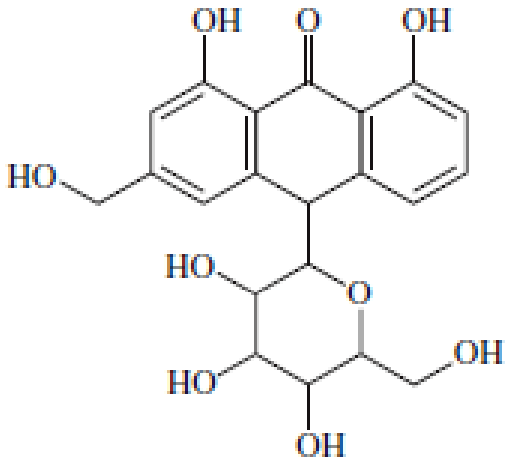
Common plants used in veterinary herbal medicine Part 2

Cascara sagrada (*Frangula purshiana* (DC.) J.G.Cooper)

- **Turkish Name:** Kaskara, Akdiken
- **Other Names:** Cascara sagrada, *Rhamni purshianae,* cortex, American buckthorn, cascara buckthorn, sacred bark, bitter bark, California buckthorn, chittem bark, purshiana bark, persiana bark, yellow bark, bearberry, amerikanisch faulbaum, sacrée
- **Family:** Rhamnaceae
- **Parts Used:** Bark; the berries were used by Native American tribes

- **Selected Constituents:** Cascarosides A, B, C, D, E, F; aloeemodin, barbaloin, frangulin, chrysalin, palmidin A, B, C; free aglycones



Barbaloin (syn. Aloin)

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

Cascara

- **Clinical Actions:**
- Laxative to purgative (dose dependent),
- alterative,
- hepatic,
- stomachic,
- febrifuge,
- nervine,
- antibilious,
- antidiabetic,
- peristaltic

Leaves, flower, and young fruits of *R. purshiana*

Branch of a cascara tree. Note the prominently veined, alternate leaves, the reddish twigs, and the clusters of flowers at the leaf axils.

- **History and Traditional Usage:** Native American tribes used the bark as a laxative and emetic; it was also used topically for cuts and sores. *King's American dispensatory* describes the specific indication as "constipation, . . . ; lesser ailments, depending solely upon constipation, with intestinal atony." In addition to use as a laxative, cascara was used in gallbladder disease, liver disease, dyspepsia, indigestion, gout, and "cardiac asthma"

Cascara

Mild laxative-anthraquinone glycoside

- Anthraquinone glycosides stimulate water and electrolyte secretion into the large intestine and inhibit absorption of same, possibly through prostaglandin E2-or nitric oxide–mediated mechanisms

Bark of cascara – the part of the plant which, after being dried, is used as a laxative

- increase in intestinal motility
- **Indications:** Constipation; painful conditions in which a softer stool is required to ease defecation
- **Potential Veterinary Indications:** For 1 to 2 weeks only in the treatment of constipation. Lactulose is a safer option for long-term use.

Cascara

- **Contraindications:** Ileus, GI obstruction, inflammatory GI disease, abdominal pain, pregnancy, lactation.
- Not recommended for use in the very young.
- **Toxicology and Adverse Effects:** AHPA class 2b, 2c, 2d.
- With long-term use, loss of electrolytes (especially potassium) may occur. Anthraquinones are mutagenic and cause melanosis in the bowel with long-term use.

Small Animal:
Dried herb: 25-300 mg/kg, divided daily (optimally, TID)
Decoction: 2-5 g per cup of water, administered at a rate of ¼ cup per 10 kg (20 lb), divided daily (optimally, TID)
Tincture (usually in 25%-40% 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
Farm Animal:
Fluid extract (1:1): 0.6-45 mL for farm animals from small ruminants to horses and cows

Yarrow (Achillea millefolium L.)

- Turkish Name: Civan perçemi
- Grows in Turkey around Trabzon-Zigana
- Common Name: yarrow, gordaldo, nosebleed plant, old man's pepper, devil's nettle, sanguinary, milfoil, soldier's woundwort, thousand-leaf, and thousand-seal

Achillea millefolium

Yarrow on Janče hill, Slovenia

Scientific classification

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Asterales
Family:	Asteraceae
Genus:	*Achillea*
Species:	***A. millefolium***

Binomial name

Achillea millefolium

L.

Yarrow (Achillea millefolium L.)

Effects

- diaphoretic,
- astringent,
- tonic,
- stimulant and mild aromatic
- Antispasmodic
- Antihemorrhoidal
- Stimulant
- Cholegog
- anti-inflammatory, diuretic and emmenagogic agents and have been used for treatment of hemorrhage, pneumonia, rheumatic pain and wounds healing in Persian traditional literature

- Contains
- isovaleric acid, salicylic acid, asparagin, sterols, flavonoids, bitters, tannins, and coumarins

Yarrow (*Achillea millefolium* L.)

- *Achillea* species are the most important indigenous economic plants of Anatolia. Herbal teas prepared from some *Achillea* species are traditionally used for abdominal pain and flatulence in Turkey
- Dioscorides also used *Achillea* for dysentery, whether associated with cholera or other causes, which killed as many soldiers as did steel and lead.
- In terms of Chinese medicine, *Achillea* can be said to have three main actions: clear Exterior Wind (diaphoretic), Tonify Deficiency (tonic) and clear Heart Phlegm (anti-hypertention)

Yarrow (Achillea millefolium L.)

