stimulating expectorant, but it contains cardiac glycosides and was said to be a stimulating irritant to the kidney.

This plant has more powerful gastrointestinal adverse effects than digitalis.

Main content
Organic acid
Sugar
Steroid glycosides (%1-3; sillaren A, prosillaridin A gibi bufodienolid derivate silla glycoside)
Tannin

Usage

Expectorant

Diuretic

Cardiac stimulant

- Liquid extract
- Horse: 4-8 ml
  - Dog: 0.06-0.3 ml
- Tenture
  - Horse: 15-30 ml
  - Dog: 0.3-0.2 ml
  - Syrup
  - Horse: 15 ml

- Dog: 2-4 ml
- Low therapeutic index.
- No studies can be found to support its use. Considering the toxic cardiac and kidney effects, this herb should probably be avoided.

Contraindications

- High blood calcium
- Low potassium
- Ventricular tachycardia
- II and III. stage AV blockage

Interactions

- Birlikte kullanılmaları halinde;
- Sympathomimetics (adrenaline, ephedrine),
- Methylxanthine (caffeine, teophiline),
- Chinidin causes arhythmia

White hellebore (*Veratrum album* L.)

Turkish name: Ak çöpleme
Other names: false helleborine, white hellebore, European white hellebore, or white veratrum
First century AD. as a seton (drain) through the ears of horses or sheep;
In the early 20th century, they were used as purgatives, emetics, anthelmintics, and parasiticides (although they caused death in many animals)

The plant is a perennial herb with a stout vertical rhizome covered with remnants of old leaf sheaths

Distribution: Black sea region (Zigana mountains), Adana (Toros mountains).

Used parts:
Rhizoma veratri albi

The root is very poisonous, with a paralyzing effect on the nervous system

Veratrum album

Scientific classification

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Monocots
Order:	Liliales
Family:	Melanthiaceae
Genus:	*Veratrum*
Species:	***V. album***

Main content

- Steroidal alkaloids (%0.1-0.5; 3-o-asetiljervin, 13α-dihidrojervine, jervin, N-formiljervine, N-methyljervine, protoveratrin A, B, pseudojervine, rubijervine, cyclopamine, cyklopocine, veralbidine)
- Starch
- Sugar
- Resin

- Antinociceptive

- Some skin diseases (Scabies)as infusion (%5) kullanılır.
- Nezle sırasında burunu açmak için tozu enfiye şeklinde kullanılır.
- Tenture
- Horse cattle: 10-12 ml
- Sheep and pig: 2-4 ml
- Liquid extract
- Horse and cattle: 2-4 g
- Sheep and pig : 1-2 g

Varetrum alkaloids have teratogenic effects

WHITE HELLEBORE (*VERATRUM ALBUM*): This was used as a decoction or ointment to kill lice and scabies; however, the plant is highly toxic and teratogenic and should be avoided because animals often lick topical applications.

Leaves

ssp. *oxysepalum*

Buckthorn (*Rhamnus cathartica* L.)

Turkish name: Akdiken
Other name: buckthorn, common buckthorn or purging buckthorn

Used parts
Cortex rhamni catharticae
Fructus rhamni catharticae
Sirupus rhamni cathartici

Rhamnus cathartica

Scientific classification

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Rosids
Order:	Rosales
Family:	Rhamnaceae
Genus:	*Rhamnus*
Subgenus:	*Rhamnus*
Species:	***R. cathartica***

Active content

- Fruit
- Antracene derivates
- Flavonoids
- Dried drog from the seed contain %0.7-1.4 antracene derivates (emodol, frangulozide, emodin-antranol)
- Cortex contain %1.5 anthracene derivative
- Flavonoids are found in pulp (%1-2); contain cersetol,caempferol and methyl esters of these contents
- Drog include %3-4 tannins

Usage

Fruit extract contain flavonol having diuretic and laxative effects.

Usage/Dose

- Diuretic
- Laxative
- Used in syrup and liquid extract forms
- Buckthorn syrup (7 g buckthorn extract + 13 g sugar)
- Dog: 1-2 spoon
- Cat: 1-2 teaspoon
- Liquid extract
- Horse and cattle: 30-60 g
- Sheep and pig: 4-8 g

Adverse effects

Gastrointestinal pain and cramps, might induce water-electrolyte loss (especially potassium)

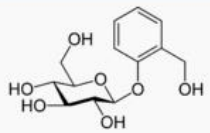
Contraindicated in..

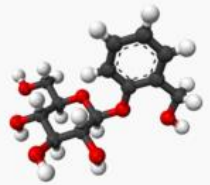
- Acute intestinal inflammation
- İntestinal obstruction
- Unknown gastointestinal pain
- Pregnancy
- Lactating
- Young animals

While willow (*Salix alba* L.)

Turkish name: Aksöğüt
Main content
Shell
Phenolic glycoside (salicyline, salicortine, salireposide, picetine, triandrine)
Resin and other colorogenic suvbstances
Tannins
Salt

Salicyline





According to salicyline content amount in shell represents of the salicylate derivatives are %0.5-1 ; where %1 of the 1:2 extract 500 mg White willow/ml, contain 5 mg salicyline (5 mg/ml).

Salicine is hydrolyzed into emulcine and salygenine (salicylic alcohol; salicine aglycone) and glycose.

Salix alba

White Willow foliage; note white undersides of leaves

Scientific classification

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Rosids
Order:	Malpighiales
Family:	Salicaceae
Genus:	*Salix*
Species:	***S. alba***

Parts Used: Bark (inner bark); outer bark can be very corky. Originally, bark of branches—not trunk bark—was used. The bark is stripped from branches of 2- to 5-year-old trees in the spring.

Selected Constituents: *Salix* contains phenolic glycosides, including salicin, salicortin, salireposide, picein, and triandrin. Salicylates calculated as salicin vary between species (e.g., 0.5% in *S. alba,* 1%-10% in *S. fragilis,* 3%-9% in *S. purpurea*). Up to 20% of *Salix* bark consists of tannins; *Salix* also contains catechins and flavonoids.

- Historically, it was noted that White willow bark extracts had some effectiveness as a pain remedy; indeed, the seminal Greek physician Hippocrates reportedly prescribed willow bark and leaves for fever and the pain of childbirth. Other cultures have soaked willow leaves and applied them topically for use as a painkiller.

Salix alba (White Willow Bark)

Historical use

This herb was used as an antipyretic, anti-inflammatory, and analgesic.

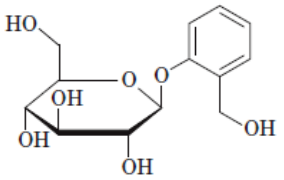
Modern use

This herb has the same uses in modern times. It is very effective as an anti-inflammatory herb in patients with arthritis and injury. It is contraindicated in gastric ulceration, may prolong bleeding times, and may interact with NSAIDs. Although these concerns have not been addressed experimentally in horses, it is important to consider the potential for herb-drug interaction if prescribing it.

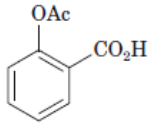
WILLOW BARK (*SALIX ALBA* AND OTHER SALIX SPECIES): Willow contains high levels of salicin, a nonselective COX-1 and COX-2 inhibitor. *Betula* (Birch) species are also recognized as having significant salicin levels in their barks.

White Willow Bark: Potentially Active Chemical Constituents[11, 14]

- Glycosides (1.5-11%): salicylates (salicin, salicortin, populin, fragilin, tremulacin)[15, 16]
- Tannins (8-20%)[17]
- Aromatic aldehydes and acids: salidroside, vanillin, syringin, salicylic acid, caffeic and ferulic acids
- Salicyl alcohol (saligenin)
- Flavonoids



Salicin



Acetylsalicylic acid

White Willow Bark: Potential Clinical Uses

1. Cardiovascular: none
2. Pulmonary: none
3. Renal and electrolyte balance: none
4. Gastrointestinal/hepatic: none
5. Neuro-psychiatric: Analgesic
6. Endocrine: none
7. Hematologic: Anticoagulant and antithrombotic
8. Rheumatologic: Arthritis (See Immune modulation: Anti-inflammatory)
9. Reproductive: none
10. Immune modulation: Anti-inflammatory
11. Antimicrobial: Antifungal
12. Antineoplastic: Prevention of colorectal cancer
13. Antioxidant: none
14. Skin and mucus membranes: none
15. Other/miscellaneous: Antipyretic; wart remedy

Salicylates and Cats

One of the most common cautions in small animal practice is the use of salicylate and salicin–containing herbs in cats due to their sensitivity to a salicylate derivative, acetylsalicylic acid (aspirin). This sensitivity to aspirin extends to phenolic compounds in general. Aspirin dose rates in cats for various conditions range from 10 mg/kg to 40 mg/kg body weight. Qualitative metabolism in cats is similar to that in other species involving hydrolysis of the parent compound in plasma, liver, and some other organs to salicylic acid, followed by formation of salicyluric acid, salicyluric glucuronide, salicyl ester glucuronide, salicyl phenol glucuronide, gentisic acid, and gentisuric acid. One of the reasons for the dosage interval (every 2 to 3 days) is the delayed metabolism of aspirin, which is due to decreased uridine diphosphate (UDP) glucuronyl transferase activity in the cat liver. How do we compare the risk of using herbs that contain unacetylated salicylate and salicins? If we consider that the dose of aspirin for a cat starts at 10 mg/kg, then a 5-kg cat would require 50 mg of acetylsalicylate acid. If we treat a cat with 1 mL of a 1:2 meadowsweet extract (containing one of the highest concentrations of salicins), the cat receives 0.388 mg of salicylate in a dose of 1 mL. This is 0.00776 times the dose of aspirin. Or, another way of expressing this is that the cat would need to receive 128.9 mL of the extract to receive a similar dose of 50 mg. Another example is willow bark *(Salix alba)* that contains 1% salicins. A 1:2 extract contains 500 mg of willow in 1 mL; 1% is 5000 micrograms or 5 milligrams. A 1-mL dose would provide 5 mg of salicins or 10% of the normal dose of aspirin. So, the risk of reaching toxic levels in normal doses in cats is very low. We know that cats detoxify drugs that contain salicylate much more slowly than do humans and dogs. However, perhaps with the exception of *Salix* species, most herbs have relatively low concentrations of salicylate acid when compared with aspirin, and accumulation, even on a daily dosing basis, is unlikely (Fougere, 2003).

Indications: Rheumatoid arthritis, ankylosing spondylitis, respiratory catarrh

Potential Veterinary Indications: Anti-inflammatory; antipyretic; osteoarthritis, ankylosing spondylitis, myositis

Contraindications: Salicylate sensitivity

Toxicology and Adverse Events: AHPA class 1. Safety has been described in cats: Assuming that willow bark *(Salix alba)* contains 0.5% to 1% salicins and that a 1:2 extract

Small Animal:

Dry standardized (to salicins) extract: 10 mg per day (cats)

Dried herb: 25-500 mg/kg, divided daily (optimally, TID)

Tincture (usually in 35% ethanol) 1:2-1:3: 0.5-2.5 mL per 10 kg (20 lb), divided daily (optimally, TID) and diluted or combined with other herbs. Higher doses may be appropriate if the herb is used singly and is not combined in a formula.

- Herbs that contain salicylates such as white willow bark *(Salix alba)* and others that can be sold under the name of white willow—crack willow *(Salix fragilis)*, purple willow *(Salix purpurea)*, and violet willow *(Salix daphnoides)*, along with meadowsweet *(Filipendula ulmaria)*
- *Betula* (birch) spp, *Populus* (poplar) spp, and bilberry *(Vaccinium myrtillus)*—have strong potential for producing a positive drug test.
- Salicylic acid is illegal in competition.

Hawthorn (*Crataegus monogyna* Jacp.)

Turkish name: Alıç
Dağılım:

Distribution in Turkey (İstanbul, Uludağ, İzmit, Bolu, Zonguldak, Sinop, Ankara, Erzincan, Adana, İskenderun, Gaziantep gibi)

Used parts:
Flores crataegi
Fructus crataegi
Cortex craategi
Flos crataegi

Common Hawthorn flowers

Common Hawthorn thorns, leaves, and stipules

Common Hawthorn fruit

Close-up

Crataegus monogyna

Scientific classification

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Rosids
Order:	Rosales
Family:	Rosaceae
Genus:	*Crataegus*
Series:	*Crataegus*[1]
Species:	***C. monogyna***

Other Names: English hawthorn, whitethorn, may tree, woodland hawthorn. *C. monogyna* is "One seed hawthorn." Shan zha is the pin yin name for the fruit of *Crataegus pinnatifida* Bge.

Family: Rosaceae

Parts Used: Berries, leaves, and flowers have been used in modern research.

Collection: Leaves and flowers, when in bloom. Berries when ripe are used in Traditional Chinese Medicine.

Selected Constituents: Flavonoids (mostly vitexin and vitexin glycosides, rutin, hyperoside; quercetin, and quercetin glycosides), oligomeric proanthocyanidins (OPCs), triterpenoid sapogenins, and biogenic amines (e.g., choline). Leaves contain more vitexin rhamnoside, quercetin, and quercetin glycosides, and less hyperoside.

Clinical Action: Cardiotonic, diuretic, and astringent. The constituent profile of the Western and Asian species and parts is considerably different. Cholesterol-lowering activity has been associated with the Asian species, but no reports of cardioactivity such as the positive inotropic activity associated with Western Crataegus have been documented.

Energetics: Berries are sour, sweet, and slightly warm, and they enter the liver, spleen, and stomach channels. Flower and leaf are slightly sweet, slightly bitter, and astringent.

The berries were generally used for food and for treatment of patients with diarrhea and stomach disorders;

the twigs and root were used for “female disorders,” bladder ailments, gastrointestinal problems, and pain.

In Traditional Chinese Medicine, the fruit is particularly important for dissolving food stagnation, especially from meat.

The action is to nourish heart blood and enhance digestion. It is indicated for abdominal distention, pain, and diarrhea.

It is also used for angina, postpartum abdominal pain and masses, congealed blood, and long-term bleeding.

Indications:

- Congestive heart failure, possibly hyperlipidemia and hypertension (leaf and flower, possibly berry).
- Also, for poor or slow digestion (berry).

Potential Veterinary Indications:

Same as human indications, but especially congestive heart failure, with the possible exception of hypertrophic cardiomyopathy of cats.

Feline hypertrophic cardiomyopathy

Contraindications:

Disagreement has been expressed among veterinary herbalists about the use of hawthorn for cats with hypertrophic cardiomyopathy. It would seem that increasing ventricular work would worsen the condition. On the other hand, some herbalists claim that the action is “amphoteric” or normalizing—if the heart works too hard, the antioxidant and antiarrhythmic activities are beneficial in this type of disease as well.

Theoretical contraindications have been listed as bleeding disorders (because synthesis of thromboxane A2 is inhibited), chest pain, and low blood pressure.

Herbalists generally do not recommend hawthorn for patients who are sedate, have slow heart beats, or hypotension.

Toxicology and Adverse Effects:

- Intraperitoneal and oral administration of an extract to mice and rats, at a dose of 3 g/kg body weight, did not induce lethal effects.
- In people, allergic responses have been reported; at large doses, fatigue, sedation, and hypotension are theoretically possible.

Drug Interactions

- Studies have shown interactions with cardiac glycosides, theophylline, caffeine, papaverine, sodium nitrate, adenosine, barbiturates, and epinephrine.
- Interactions may occur with anticoagulants and antihypertensives.
- Hawthorn flavonoids may affect P-glycoprotein function and have been suspected to cause interactions with digoxin, also a P-glycoprotein substrate.
- Hawthorn did not significantly affect the pharmacokinetic parameters for digoxin.
- Veterinarians should monitor dogs that are being treated with digitalis for a possible potentiating effect of hawthorn, which would allow administration of lower doses of digitalis.

Dosage

- Most practitioners believe that the most potent effect is achieved after 6 weeks of therapy

Small Animal:
Dried herb: 25-300 mg/kg, divided daily (optimally, TID)
Infusion and decoction: 5-30 g per cup of water, administered at a rate of ¼-½ cup per 10 kg (20 lb), divided daily (optimally, TID)
Tincture (usually in 25%-45% ethanol) 1:2-1:3: 0.5-1.5 mL per 10 kg (20 lb), divided daily (optimally, TID) and diluted or combined with other herbs. Higher doses may be appropriate if the herb is used singly and is not combined in a formula.

Arnica (*Arnica montana* L.)