- Among the medicinal properties of *Achillea*, their cytotoxic and antiulcer effects are important especially when the species contain immunomodulatory constituents. The activity of these plants against different bacteria, fungi and parasites might be due to the presence of a broad range of secondary active metabolites such as flavonoids, phenolic acids, coumarins, terpenoids (monoterpenes, sesquiterpenes, diterpenes, triterpenes) and sterols which have been isolated. Finally, presence of anti-inflammatory compounds such as sesquiterpenes and alkamides is another reason for importance of these plants as the potential source of medicinal compounds and drugs in future.

Yarrow (Achillea millefolium L.)

Preparations containing the 14 active constituents for estrus cycle at 10% is used as a formulation;

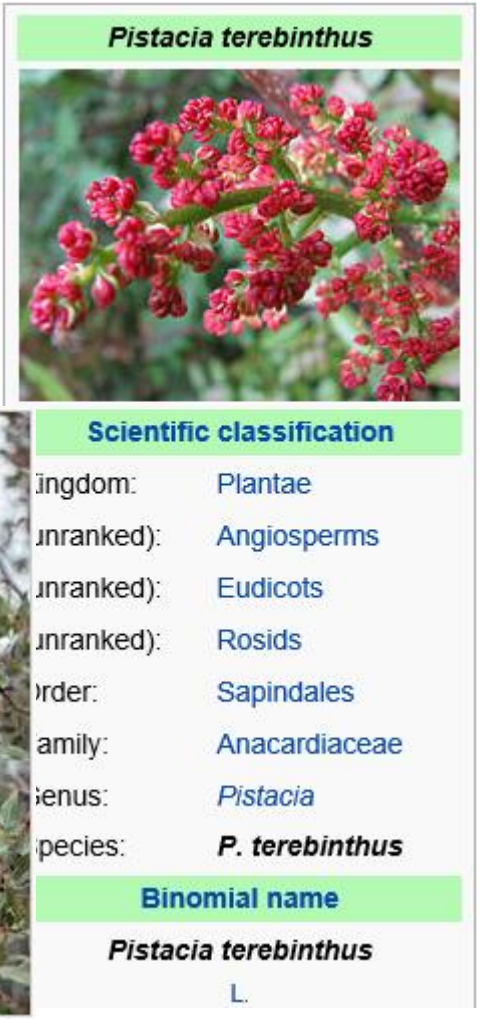
Horse and cattle 3 timesX 50 g daily for 2 days

Other animals 2 times X 10-20 g for3-4 days

Should be avoided during Pregnancy

Terebinth/Turpentine tree (*Pistacia terebinthus)*

- Turkish Name: Çam sakızı
- Pistacia terebinthus, known commonly as terebinth and turpentine tree, is a species of Pistacia, native to the Canary Islands, and the Mediterranean region from the western regions of Morocco, and Portugal to Greece, western and southeast Turkey.
- In Turkey, where it is known as menengiç or bıttım, a coffee-like beverage known as menengiç kahvesi



Pistacia terebinthus in Yenifoça, Turkey.

Terebinth/Turpentine tree (*Pistacia terebinthus)*

- Alcoholic tinctures are made of Oleum Terebinthinae, which is the purified distilled oil from the oleoresin, turpentine, obtained from several species of Pinus.

- Turpentine is a semifluid or fluid oleoresin, primarily the exudation of the terebinth, or turpentine, tree *(Pistacia terebinthus),* a native of the Mediterranean region.

Phytotherapeutic Dosages Historically Used by Veterinarians—cont'd

	Horse and Cow	Sheep and Swine
Terebene	8-24	2-4

- One drop of oleum terebinthinae to 99 of alcohol makes the 2x tincture

Terebinth/Turpentine tree (*Pistacia terebinthus)*

Albuminuria.

Amblyopia potatorum.

Asthma.

Backache.

Bladder, irritable.

Brachial neuralgia.

Bronchitis.

Chordee.

Chorea.

Ciliary neuralgia.

Cystitis.

Dentition.

Dropsy.

Dysentery.

Dysmenorrhoea.

Enteric fever.

Epilepsy.

Erysipelas bullosa.

Fibroma.

Gall-stone colic.

Glands, inguinal, swelling of.

Gleet.

Gonorrhoea.

Hematuria.

Hemorrhoids.

Hernia, strangulated.

Herpes labialis pudendi.

Hydrophobia.

Hypochondriasis.

Insanity.

Intestines, ulceration of.

Iritis.

Jaundice.

Kidneys, congestion of, neuralgia of.

Lumbago.

Neuralgia, supraorbital.

Ovaries, pains in, dropsy of.

Pityriasis.

Purpura hemorrhagica.

Scarlatina.

Sciatica.

Spermatorrhoea.

Strangury.

Stricture.

Tetanus.

Tympanites.

Uremia.

Urine, suppression of, retention of.

Worms.

Terebinth/Turpentine tree (*Pistacia terebinthus*)

The European Agency for the Evaluation of Medicinal Products
Veterinary Medicines Evaluation Unit

EMEA/MRL/398/98-FINAL
April 1998

COMMITTEE FOR VETERINARY MEDICINAL PRODUCTS

TEREBINTHINAE LARICINA

SUMMARY REPORT

In veterinary medicinal products, *Terebinthinae laricina* is used in combination products (containing 3 to 4 active principles) at a concentration of 10 to 20% *Terebinthinae laricina*, for topical applications to hoof and skin wounds, for disinfection of wounds and to promote wound healing. Target animals are all food-producing species.

Terebinthinae laricina is used both in human and veterinary traditional medicine for topical applications, due to its wound healing properties. The internal use of the substance, particularly of its oil, is also reported.

Terebinthinae laricina possesses antiseptic, hyperaemicising and granulating properties.

Percutaneous absorption of the similar compound turpentine oil obtained from *Pinus* spp. is reported.