Turkish name: Altınçiçek

Common name: Arnica, wolfsbane, leopards bane
Kullanılan kısım
Kök (Cortex arnica)
Kurutulmuş çiçekler (Flores arnica)
Yumrular (Tubera arnica)

Anabileşenler
Çiçekler

Flavonoidler (%0.4-0.6; apigenin, luteolin, hispidulin, kaempferol, kuersetin gibi)
Seskuiterpen laktonlar (helenalin, 11a,13-dihidrohelenalin gibi), bunların kısa zincirli karbonik asit esterleri (kuru esasa göre %0.1-1)
Yağ asitleri
n-Alkanlar
Timol türevleri
Uçucu yağ (%0.3-0.5)

- This strong herb inhibits the activation of NF-kappa-B which leads to release of cytokines and inflammatory mediators.
- Arnica is a contact allergen that may cause dermatologic reactions in some patients with repeated use.
- It is usually used only topically, or orally in homeopathic doses.
- A preparation like this may be useful in horses, but dogs would have to be prevented from licking the gel because of its oral toxicity
- Listed amont the herbs Specifically Prohibited in Competition of Horses in the United States

Historical use

Arnica was used primarily for bruises (e.g., 1 oz arnica tincture combined with 2 oz water; soak a cloth and apply topically) (McClure, 1917). Another formula recommended by Dadd (1854) consisted of 4 ounces arnica flowers in 1 pint new rum. This was macerated for 14 days; then, 1 ounce in a pint of water was used topically for all wounds, bruises, and saddle galls. A sedative drench was also made by Dadd for internal use, to decrease arterial "actation" (i.e., increased pulse rate): 4 drachms (14.8 mL) arnica mixed in 1 pint water; this was repeated as needed, but gradually, the dose was lessened.

Modern use

Arnica is used commonly in topical liniments or ointments for bruises, sprains, and contusions. Even more common than its topical use is its homeopathic use, in which the diluted preparation is taken internally to treat bruises. Internally, it is toxic in the herbal form (Brinker, 2001) but safe in the homeopathic preparation. In Europe, the internal form of arnica is banned (Brinker, 2000). The following is the topical formula for bruises: brew handful of flowers or whole plant as a tea in 2 cups water (not to be strained); then, massage onto injured parts (deBairacli-Levy, 1976).

Indications: Externally as a mild pain reliever and anti-inflammatory, arnica is used for arthralgia, arthritis, and traumatic swelling, and to improve circulation. It is also used in hair tonics and as a dandruff remedy. The herb is too toxic to use internally, except in the low-dose homeopathic form.

Potential Veterinary Indications: Use should be limited to topical applications, and only if the animal can be prevented from licking the substance. Homeopathic forms (mother tincture, which is a 1:10 extract, or low potencies, under 12×) are more easily available in the United States. Low-potency homeopathic remedies should be safe for internal use. Primarily used for bruising and traumatic injury.

Contraindications: Not for use on damaged skin or open wounds; safety for topical use not established in pregnancy or lactation.

Toxicology and Adverse Effects: AHPA class 2d. Type IV allergic contact dermatitis has been reported frequently in sensitive persons or with prolonged use. Internal use may lead to stomach pain, vomiting, diarrhea, vomiting, kidney pain, dyspnea, tachycardia, cardiac arrest, and liver failure. One author (Kuhn, 2001) writes that a single gram dose can lead to heart damage and cardiac arrest in humans.

Potential Drug Interactions: Arnica contains some constituents that may change platelet function; theoretical interactions with anticoagulants have been suggested.

Dosage:

Topical Forms: Apply as directed by manufacturer. These generally contain 15% to 25% arnica oil.

Internal Use: **Not recommended.** Arnica should be used only by very experienced herbalists, who should also note that dose–response studies have never been conducted. The Eclectics used 1:10, 70% alcohol tinctures at 1 to 3 drops twice daily for an adult human. This dose is akin to that used internally by homeopaths. The **human** internal dose from one modern manufacturer is tincture, 1:2 fresh tops in 65% alcohol, 1-2 drops BID.

Ipecacuanha

(*Urogoga ipecacuanha* Baillon, Carapichea ipecacuanha)

Turkish name: Altınotu, altın kökü otu

Its common name, ipecacuanha (Portuguese pronunciation: [ipeˌkɐkuˈɐ̃ɲɐ]), is derived from the Tupi ipega'kwãi, or "road-side sick-making plant

Used parts:
Radix ipecacuanhae

Main content
Terpenoid tetrahydroisoquinoline alkaloids (%2; emetine, methyllpsycothrine, psycothrine, Cefaeline)
Starch

Effect
Expectorant
Emetic
Nauseant

Scientific classification	
Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Gentianales
Family:	Rubiaceae
Subfamily:	Rubioideae
Tribe:	Psychotrieae
Genus:	*Carapichea*
Species:	***C. ipecacuanha***

- The most common and familiar preparation is syrup of ipecac, which was commonly recommended as an emergency treatment for accidental poisoning until the final years of the 20th century.
- Ipecacuanha was also traditionally used to induce sweating.
- A common preparation for this purpose was Dover's powder. Accoridng to Turkish Codex Dovers powder is also used for antitussive (1 g opium salt + 1 g ipecac powder).
- Used in amoebic dysentery as syrup (2 g ipecac powder is boiled with 150 ml water for 15 min, filtered and 30 g sugar is added); where it is administered in 1 hour interval for 3 consecutive days

Anise (*Pimpinella anisum* L.)

Turkish Name: Anason
Distribution in Turkey: Aegean, South Anatolia

Used parts:
Fructus anisi
Folia anisi
Oleum anisi

Moisture: 9-13%
Protein: 18%
Fatty oil: 8-23%
Essential oil: 2-7%
Starch: 5%
N-free extract: 22-28%
Crude fibre: 12-25%

Drug Interactions:
Anticoagulants, anticonvulsants, oral contraceptives/
estrogen replacement therapy, iron, MAOIs

- carminative effect (reducing flatulence)
- treatment for menstrual cramps and colic
- hepatoprotective

Anise

1897 illustration[1]

Scientific classification

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Apiales
Family:	Apiaceae
Genus:	*Pimpinella*
Species:	***P. anisum***

Pharmacologic effects

- The pharmacologic effects of aniseed are largely due to the presence of anethole, which is structurally related to the catecholamines adrenaline, noradrenaline, and dopamine.
- Anethole dimers closely resemble the estrogenic agents stilbene and diethylstilbestrol
- This herb (200mg/L) was shown to antagonize carbachol-induced spasms in a guinea pig tracheal muscle preparation.
- When given to rats (100 mg/kg given subcutaneously), this herb stimulated liver regeneration after partial hepatectomy

Adverse effects

- Side effects are related to its close resemble to dietylstilbestrol
- At higher doses might induce eadache, dizziness, vision problems

Astragalus (*Astragalus membranaceus* (Fisch. ex Link) Bunge.)

Known as Geven in Turkey.

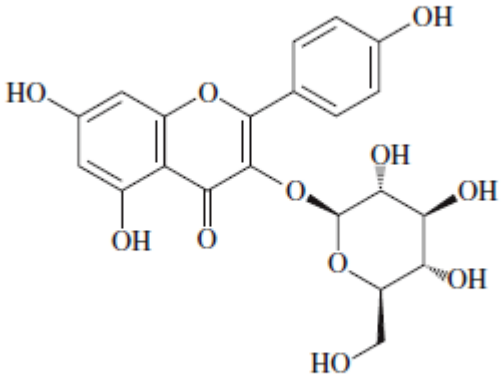
Potential drug Interaction:

Acyclovir, anticoagulants, cyclophosphamide, immunosuppressants, interferon α1, interleukin-2

Roots

Amino acids
Flavonoids
Koumarins
Mineral substances
Polysaccharides (astragal, astraglycane)
Triterpenoid saponins (astragalasid I-X, izoastraga

Selected Constituents: Major constituents are triterpene saponins (astragalosides I-X and isoastragalosides I-IV) and polysaccharides (e.g., astragalan, astraglucan).



Astragalin

Clinical Actions: Immune enhancing, tonic, cardiotonic, diuretic, hypotensive

- The immune polysaccharides of Astragalus *(Astragalus membranaceus)* root, another Qi tonic, enhance immune function and resistance to infection.
- This traditional Chinese herb has been shown to increase T cell–mediated immune function in vitro in mice, as well as in uncontrolled trials in humans.
- Anticarcinogenic effects through activation of cytotoxic activity and the production of cytokines in mice. Enhancing quality of life and reducing the toxicity of chemotherapy in human patients with malignant tumors.

- Also used in allergic disease.
- Astragalus selectively alters Th-1/Th-2 cytokine secretion patterns, which may provide the pharmacologic basis for

Astragalus membranaceus

- *Astragalus membranaceus* root extract on chicken growth and the cecal microbial ecosystem, as compared with the antibiotic apramycin (APR). Extracts significantly stimulated growth of chickens infected with avian *Mycoplasma gallisepticum* and increased the number of potentially beneficial bacteria (bifidobacteria and lactobacilli), but they reduced the number of potentially harmful bacteria (*Bacteroides* spp and *Escherichia coli*).

- Compared with controls, an extract of *Astragalus membranaceus* significantly increased immunoglobulin (Ig)G and proliferation of antigen-specific splenocytes against *Eimeria tenella*–infected chickens.

- Investigation into the effects of astragalus on the activity of dog small intestine indicated that it could strengthen movement and muscle tonus, especially in the jejunum

Usage/Dose

- Immunostimulant
- Kidney diseases
- Heart muscle disorders
- Cancer
- Chronic infections
- Small animals
- Dried root: 50-400 mg/kg , Tenture: (%25-35 ethylalcohol 1:2-1:3): 0.1-0.2 ml/kg, decoction (5-30 g/glass water): 1/2-1/4 glass/10 kg

Ginseng (*Panax ginseng* C.A.Meyer)

Turkish Name: Asya ginsengi

Other Common Names: Radix ginseng, Korean ginseng, red ginseng, Chinese ginseng, ren shen

Distribution: Mountain regions of China, Korea, Japan, and Eastern Siberia

Selected Constituents:
The major chemical constituents
are the triterpene saponins dammarane and ginsenosides
(derived from oleanolic acid)

The dammarane saponins are derivatives
of protopanaxadiol or protopanaxatriol.

Panax quinquefolius foliage and fruit

Scientific classification	
Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Apiales
Family:	Araliaceae
Subfamily:	Aralioideae
Genus:	***Panax*** L.

Species

Subgenus *Panax*
- Section *Panax*
  - Series *Notoginseng*
    - *Panax notoginseng*
  - Series *Panax*
    - *Panax bipinnatifidus*
    - *Panax ginseng*
    - *Panax japonicus*
    - *Panax quinquefolius*
    - *Panax vietnamensis*
    - *Panax wangianus*
    - *Panax zingiberensis*
- Section *Pseudoginseng*
  - *Panax pseudoginseng*
  - *Panax stipuleanatus*

Subgenus *Trifolius*
- *Panax trifolius*

Etymology

- The English word ginseng derives from the Chinese term rénshēn (simplified: 人参; traditional: 人蔘). Rén means "Person" and shēn means "plant root"; this refers to the root's characteristic forked shape, which resembles the legs of a person.[3] The English pronunciation derives from a southern Chinese reading, similar to Cantonese yun sum (Jyutping: jan4sam1) and the Hokkien pronunciation "jîn-sim".

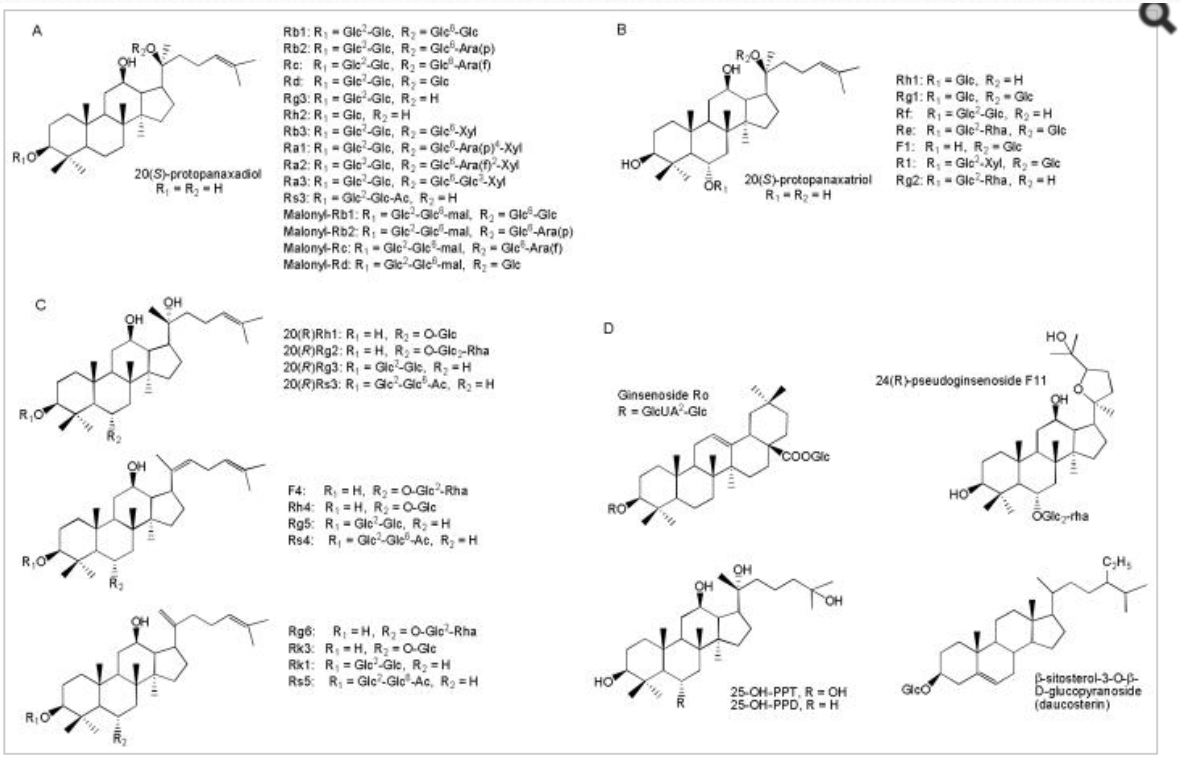
- The botanical/genus name Panax means "all-heal" in Greek, sharing the same origin as "panacea" was applied to this genus because Linnaeus was aware of its wide use in Chinese medicine as a muscle relaxant.

Chemical Content-2

- The most abundant ginsenoside in both species is ginsenoside Rb1. This ginsenoside is reported to have a sedative effect.
- Ginsenoside Rg1 is said to have a stimulant effect. The levels of Rg1 in Asian ginseng are much higher than in American ginseng.
- Asian ginseng also contains ginsenosides Rf and Rg2, whereas American ginseng is virtually devoid of these ginsenosides.
- Pseudoginsenoside F11 is noted in American ginseng, but it is almost absent from Asian ginseng

Chemical Content-1

- The main active ingredients in the Panax species are a group of dammarane-type triterpenoid glycosides. They are referred to as saponins. And termed ginsenosides. These are in the ginseng root. There are more than thirty ginsenosides. One of them is an oleanolic acid derivative.
- The root of ginseng contains a resin, sugar, starch, mucilage, a saponin, a volatile oil and several steroid compounds



Structure of selected ginsenosides. **A.** protopanaxadiols (PD). **B.** protopanaxatriols (PT). **C.** derivatives of PD and PT. **D.** new ginsenosides. Glc, β-D-glucose; Rha, α-L-rhamnose; Ara(p), αL-arabinose(pyranose); Ara(f), α-L-arabinose(furanose); Xyl, β-D-xylose; GlcUA, β-D-glucuronic acid; mal, malonyl; Ac, acetyl.

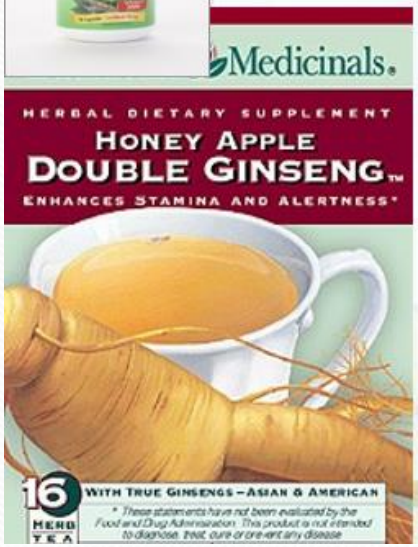
- Ginsenosides/ panaxosides
- 6-8 major ginsenosides: Rg1, Re, Rf, Rb1, Rc, Rg2, Rb2, Rb

- Panaxans
- (peptidoglycan in ginseng. may role to help stabilize blood sugar)

- Ginsenans
- (which is known as polysaccharide in ginseng)

Forms of Ginseng

- Root itself ($25~ per root)
- Dried root
  - Teas, capsules, tablets, tinctures, powders.



Clinical Use

- The root is most often available in dried form, either whole or sliced. Ginseng leaf, although not as highly prized, is sometimes also used.