Meat and milk of animals, which are topically treated with turpentine oil, present a strong odour. It is also known that the highly liposoluble terpenes - components of turpentine oil (amount not specified) can cross the blood-brain barrier.

Having considered the criteria laid down by the Committee for the inclusion of substances in Annex II to Council Regulation (EEC) No 2377/90 and in particular that:

- *Terebinthinae laricina* has a long history of safe topical and inhalational use in traditional human medicine,
- *Terebinthinae laricina* is used only for infrequent and non-regular treatment of individual animals
- the animals are unlikely to be sent for slaughter during or immediately after treatment,
- *Terebinthinae laricina* is likely to be rapidly absorbed and excreted;

the Committee concludes that there is no need to establish an MRL for *Terebinthinae laricina* and recommends its inclusion in Annex II to Council Regulation (EEC) No 2377/90 in accordance with the following table:

Pharmacologically active substance(s)	Animal species	Other provisions
Terebinthinae laricina	All food producing species	For topical use only

Tea (*Camellia sinensis)*

Tea (*Camellia sinensis)*

- **Distribution:** Green tea was originally cultivated in China. It is now grown in India, China, Sri Lanka, Japan, Indonesia, Kenya, Turkey, Pakistan, Malawi, and Argentina.

Camellia sinensis plant, with cross-section of the flower (lower left) and seeds (lower right)

Camellia sinensis

Camellia sinensis foliage

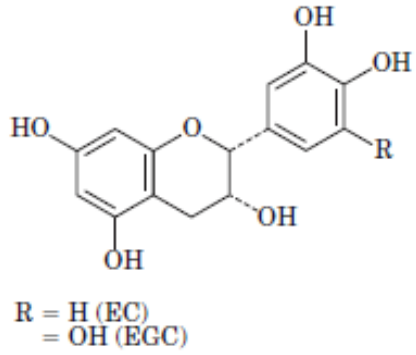
Scientific classification	
Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Ericales
Family:	Theaceae
Genus:	*Camellia*
Species:	***C. sinensis***

Binomial name

Camellia sinensis

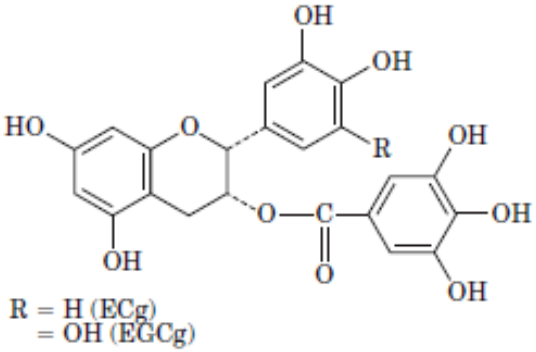
(L.) Kuntze

Tea (*Camellia sinensis)*



R = H (EC)
= OH (EGC)

Epicatechin (EC)



R = H (ECg)
= OH (EGCg)

Epigalocatechin (EGC)

- **Selected Constituents:**
- Purine alkaloids (caffeine, theobromine, theophylline),
- triterpene saponins,
- catechins,
- caffeic acid derivatives,
- anorganic ions (fluoride, potassium,
- aluminum ions), volatile oil.
- Green tea contains 30% to 40% polyphenols, which are catechins, with potent antioxidant properties and these give green tea its bitter flavor.
- Green tea contains six primary catechin compounds: catechin, gallaogatechin, epicatechin, epigallocatechin,
- epicatechin gallate, and apigallocatechin gallate (also known as EGCG). EGCG is considered to be the most active component in green tea.

Potential Drug Interactions

Alter drug absorption, drugs metabolized by CYP1A1, CYP1A2, and CYP2B1 P-450 enzymes; anticoagulants, APAP, aspirin, drugs used for atopic dermatitis, benzodiazepines, β-adrenergic agonists, cimetidine, cisplatin, clozapine, disulfiram, doxorubicin, ephedrine, ergotamine, estrogen, fluvoxamine, furafylline, NSAIDs, idrocilamide, insulin and oral hypoglycemic agents, iron, lithium, MAOIs, methotrexate, methoxsalen, metoprolol,

- **Clinical Actions:**
- Stimulant, antioxidant, possible antimutagen

Oral Tumors

BLACK TEA *(CAMELLIA SINENSIS):* An open study in people with oral leukoplakia treated with black tea showed a treatment benefit. Several in vitro and animal studies have suggested the efficacy of tea in the chemoprevention of cancer (Halder, 2005).

GREEN TEA *(CAMELLIA SINENSIS):* In induced squamous cell carcinoma (SCC) in vivo in hamsters, 0.6% green tea powder as drinking fluid or 10µmol curcumin or combination or nothing (control) was applied topically 3 times weekly for 18 weeks. The combination decreased the incidence, number, and size of SCC and precursor tumors. This activity may be related to suppression of cell proliferation, induction of apoptosis, and inhibition of angiogenesis (Li, 2002).

- **Indications:** Prophylaxis against cancer, stimulant, diarrhea, arthritis, atopy
- **Potential Veterinary Uses:** Diarrhea, cancer prevention, adjunctive cancer therapy, atopic dermatitis, topically for “hot spots” and rashes, oral cancers
- **Contraindications:** People with renal disease, thyroid hyperfunction, or anxiety and pregnant or nursing women should be careful of use.
- **Toxicology and Adverse Effects:** Black tea (the fermented form of green tea) has class 2d classification from the AHPA. No health hazards known with proper administration.
- Hyperacidity, gastric irritation, reduced appetite, obstipation, or diarrhea may result from excessive tea consumption.

Dosage:

External Use: Plain green tea (the infusion) may be used for excoriations and other minor skin lesions (such as canine hot spots)

Internal Use:

Human

Most Japanese ingest 0.8-1.3 g green tea extract, including 340-540 mg ECCG, in 10 (8 oz) cups daily (Nakachi, 1997).