- Adaptogenic, stimulant, tonic, thymolepic, hypoglycemic, immune stimulant, hepatoprotective, cardioprotective, antiarrhythmic; increases adrenocorticotrophic hormone (ACTH)

History and Traditional Usage:

- Used traditionally as a tonic, particularly for geriatrics, as a prophylactic and restorative agent for enhancement of mental and physical capacities; in cases of weakness, exhaustion, tiredness, and loss of concentration; during convalescence.
- Ginseng has been used in the treatment of patients with diabetes and impotence and in the prevention of hepatotoxicity and gastrointestinal disorders such as gastritis and ulcers
- Other uses include treatment of those with liver disease, cough, fever, tuberculosis, rheumatism, vomiting during pregnancy, hypothermia, dyspnea, and nervous disorders

- Cows with subclinical mastitis caused by *Staphylococcus aureus* were injected subcutaneously with ginseng extract at 8 mg/kg per day for 6 days, or with saline as a control.
- The numbers of *S. aureus*–infected quarters and milk SCCs (somatic cell counts) decreased in ginseng-treated cows. Phagocytosis and oxidative burst activity were significantly increased 1 week after initiation of ginseng treatment. The number of monocytes in ginseng cows was significantly higher 1 week post treatment, and the number of lymphocytes was significantly higher at 2 and 3 weeks than was the preinfusion number.
- These findings indicated that ginseng can activate innate immunity and accelerate recovery from mastitis

- In pigs, the adjuvant effect of ginseng was demonstrated by vaccinating them against porcine parvovirus (PPV) and *Erysipelothrix rhusiopathiae* infections with the use of commercially available vaccines. It was found that the addition of 2mg ginseng per vaccine dose significantly potentiated the antibody titer response to both vaccines without altering their safety.

Potential Veterinary Indications:

- Improving immune function;
- Adjuvant for vaccination;
- Mastitis treatment in cattle;
- Diabetes mellitus;
- Liver disease in dogs;
- Tonic for convalescing animals or those with chronic debilitating disease;
- Performance animals;
- Fertility improvement in male animals

Potential drug interactions

- Ginseng intake may slightly reduce blood glucose levels.
- Ginseng has been shown to have adverse drug reactions with phenelzine and warfarin; it has been shown to decrease blood alcohol levels.
- A potential interaction has also been reported with imatinib resulting in hepatotoxicity, and with lamotrigine
- Ginseng may also lead to induction of mania in depressed patients who mix it with antidepressants.

Dosage

Small Animal:

Dried herb: 25-300 mg/kg, divided daily (optimally, TID)

Decoction: 5-30 g per cup of water, administered at a rate of ¼-½ cup per 10 kg (20 lb), divided daily (optimally, TID)

Tincture (usually 60%-70% ethanol) 1:2-1:3: 0.5-1.5 mL per 10 kg (20 lb), divided daily (optimally, TID) and diluted or combined with other herbs. Higher doses may be appropriate if the herb is used singly and is not combined in a formula.

Overdose

- The common adaptogen ginsengs (P. ginseng and P. quinquefolia) are generally considered to be relatively safe even in large amounts.
- One of the most common and characteristic symptoms of acute overdose of Panax ginseng is bleeding. Symptoms of mild overdose may include dry mouth and lips, excitation, fidgeting, irritability, tremor, palpitations, blurred vision, headache, insomnia, increased body temperature, increased blood pressure, edema, decreased appetite, dizziness, itching, eczema, early morning diarrhea, bleeding, and fatigue

- Symptoms of gross overdose with Panax ginseng may include nausea, vomiting, irritability, restlessness, urinary and bowel incontinence, fever, increased blood pressure, increased respiration, decreased sensitivity and reaction to light, decreased heart rate, cyanotic (blue) facial complexion, red facial complexion, seizures, convulsions, and delirium

Ginseng roots in a market in Seoul, 2003

- Two cases of mydriasis and disturbance in accommodation and dizziness have been reported after large doses (3-9 g)
- Estrogenic like adverse effects have been reported in women. Seven cases of mastalgia and one of vaginal bleeding in a postmenopausal woman were reported. Increased libido in premenopausal women has been reported

Feverfew (*Tanacetum parthenium* (L.) Schultz Bip.)

Turkish Name: Ateş otu
Tanacetum parthenium, the feverfew, is a traditional medicinal herb which is commonly used to prevent migraine headaches, and is also occasionally grown for ornament. It is also commonly seen in the literature by its synonyms, Chrysanthemum parthenium and Pyrethrum parthenium. It is also sometimes referred to as bachelor's buttons or featherfew.

A perennial herb, native to Eurasia: specifically the Balkan Peninsula, Anatolia and the Caucasus, but cultivation has spread it around the world and it is now also found in the rest of Europe, North America and Chile.

Used parts: Leaves

Flavonoidler , Melatonin (2 mg/kg), Monoterpens, Polyacetylenes, sesquiterpene lactones (up to %0.9 parthenolide), volatile oils (crysanthenylacetate)

Feverfew

Scientific classification

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Asterales
Family:	Asteraceae
Genus:	*Tanacetum*
Species:	***T. parthenium***

Binomial name

Tanacetum parthenium
(L.) Sch. Bip.

Synonyms

Chrysanthemum parthenium (L.) Bernh.
Matricaria parthenium L.
Pyrethrum parthenium (L.) Sm.

Effects

- Tonic
- Carminative
- Emmenagogue
- Vermifuge,
- Stimulant
- Anthistaminic
- Anthelmintic
- Antiinflammatory
- PG synthesis
- Trombocyte aggregation
- Serotonine release

Tanacetum parthenium (L.) Schultz-Bip.
Syn: Chrysanthemum parthenium (L.) Berhn., formerly, *Leucanthemum parthenium, Matricaria eximia, M. parthenium* L., *Pyrethrum parthenium.* • TAN-uh-SEE-tum par-THEN-ee-um

Usage/Indications

- Traditional Usage
- Uses described in folk medicine include treatment of patients with anemia, arthritis, asthma, common cold, constipation, diarrhea, dysmenorrhea, dyspepsia, edema, fever, indigestion, insect bites, rheumatism, sciatica, tinnitus, toothache, and vertigo
- **Indications:** Prevention of migraine headaches, arthritis, allergies, mild gastrointestinal problems
- **Potential Veterinary Indications:** Allergies in rats, papillomas, headache (although veterinarians do not often recognize headache in animals, it probably ccurs)

Contraindications:

- Feverfew may be contraindicated in cases of known allergy to plants of the *Asteraceae* family.
- The use of feverfew during pregnancy is contraindicated because of its uterotonic activity in vivo.
- Long-term use of feverfew followed by abrupt discontinuation may induce a withdrawal syndrome featuring rebound headaches and muscle and joint pains.
- Feverfew can cause allergic reactions, including contact dermatitis
- Other side effects have included gastrointestinal upset such as nausea, vomiting, abdominal pain, diarrhea, and flatulence. When the herb is chewed or taken orally it can cause mouth ulcers and swelling and numbness of the mouth.

Small Animal:

Dried herb: 12.5-200 mg/kg, divided daily (optimally, TID)

Infusion: 5-30 g per cup of water, administered at a rate of ¼-½ cup per 10 kg (20 lb), divided daily (optimally, TID)

Tincture (60% ethanol) 1:2-1:3: 0.5-1.0 mL per 10 kg (20 lb), divided daily (optimally, TID) and diluted or combined with other herbs

- **Drug Interaction:** Anticoagulants, paclitaxel

Horse chesnut (*Aesculus hippocastanum* L.)

Turkish name: At kestanesi

Used parts
Flores hippocastani
Cortex hippocastani
Semen hippocastani
Folia hippocastani

Drug Interaction:
Anticoagulants, diuretics, insulin, and oral hypoglycemic agents

Should be avoidd during pregnancy

The seed extract standardized to around 20 percent aescin (escin) is used for its venotonic effect, vascular protection, anti-inflammatory and free radical scavenging properties.[13][14] Primary indication is chronic venous insufficiency

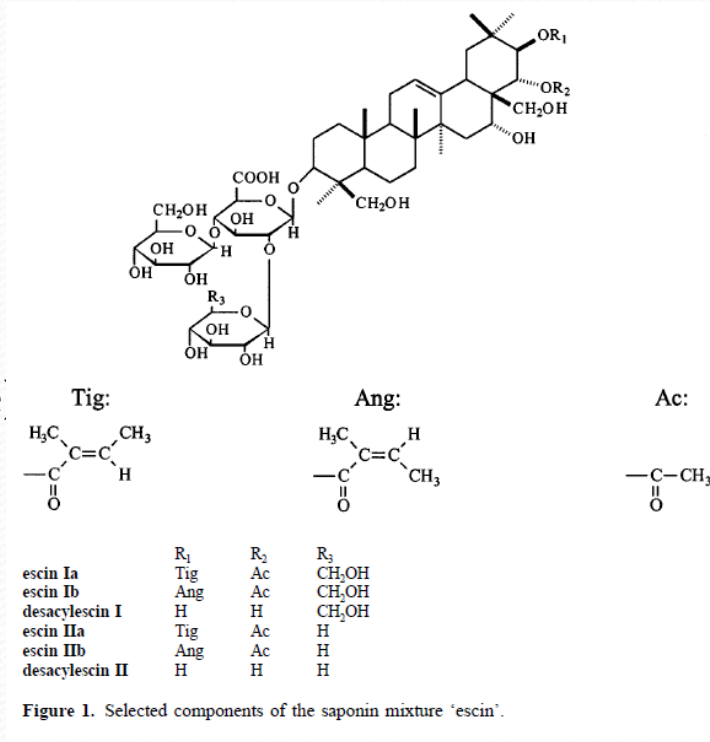
Main components

Rhizomes

- Bitter substances
- Enzymes (amilase, esculinase)
- Flavonoidler (caempferol, quercetine)
- Starch (%3-8)
- Purine derivatives(adenine, adenosine, guanine, uric acide
- Sugars (glycose, mannose, saccharose)
- Tannins
- Triterpenoid saponins (%5-15; aescin, barrintogenol, protoessigenol gibi)
- Stabile Oils

Fruit barks

- Glikozide (aeskulin, fraksin gibi)
- Tannins

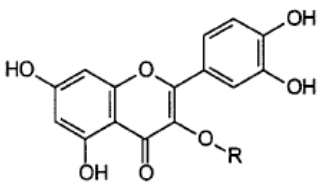


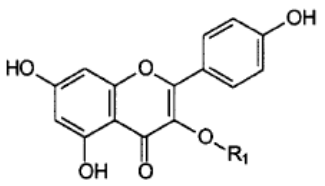
	R_1	R_2	R_3
escin Ia	Tig	Ac	CH_2OH
escin Ib	Ang	Ac	CH_2OH
desacylescin I	H	H	CH_2OH
escin IIa	Tig	Ac	H
escin IIb	Ang	Ac	H
desacylescin II	H	H	H

Figure 1. Selected components of the saponin mixture 'escin'.

Effects

- Antipyretic
- Saponins, such as escin, also reduce capillary fragility, and therefore help to prevent leakage of fluids into surrounding tissues, which can cause swelling.
- An extract of horse chestnut has recently been shown to have one of the highest 'active-oxygen' scavenging abilities
- Decoctions of the bark are also used, albeit rarely, for the topical treatment of skin disorders, such as sores, lupus and ulcers
- The bark has also previously been used as an anti-malarial agent, as a cinchona substitute, but this practice is no longer continued
- Horse chestnut leaf preparations are used in folk medicine to treat coughs, rheumatism and arthritis,





R = Rutinoside: **Rutin**
R = Rhamnoside: **Quercitrin**
R = Glucose: **Isoquercitrin**
R = Arabinoside: **Quercetin 3-arabinoside**

R_1 = Rutinoside: **Kaempferol 3-O-rutinoside**
R_1 = Rhamnoside: **Kaempferol 3-O-rhamnoside**
R_1 = Glucose: **Astragalin**
R_1 = Arabinoside: **Kaempferol 3-arabinoside**

Figure 2. Selected flavonoids found in *Aesculus hippocastanum*.

Usage/Dose

- In veterinary medicine it is used in horses for emphyseme treatment; where the rhizomes are given at 80-300 g.
- Alkaloid extracts could be applied to phlebitis treatment in horses at 50-150 mg according to dry matter.

- %1.2 tenture (183 g crude substance/1L alchole; equivalent to the final product %0.22 horse chesnut rhizome) could be applied for the wound treatment in horse, cattle, sheep, goat, pig, rabbit
- Aescin content in the tenture is around %1-2; where the maximum amount of aescin to be applied per day is 0.1 mg'dır.

Bearberry (*Arctostaphylos uva-ursi* (L.) Spreng.)

Turkish name: Ayı üzümü
Other common names: Bearberry, kinnickinick, mountain cranberry, uva ursi, uvae ursi folium
Diğer isimler:
İtüzümü

The distribution of *Arctostaphylos uva-ursi* is circumpolar, and it is widespread in northern latitudes, but confined to high altitudes further South. Indigenous to Europe, the United Kingdom, Asia, Northern America, and Canada

Used parts
Fructus uva ursi
Folia uvae ursi
Extract

Selected constituent

- The glycoside arbutin, the main active constituent in uva ursi, accounts for up to 10% of the plant by weight.
- Hydroquinone derived from arbutin and methylarbutin is a powerful antibacterial agent that is thought to be responsible for the ability of uva ursi to treat urinary tract infection
- Polyphenols consist of tannins (6%-40%), including gallotannins, ellagic acid, catechin, and anthocyanidins (with astringent and antioxidant properties); phenolic gallic, p-coumaric, and syringic acids; flavanoids—mainly glycosides of quercetin, hyperoside, and myricetin; and the triterpenes ursolic acid, amyrin, montropein, and allantoin.

History and Traditional Usage

- It was listed in the London Pharmacopoeia for the first time in 1788
- It is a traditional herb of American Indians, who used the leaves for ceremonial smoking.
- Uses by Eclectic physicians included chronic irritation of the bladder, enuresis, excessive mucus and bloody discharges in the urine, chronic diarrhea, dysentery, menorrhagia, leukorrhea, diabetes, and strangury.

- **Indications:** Urinary tract infection and bacterial prostatitis (as a general urinary antiseptic); potentially for diabetes; perhaps as adjuvant treatment for those with inflammatory conditions
- **Potential Veterinary Uses:** Urinary tract infection, perhaps diabetes
- **Contraindications:** Pregnancy, kidney disease, inflammatory digestive conditions. Not for use in urinary tract infection when urine is acidic.

Toxicology and Adverse Effects

- Not for use longer than 2 weeks at a time.
- Hydroquinone is toxic in high doses—oral LD50 in rats is 320 mg/kg, and it is 400mg/kg in mice, 550mg/kg in guinea pigs, 70mg/kg in cats, and 200mg/kg in dogs.
- Maculopathy due to long-term ingestion for 3 years has been reported
- Known to have mutagenic and carcinogenic effects

Arctostaphylos uva ursi from Koehler's 'Medicinal-Plants' (1887)

Small Animal:

Dried herb: 50-400 mg/kg, divided daily (optimally, TID)

Infusion: 5-30 g per cup of water, administered at a rate of ¼-½ cup per 10 kg (20 lb), divided daily (optimally, TID)

Tincture (usually 45% ethanol; some pharmacies include glycerin to prevent precipitation by tannins) 1:2-1:3: 1.0-2.0 mL per 10 kg (20 lb), divided daily (optimally, TID) and diluted or combined with other herbs. Higher doses may be appropriate if the herb is used singly and is not combined in a formula.

Historic Veterinary Doses:

Dogs: fluid extract (1:1): 2-8 mL per dose (Milks, 1949)

Horses: fluid extract (1:1): 15-60 mL per dose (Milks, 1949)

Arctostaphylos uva-ursi flowers

Arctostaphylos uva-ursi subsp. *uva-ursi* fruit

Poison hemlock (*Conium maculatum* L.)

Turkish Name: Baldıran (Ağuotu, Yılanotu)
Conium maculatum is known by several common names. In addition to the English poison hemlock, the Australian Carrot Fern,[3] and the Irish devil's bread or devil's porridge, poison parsley, spotted corobane, and spotted hemlock are used.

Herbaceous biennial plant. Conium maculatum is native in temperate regions of Europe, West Asia, and North Africa. It has been introduced and naturalised in many other areas, including Asia, North America, Australia, and New Zealand

Used parts
Fructus conii maculati
Herba conii maculati

Main compounds

- Leaves and fruits
- Allergenic substance (pentadecylcathecone)
- Flavonoid glikoside (diosmine)
- Piperidine alkaloids (coniin, γ-conicein, γ-conhydrine, N-metylconiin, pseudoconhidrine)
- Eight piperidinic alkaloids have been identified in C. maculatum. Two of them, gamma-coniceine and coniine, are generally the most abundant, and they account for most of the plant's acute and chronic toxicity.
- Fruits contain 1-1.5% alkaloid
- Coniin, is found in fresh leaves at 10-12 mg/g. Dried plant alkaloids are composed of 35% coniin, <20% γ-coniceine.