Infusion: 3 cups of green tea per day (3 g soluble components, or 240 to 320 mg polyphenols)

Standardized extract: 300-400 mg per day of extracts that contain 80% total polyphenols and 55% epigallocatechin

Small Animal

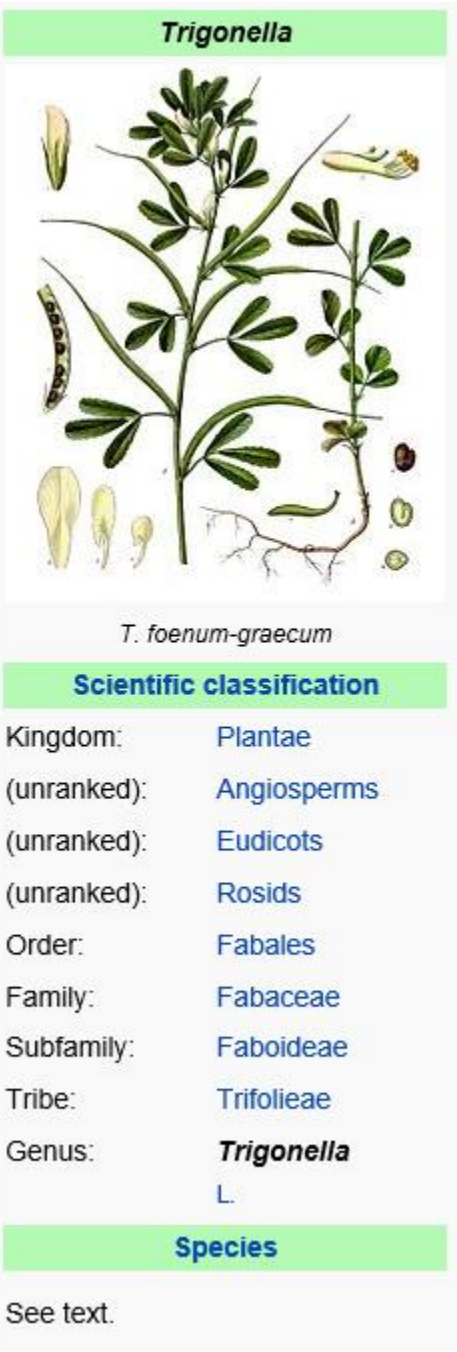
Standardized extract containing 80% polyphenols: 10-20 mg per kg, divided daily

Green tea can be added easily to moist food or given in water, ½-1 cup per 10 kg per day

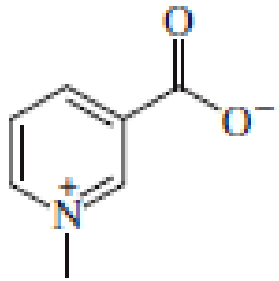
Fenugreek (Trigonella foenum-graecum L.)

- Turkish name: Çemen otu
- **Other Names:** Many, including bird's foot, hulba, fenegriek, fenugreko, trigonelle, trigonella, kasoori methi(leaves), klabat, greco, shambala, triplat, meeti, ho lo ba

Trigonella foenum-graecum L. • try-go-NEL-uh FEN-um GRAY-kum
Family: Fabaceae
Parts Used: Seed and leaf used most often as food and flavoring in India, the Middle East, and Central Europe



Constituents



Trigonelline

- Strong smelling bitter oil (~5%); o
- alkaloids trigonelline and choline; the steroidal saponins diosgenin, yamogenin, tigogenin, and neotigogenin;
- mucilaginous fiber (~28%);
- protein (~22%), which is high in lysine;
- L-tryptophan; and phosphates, lecithin, and nucleoalbumin (which contains iron in a readily absorbed organic form).

Fenugreek (Trigonella foenum-graecum L.)

- Alterative, carminative, demulcent, hypoglycemic, laxative, nutritive, expectorant, galactagogue.

- These seeds in the diet inhibit colon carcinogenesis in rats by modulating the activities of β-glucuronidase and mucinase.
- Beneficial effects may be attributed to the presence of fiber, flavonoids, or saponins

- Potential Drug-Herb Interactions: May alter drug absorption; anticoagulants, insulin, and oral hypoglycemic agents

Fenugreek (Trigonella foenum-graecum L.)

Use

- constipation and gastritis;
- lymphatic stimulant to increase milk production,
- immune tonic, and as a topical agent for wound healing.

- Research in humans shows that it helps to control insulin resistance, and clinically, it appears to help some horses.
- Fenugreek is often recommended to be used with garlic to enhance its ability to fight infection.
- Avoid during pregnancy (Oxytocic action, emmenagogue, abortifacient)

Adverse effects

- Fenugreek caused myopathy in ruminants.
- Excessive consumption of seeds has been linked to anemia because of the iron binding effect.
- In a survey of patients with food allergy, two cases of severe allergy to
- fenugreek were found.
- When fenugreek seeds are used in animal nutrition, a good protein supply and sufficient vitamin E should be considered to compensate for the potential hemolytic effects of fenugreek sapogenins

Fenugreek (Trigonella foenum-graecum L.)