Brief toxicity

- Coniine has a chemical structure and pharmacological properties similar to nicotine and disrupts the workings of the central nervous system through action on nicotinic acetylcholine receptors.
- In high enough concentrations, coniine can be dangerous to humans and livestock.
- Due to high potency, the ingestion of seemingly small doses can easily result in respiratory collapse and death.
- Coniine causes death by blocking the neuromuscular junction in a manner similar to curare; this results in an ascending muscular paralysis with eventual paralysis of the respiratory muscles which results in death due to lack of oxygen to the heart and brain

- Acute toxicity, if not lethal, may resolve in the spontaneous recovery of the affected animals provided further exposure is avoided.
- It has been observed that poisoned animals tend to return to feed on this plant. Chronic toxicity affects only pregnant animals.
- When they are poisoned by C. maculatum during the fetus' organ formation period, the offspring is born with malformations, mainly palatoschisis and multiple congenital contractures (MCC; frequently described as arthrogryposis).
- Chronic toxicity is irreversible and although MCC can be surgically corrected in some cases, most of the malformed animals are lost. Such losses may be underestimated, at least in some regions, because of the difficulty in associating malformations with the much earlier maternal poisoning.

Uses and effects

- In ancient Greece, hemlock was used to poison condemned prisoners. The most famous victim of hemlock poisoning is the philosopher Socrates.

Blocks nAcH-R stimulation competetively and relax striated muscles

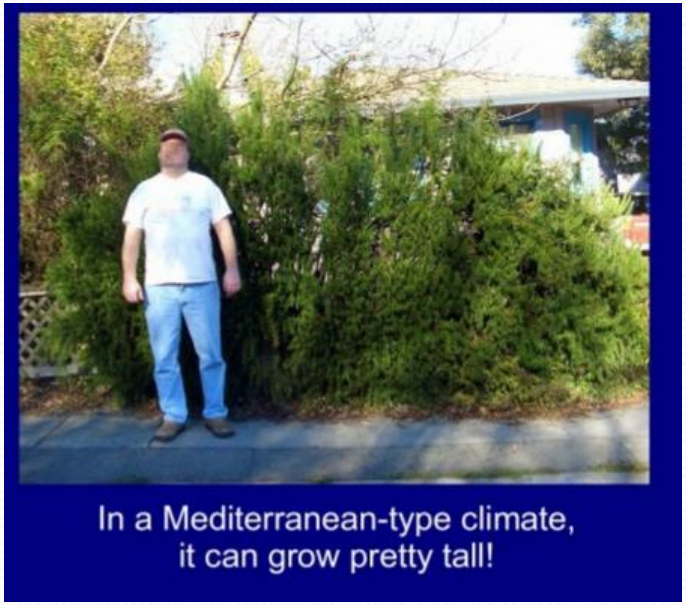
Use/Dosage: Antispasmodic, Liquid extract in horse and cattle at 4-8 g, sheep and pig 0.6-1.2 ml

The Death of Socrates, by Jacques-Louis David (1787)

Rosemary (*Rosmarinus officinalis* L.)

Turkish name: Biberiye
Distribution: Since it is attractive and drought-tolerant, rosemary is used as an ornamental plant in gardens and for xeriscape landscaping, especially in regions of Mediterranean climate (Istanbul, Aegean and Mediterranean regions)

Used parts
Folia rosmarini
Herba rosmarini
Oleum rosmarini



Rosmarinus officinalis
Rosemary

Rosemary in flower

Scientific classification

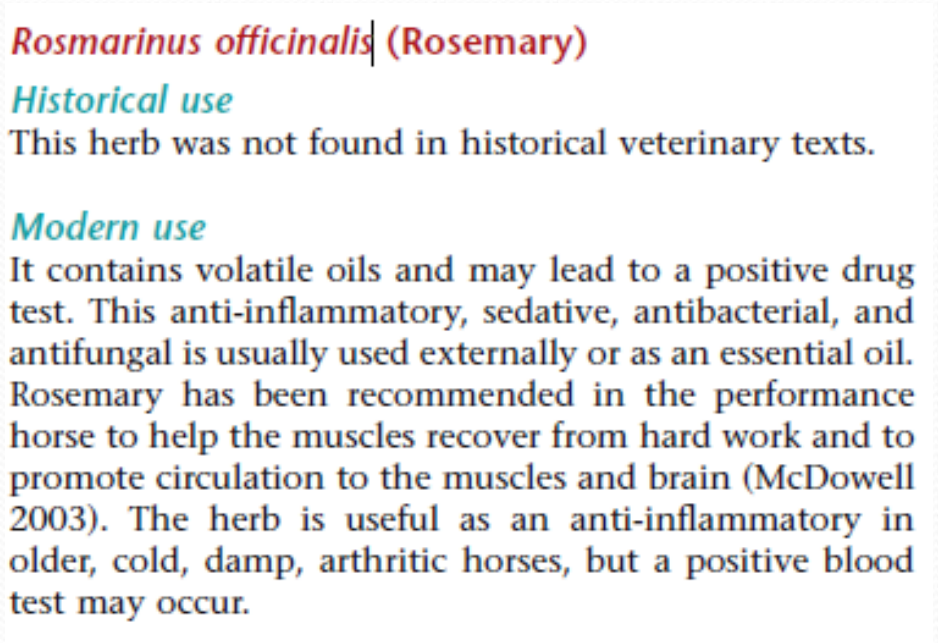
Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Lamiales
Family:	Lamiaceae
Genus:	*Rosmarinus*
Species:	***R. officinalis***

Potential drug Interactions

- Drugs metabolized by CYP1A, CYP2E, and CYP3A P-450 enzymes, PGP substrates, cyclophosphamide, diuretics, insulin and oral hypoglycemic agents, and iron.
- Can be used externally during pregnancy. Contains volatile oils; contraindicated in pregnancy because of uterine stimulation, emmenagogue, abortifacient

Active compounds

- Rosmarinic acid, camphor, caffeic acid, ursolic acid, betulinic acid, and the antioxidants carnosic acid and carnosol



Rosmarinus officinalis (Rosemary)

Historical use

This herb was not found in historical veterinary texts.

Modern use

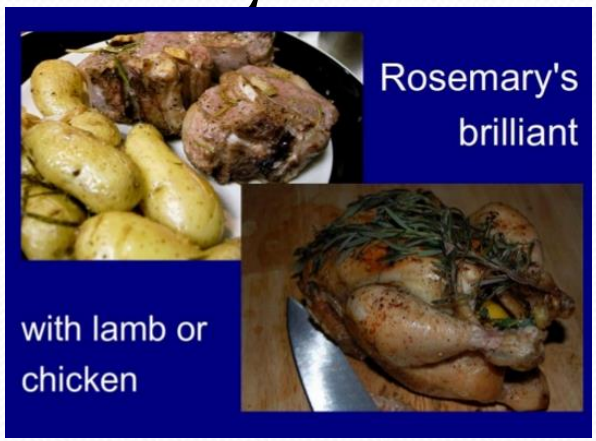
It contains volatile oils and may lead to a positive drug test. This anti-inflammatory, sedative, antibacterial, and antifungal is usually used externally or as an essential oil. Rosemary has been recommended in the performance horse to help the muscles recover from hard work and to promote circulation to the muscles and brain (McDowell 2003). The herb is useful as an anti-inflammatory in older, cold, damp, arthritic horses, but a positive blood test may occur.

Health Benefits

- The herb parts, especially flower tops contain phenolic anti-oxidant rosmarinic acid as well as numerous health benefiting volatile essential oils such as cineol, camphene, borneol, bornyl acetate, a-pinene, etc.
- These compounds are known to have rubefacient (counterirritant), anti-inflammatory, anti-allergic, anti-fungal and anti-septic properties.

Health Benefits

- Rosemary leaves provide just 131 calories per 100 g and contain no cholesterol. Apart from nutrients, this humble herb contains many noteworthy non-nutrient components such as dietary fiber.



Health Benefits

- The herb is exceptionally rich in many B-complex groups of vitamin, such as folic acid, pantothenic acid, pyridoxine, riboflavin.
- It is one of the herbs containing high levels of folates; providing about 109 µg per 100 g. Folates are important in DNA synthesis and when given during the peri-conception period can help prevent neural tube defects in the newborn babies.

Health Benefits

- Rosemary herb carry very good amounts of vitamin A, 2924 IU per 100 g.
- A few leaves a day in the diet, would contribute enough of this vitamin. Vitamin A is known to have antioxidant properties and is essential for vision. It is also required for maintaining healthy mucusa and skin. Consumption of natural foods rich in vitamin A is known to help the body protect from lung and oral cavity cancers.