Dosage

Dosage:

External Use: Powdered seeds are stirred with hot water to produce a paste that is used for poultices, boils, and carbuncles at 50 g powdered seeds/250 mL water (Blumenthal, 1998; Bisset, 2001)

Internal Use:

Human

Dried herb: 3-10 g TID, up to 90 g daily

Infusions and decoctions: 5-30 g per cup of water, with 1 cup of the tea given TID, up to 6 times daily acutely

Tincture (45% alcohol): 1:2 or 1:3: 1-5 mL TID, up to 6 times daily for acute conditions

Small Animal

Dried herb: 25-500 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)

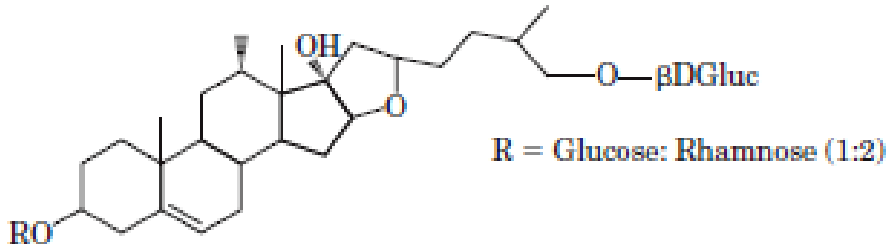
Tincture (45% ethanol): 1:2-1:3: 0.5-2.0 mL per 10 kg (20 lb), divided daily (optimally, TID) and diluted or combined with other herbs. Higher doses may be appropriate if the herb is used singly and is not combined in a formula.

Gokshura *(Tribulus terrestris)*

- **Turkish name:** Çobançökerten
- **Other Names:** Gokshura, chota gokhru, small caltrops, puncture vine, “cow-scratcher”
- **Distribution:** Throughout India, China, and Vietnam and in parts of Europe and South Africa on wasteland

Gokshura *(Tribulus terrestris)*

Selected Constituents



Protodioscin

- Steroidal saponins, including protodioscin and protogracilin,
- Phytosterols such as β-sitosterol.

- Tribulus leaf standardized extract (TLSE) is a product obtained from the aerial parts of *Tribulus terrestris,* which contains mainly saponins of the furostanol type (not less than 45%, calculated as protodioscin)

- Tribestan is a standardized tribulus leaf extract that contains not less than 45% steroidal saponins. It is about 30 to 40 times more concentrated than tribulus leaf.
- The methanol extract of the *Tribulus cistoides* leaf was found to contain nine steroid saponins, among them the cardioactive cistocardin

Clinical Actions

- Antispasmodic, fertility enhancer, antihypertensive, diuretic, antilithic
- Traditional Chinese Medicine for pruritus, insufficient milk production, and sore eyes.
- In Ayurveda, the fruit is used for urinary tract problems and for male and female reproductive tract disorders.
- In Bulgaria, the leaves have gained a reputation among body builders and athletes as an herbal equivalent to anabolic steroids, despite the lack of scientific support.
- Ethnoveterinary usage includes bloody dysentery, urinary disorders in ruminants, and rheumatism

- **Indications:** Infertility, decreased libido
- **Potential Veterinary Indications:** Improving reproductive performance

"Goathead" fruit

Dried *Tribulus terrestris* nutlets

Thumbtack-like *Tribulus terrestris* nutlets are a hazard to bicycle tires.

Tribulus terrestris nutlets in foot, Marfa, Texas

Small Animal:
Dried herb: 25-300 mg/kg, divided daily (optimally, TID)
Infusion and decoction: 5-10 g per cup of water, administered at a rate of ¼-½ cup per 10 kg (20 lb), divided daily (optimally, TID)
Tincture 2:1 (not 1:2): 1.5-2.5 mL per 10 kg (20 lb), divided daily and diluted or combined with other herbs
Large Animal:
Suggested from literature with Tribestan or Tribulus leaf standardized extract (TLSE): sheep, rams, and lambs: 250 mg/day
Boars: 70 mg/kg/day

Dalmatian Pyrethrum (*Pyrethrum cinerarriifolium* (L.) Trevir)

Tanacetum cinerariifolium

- Veterinary preparations usually include %3.4 pyrethrum

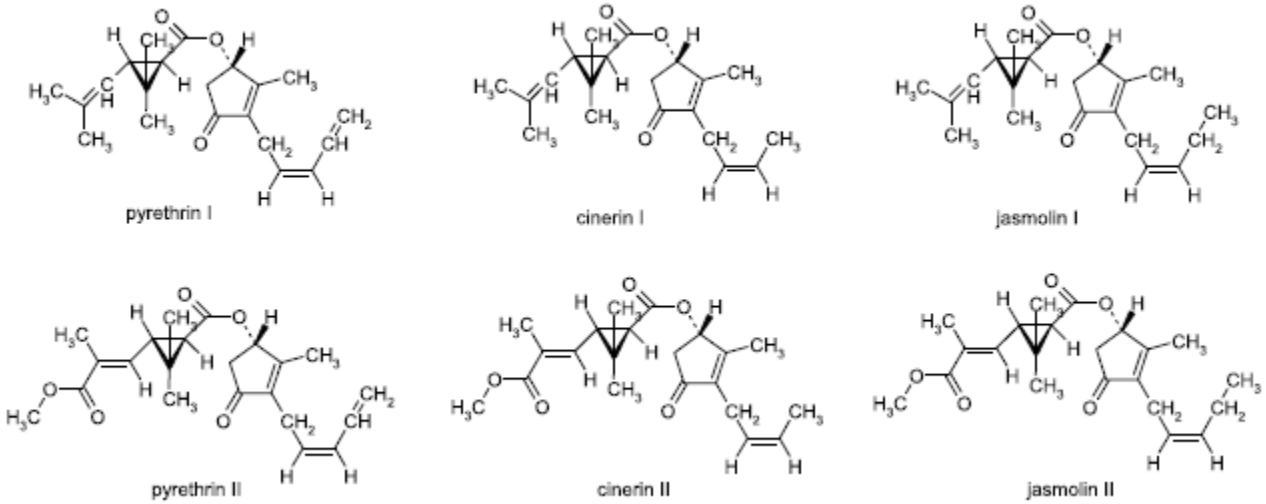
	Horse and Cow	Sheep and Swine
Pyrethrum	15-30	2-6

All doses are in cc's (ml's) to be given orally, unless otherwise noted ("g," grains), and may be administered up to 2-3 times daily.

Tanacetum coccineum

- Pyrethrum flowers yield an important insecticide, the pyrethrin. Pyrethrin is mainly concentrated in oil glands on the surface of the seed inside the tightly packed flower head, but they can also be found in the other plant parts, however in much lower concentrations.

- The pyrethrin exist as a combination of six insecticide active ingredients: pyrethrin I, cinerin I, jasmolin I, pyrethrin II, cinerin II and jasmolin II, with pyrethrin I and pyrethrin II present in higher concentrations.



Bay laurel (*Laurus nobilis)*

- Turkish name: Defne, tehnel
- Laurus nobilis is a widespread relic of the laurel forests that originally covered much of the Mediterranean Basin when the climate of the region was more humid

Bay laurel

Bay laurel (*Laurus nobilis*) flower buds and leaves

Scientific classification	
Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Magnoliids
Order:	Laurales
Family:	Lauraceae
Genus:	*Laurus*
Species:	***L. nobilis***

Binomial name

Laurus nobilis

L.

Mamluks and Animals: Veterinary Medicine in Medieval Islam

Yazar: Housni Alkhateeb Shehada

[65] The bay, or laurel, is mentioned frequently for its many uses in preparing medicines, particularly those relevant to the respiratory system and colds. The classical name of this plant in Arabic is *al-ghār* (bay laurel), and it is commonly called 'rod of Moses'. Its botanical name is *Laurus Nobilis*, and *al-rand* in Arabic. See Ibn al-Bayṭār, *al-Jāmiʿ li-mufradāt al-adwiyah*, vol. II, part 3, p. 198; Ibn Sīnā, *al-Qānūn fi al-ṭibb*, vol. I, book 2, p. 795, *Qāmūs al-aṭibbāʾ*, vol. I, p. 188.

ghār,[65] to rub on the falcon's nostrils before taking it into the bath for the second time.[66] Bathing as a form of medical treatment is not unique to veterinary medicine. Many general medical sources feature recommenda-

- This is the bay leaf used in cooking.

- The leaves have been used in powder or decoction form for “insect bites and stings, scalp eruptions.» Used protective for mammary infections.
- Contact hypersensitivity has been reported.
- Drug interaction: drugs metabolized by CYP2B P-450 enzyme

- Aqueous extracts of bay laurel can also be used as **astringents** and even as a reasonable salve for **open wounds**.
- In massage therapy, the essential oil of bay laurel is reputed to alleviate **arthritis and rheumatism**, while in aromatherapy, it is used to treat earaches and high blood pressure.
- A traditional folk remedy for rashes caused by poison ivy, poison oak, and stinging nettle is a poultice soaked in boiled bay leaves.

- The chemical compound lauroside B isolated from Laurus nobilis is an inhibitor of human melanoma (skin cancer) cell proliferation at high concentrations in-vitro

Milk thistle *(Silybum marianum)*

Turkish name: Deve dikeni

Distribution: Southern and Western Europe; naturalized

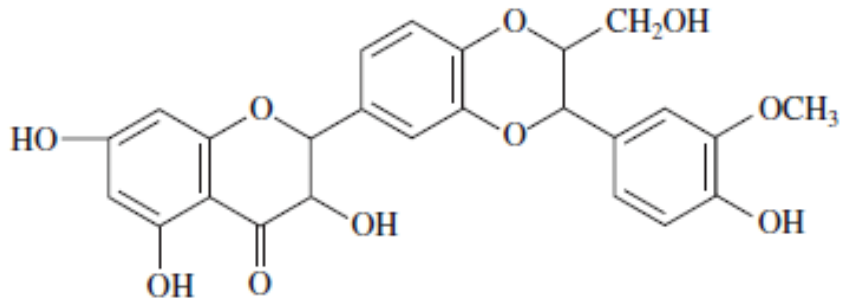
to South America and

- **Common Names:** Holy thistle, marian thistle, our lady's thistle, St. Mary's thistle, wild artichoke, mariendistel (G Chardon-Marie (French). North America

Milk thistle	
Scientific classification	
Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Asterales
Family:	Asteraceae
Tribe:	Cynareae
Genus:	*Silybum*
Species:	***S. marianum***
Binomial name	
Silybum marianum (L.) Gaertn.	

Selected Constituents

- Silymarin is a flavonoid complex made up of three parts: silibinin, silidianin, and silichristine.
- Silibinin is thought most active and is probably responsible for the benefits attributed to silymarin. Also contains sterols, fixed oil, flavonoids (apigenin, quercetin, kaempferol), lignans, biogenic amines (tyramine, betaine), and mucilage



Silibinin

Clinical Action:

- Hepatoprotective, demulcent, cholagogue, galactagogue, antioxidant
- Acts as an antioxidant
- Inhibits lipid peroxidation in hepatocyte plasma membranes,thereby protecting against many toxins
- Protects against genomic injury through suppression of lipoxygenase, hydrogen peroxide, and superoxide
- Increases hepatocyte protein synthesis via stimulation of RNA polymerase
- Suppresses nuclear factor (NF)-kappaB
- Chelates iron and decreases glutathione destruction in iron overload conditions
- Stabilizes mast cells
- Slows calcium metabolism
- Decreases activity of tumor promoters