Health Benefits

- Rosemary herb parts, whether fresh or dried, are rich source of minerals like potassium, calcium, iron, manganese, copper, and magnesium. Potassium is an important component of cell and body fluids, which helps control heart rate and blood pressure. Manganese is used by the body as a co-factor for the antioxidant enzyme, *superoxide dismutase*.

Standard Infusion

3-4 teaspoons fresh or 1-2 teaspoons dried leaves to 250ml (1 US cup, 8 fl oz) boiling water

Allow to stand for between 15 minutes and 4 hours and strain before use

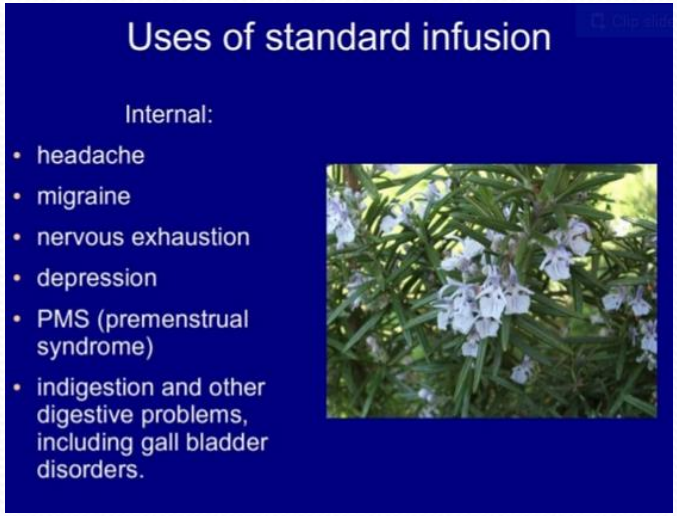
Add honey to sweeten, if you prefer

Dilute 50:50 with water if pregnant: **max. 1 cup per day**

Effect

- Antimicrobial (bacteria, virus)
- Smooth muscle spasm relaxant (Bile, ileum),

- Spasm relaxant in cardiac muscle (especially eucaliptol ve bornylacetate)
- Carminative
- Ectoparasital
- Cognitive function enhancer



Quassiae jamaicense L.

Turkish Name: Acıağaç

Effects

Antipyretic, Appetizing, Anthelmintic

Has a bitter taste that is used for appetizing purposes.

Usage: Powder form for pets are administered at 10-30 g in large animals , 3-10 g in medium sized animals , 0.5-1 g in small animals . Liquid form is given to horse and cattle at 30-60 g, sheep and pigs at 8-15 g doses.

Jimson Weed, Thornapple (*Datura stramonium* L.)

Turkish name: Boru çiçeği, Şeytanelması, Tatula.

Have a potential drug interactions with anticholinergic drugs

Distribution:
Datura stramonium is native to North America, but was spread to the Old World early. In Turkey jimson weed is gown in especially in Adana and Hatay region, Ankara, Balıkesir.

Used:
Flos stramonii
Semen stramonii
Folium stramonii

Jimson weed Toloache	
Scientific classification	
Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Solanales
Family:	Solanaceae
Genus:	*Datura*
Species:	***D. stramonium***
Binomial name	
Datura stramonium L.	

Etymology

- The genus name is derived from the plant's Hindi name धतूरा dhatūra. Stramonium is originally from Greek, strychnos στρύχνος "nightshade" and maniakos μανιακός "mad".
- In the United States, the plant is called jimson weed, or more rarely Jamestown weed; it got this name from the town of Jamestown, Virginia, where British soldiers consumed it while attempting to suppress Bacon's Rebellion. They spent 11 days in altered mental states:

Active content- Usage

- All parts of Datura plants contain dangerous levels of the tropane alkaloids atropine, hyoscyamine, and scopolamine, which are classified as deliriants, or anticholinergics.

- The risk of fatal overdose is high among uninformed users, and many hospitalizations occur amongst recreational users who ingest the plant for its psychoactive effects.

- When the plant is younger, the ratio of scopolamine to atropine is about 3:1; after flowering, this ratio is reversed, with the amount of scopolamine continuing to decrease as the plant gets older.

Use

- Dioscorides mentions many Indian plants in his work, including the use of datura for asthma.
- The tropane alkaloids in *Datura* and other genera in the Solanaceae inhibit acetylcholine by binding to the nicotinic and muscarinic receptors

Tenture

- Horse and cattle : 4-8 ml
- Sheep and pig: 0.6-2 ml

- Liquid extract
  - Horse and cattle : 1.3-4 g
  - Sheep and pig: 0.3-0.6 g

Traditional Use

- In traditional Ayurvedic medicine in India, datura has long been used for asthma symptoms. The active agent is atropine. The leaves are generally smoked either in a cigarette or a pipe.
- The Zuni once used datura as an analgesic, to render patients unconscious while broken bones were set.
- The Chinese also used it in this

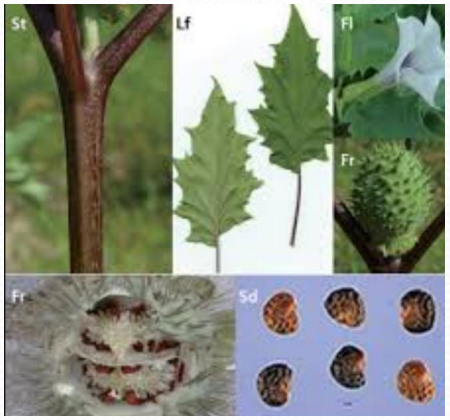
D. stramonium var. *tatula*, flower (front)

Datura seedpod, opening up to release seeds inside

- These are other very poisonous plants that should be used only by experienced herbalists, if at all.
- They were used in ointment form or as fomentations for many local painful disorders such as painful ulcers, tumors, orchitis, and mastitis, but they should not be used in animals because they will lick the applications.

Chinese Herbs That May Be Forbidden in the Racing Community in the United States

Herb	Chinese Name	Substances Forbidden by Rules
Ephedra	Ma huang	Ephedrine
Papaver	Yin su ke	Morphine
Strychnos	Ma qian zi	Strychnine
Datura	Yang jin hua	Atropine
Acacia	Er cha	Theophylline

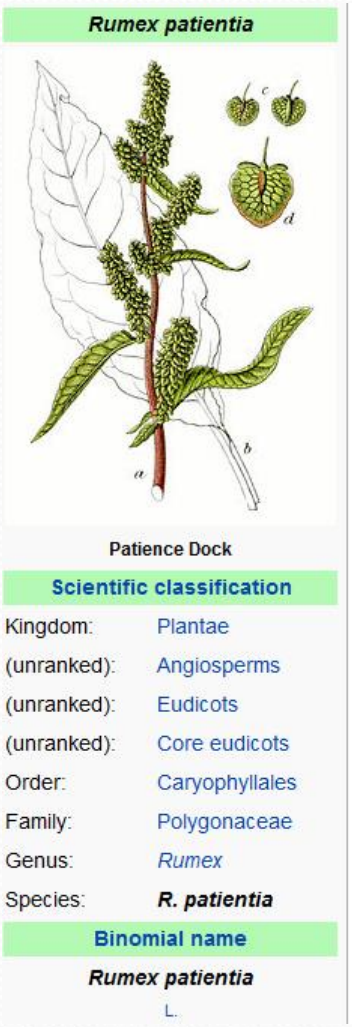


Patience dock (*Rumex patientia* L.)

Turkish name: Büyüklabada, Büyükkuzukulağı, Kuzukulağı.
Other names: patience dock, garden patience, herb patience, or monk's rhubarb"

consumed as a leaf vegetable in Southern Europe, especially in Bulgaria, Republic of Macedonia, Serbia and Turkey.
(Especially around İzmit, Uludağ, East Blacksea regions)

Used parts
Radix patientiae
Folia patientiae



Active content

- Antraquinone glycoside (%0.2-1.5)
- Phytoestrogens
- Starch
- Oxalate
- Resins
- Sugar
- Tannins (%6-12)

Seeds

Rumex patientia - MHNT

Effects

- Constipative (Tannin content)
- Diuretic
- Diarrhetic (antrasen bileşikler)
- Antiinflammatory
- Antipruritic

For diarrhetic purposes infusion (%2), powder (daily 1-3 g in human) and extract

Plants can contain quite high levels of oxalic acid, which is what gives the leaves of many members of this genus an acid-lemon flavour. Perfectly alright in small quantities, the leaves should not be eaten in large amounts since the oxalic acid can lock-up other nutrients in the food, especially calcium, thus causing mineral deficiencies. The oxalic acid content will be reduced if the plant is cooked. People with a tendency to rheumatism, arthritis, gout, kidney stones or hyperacidity should take especial caution if including this plant in their diet since it can aggravate their condition