Horse-silmarin

- This herb has an important place in modern horse keeping because of its hepatorestorative properties.
- Horses are often treated with multiple drugs, potentially stressing the liver's detoxification systems. Its use in the equine is very similar to that in other animals but deserves mention here because it is such an important herb.
- Horses can probably digest the whole seeds, but it is unknown how efficiently they digest them. In general, if no seeds are seen to pass in the manure, the horse is likely to get a significant percentage of the benefit offered by the herb

Potential Drug Interactions:

- Milk thistle reduces the activity of CYP3A4 and other liver enzymes in vitro, but clinical trials did not demonstrate any effect on anti–human immunodeficiency virus (HIV) drugs
- Silymarin has been reported to stimulate activity of the p-glycoprotein drug transporter
- Milk thistle may reduce insulin requirements in some patients with diabetes.
- Silymarin has been shown to protect against organ toxicity induced by cisplatin, acetaminophen, butyrophenones, halothane, phenothiazines, tacrine, and vincristine.
- Be aware of the nitrate content

Dosage

- Milk thistle is usually supplied as a solid extract, standardized to 70% to 80% silymarin.
- Milk thistle should be used for at least 8 weeks before results such as improvement in biochemistry are expected.
- ***Small Animal:***
- *Dried herb:* 50-100mg/kg, divided daily (optimally, TID) if extracted and dried; triple or quadruple dose for unprocessed herb
- *Dry standardized extract (70% silymarin):* 10-15mg/kg,
- divided daily
- *Fluid extract (1 : 1) (usually 60%-80% ethanol):* 1.0-2.0mL per 10kg (20 lb), divided daily and diluted or combined
- with other herbs *Glycetract (1 : 1):* 1.0-2.0mL per 10kg (20 lb), divided Daily and diluted or combined with other herbs
- ***Cattle:***
- *Dried herb:* 10g daily

Woolly burdock *(Arctium tomentosum*

- Turkish name: Dulavratotu
- **Parts used**: Root; Leaf; Seed; (Leaf stalk, Flower stalk).
- Distribution in Turkey: Bursa, Yaloba, Central Anatolia
- Antiseptic, diuretic, laxative, antioxidant
- Used as decoction (5-6%) and infusion (2-5%)
- Small animals:
- Dried lea: 25-500 mg/kg (divided into 2-3 parts)
- Tenture (%25-35 ethanol 1:2, 1:3): 0.05-0.2 ml/kg (divide
- Infusion (5-30 g/glass water):1/2-1/4 glass/10 kg (divide

Arctium tomentosum

Scientific classification

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Asterales
Family:	Asteraceae
Genus:	*Arctium*
Species:	***A. tomentosum***

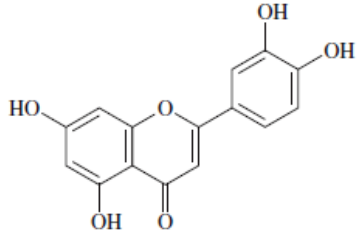
Binomial name

Arctium tomentosum

Mill. 1768

Globe artichoke (*Cynara scolymus)*

- Turkish name: Enginar
- **Parts Used:** Fresh or dried leaf
- **Selected Constituents:** Sesquiterpene lactones (**cynaropicrin**), bitter principles (including cynaroside and cynarin, which are responsible for the hepatoprotection of artichoke).
- Flavonoids, volatile oils.
- **Clinical Actions:** Bitter tonic, antiemetic, diuretic, choleretic, hepatoprotective



Cynarin

Artichoke	
Scientific classification	
Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Asterales
Family:	Asteraceae
Tribe:	Cynareae
Genus:	*Cynara*
Species:	***C. cardunculus***
Subspecies:	*scolymus*
Binomial name	
Cynara cardunculus var. scolymus L.	

Anticholesterol effects

Some varieties of artichoke display purple coloration

- This herb has been shown in human clinical trials to lower cholesterol and triglycerides, at doses ranging from 900 to 1920mg per day.
- Globe artichoke leaf extract not only increases choleresis and, therefore, cholesterol elimination, but it also has been shown to inhibit cholesterol biosynthesis.
- It is suggested that a possible mechanism of action might be the indirect inhibition of hydroxymethylglutaryl–CoA reductase (HMG-CoA).
- In vitro studies have documented a concentration-dependent inhibition of de novo cholesterol biosynthesis in cultured rat and human hepatocytes for globe artichoke leaf extract given at 0.03 to 0.1mg/mL

- Hypolipidemic,
- hypocholesterolemic, and choleretic activities are well documented for globe artichoke leaf extract.
- Luteolin was considered to be one of the most important constituents for this effect, and it was suggested that a possible mechanism of action might be indirect inhibition of hydroxymethylglutaryl-CoA reductase (HMG-CoA)
- Hepatoprotective effects were also recorded

Globe artichokes being cooked

- **Potential Veterinary Indications:** Hyperlipidemia, cholestatic and other liver diseases, nausea, constipation
- **Contraindications:** Biliary obstruction, gallstones, allergy to other plants in the daisy family
- **Toxicology and Adverse Effects:** Used as food. Allergic reactions, contact dermatitis are possible in sensitive individuals.
- **Drug Interactions:** May have additive effects with lipidlowering drugs.

- ***Small Animal:***
- *Dried herb:* 25-250mg/kg, divided daily (optimally, TID)
- *Dried extract (12 : 1):* 10-50mg/kg, divided daily (optimally, TID)
- *Infusion:* 5-30g per cup of water, administered at a rate of 1/4-1/2 cup per 10kg (20 lb), divided daily (optimally, TID)
- *Fluid extract (1 : 1):* 0.25-2.0mL per 10kg (20lb), divided daily (optimally, TID)
- *Tincture:* 1: 2-1 : 3: 0.5-2.5mL per 10kg (20lb), divided daily (optimally, TID) and diluted or combined with other herbs

Kutch tree- Catechu (Acacia catechu Willd.)

- Turkish name: Felfelek
- Distribution: India, Pakistan, Ceylan
- In Himachal Pradesh, catechu is widely distributed in Mandi, Hamirpur, Kangra, Solan, Sirmaur, Una, Chamba, Shimla and Bilaspur districts below 1300 m elevation
- Used as anthelmintic
- In dogs - *Taenia hydatigena*, *T.multiceps*, *T.psiformis*, ekinococ
- Horse and sheep - Ascarides

ACACIA CATECHU Willd.

Chemical constituents:

- Bark and the shiny, black-brown extract of leaves and shoots contain tannins, catechin, catechutannic acid, catechuic acid, catechu red, mucilage, flavonoids, quercetin, quercitrin, resins and gum.

- Wood contains many flavonoids, α-, ß- and γ–catechin and l-epicatechin. A water-soluble polysaccharide has been isolated from the gum. The polysaccharide on hydrolysis yield galactose, arabinose, rhamnose and glucuronic acid and hexasaccharide and trisaccharide

Medicinal properties *Acacia catechu willd*

S.No.	Pharmacological activity	Phytoconstituents
1.	Antibacterial activity	Taxifolin
2.	Anticancer activity	Polyphenols
3.	Anti-diarrhoeal activity	Flavonoids
4.	Antifungal activity	Flavonoids, tannins
5.	Antimicrobial activity	Alkaloids, flavones, glycosides, phenolic compounds, saponins, steroids, tannins.
6.	Antioxidant activity	Carbohydrates, steroids, alkaloid, tannins, saponins, flavones.
7.	Anti-pyretic and Anti-inflammatory activity	Bioflavonoids
8.	Anti-secretory and Anti-ulcer activity	Flavonoids, tannins ,
9.	Hepatoprotective activity	Bioflavonoids, phenolic compound
10	Hypoglycaemic activity	Flavonoids, alkaloids
11	Sore throat	Tannins
12	Wound healing activity	Tannins, flavonoids

Medicine

- The decoction of bark mixed with milk is taken to cure cold and cough.
- The bark decoction is either alone or used in combination with opium to cure severe diarrhea.
- ***Katha*** after drying is applied on lemon slice and taken regularly with empty stomach to cure piles*.
- Heartwood of khair is boiled with other ingredients to prepare the decoction. It is taken as tea by the pregnant ladies to keep warm their body. It is also given to cure fever due to cold during the pregnancy*.
- A decoction is served to women after 2-3 days of child delivery, prepared by boilingkatha along with Ellachi (cardamom). It is believed that it provides strength to the body* and also helps in secretion of milk.
- The water boiled with the heartwood chips of ***Khair,*** is used to take bath by women after delivery. It is considered beneficial to cure the body pains*.
- ***Katha*** or decoction of heartwood is applied in mouth and on tongue to cure mouth ulcer*. It is also applied externally on ulcers, boils, skin eruptions and on gums as disinfectant.

Ethnobotanical Leaflets 10: 109-112. 2006.

Deadly nightshade/Belladonna (Atropa belladonna)

- *Turkish name: Güzelavratotu*
- *Atropa belladonna* is native to temperate southern and central Europe but has been cultivated and introduced outside its native range

Belladonna or deadly night shade

Illustration from *Köhler's Medicinal Plants* 1887

Scientific classification

Kingdom:	Plantae
Order:	Solanales
Family:	Solanaceae
Genus:	*Atropa*
Species:	***A. belladonna***

Binomial name

Atropa belladonna

L.

Belladonna (Atropa belladonna)


Berries of *belladonna*

- It has a long history of use as a medicine, cosmetic, and poison. Before the Middle Ages, it was used as an anesthetic for surgery; the ancient Romans used it as a poison (the wife of Emperor Augustus and the wife of Claudius both were rumored to have used it for murder); and, predating this, it was used to make poison-tipped arrows.

- The genus name Atropa comes from Atropos, one of the three Fates in Greek mythology, and the name "bella donna" is derived from Italian and means "pretty woman" because the herb was used in eye-drops by women to dilate the pupils of the eyes to make them appear seductive

- Belladonna tinctures, decoctions, and powders, as well as alkaloid salt mixtures, are still produced for pharmaceutical use, and these are often standardised at 1037 parts hyoscyamine to 194 parts atropine and 65 parts scopolamine.

- The alkaloids are compounded with phenobarbital and/or kaolin and pectin for use in various functional gastrointestinal disorders.

- The tincture, used for identical purposes, remains in most pharmacopoeias, with a similar tincture of Datura stramonium having been in the US Pharmacopoeia at least until the late 1930s.

- The combination of belladonna and opium, in powder, tincture, or alkaloid form, is particularly useful by mouth or as a suppository for diarrhoea and some forms of visceral pain; it can be made by a compounding pharmacist, and may be available as a manufactured fixed combination product in some countries

- In the past, witches were believed to use a mixture of belladonna, opium poppy and other plants, typically poisonous (such as monkshood and poison hemlock), in flying ointment, which they applied to help them fly to gatherings with other witches.

- The active agents in belladonna, **atropine, hyoscine (scopolamine), and hyoscyamine**, have anticholinergic properties.

- The symptoms of belladonna poisoning include dilated pupils, sensitivity to light, blurred vision, tachycardia, loss of balance, staggering, headache, rash, flushing, severely dry mouth and throat, slurred speech, urinary retention, constipation, confusion, hallucinations, delirium, and convulsions

Flowers of *belladonna*

Traditional Use

- This was used to help dilate the eyes to prevent adhesions from forming; this practice is continued today with the use of atropine in the eye at any sign of injury or disease.
- This herb was also used for treating patients with colic, rheumatism, coughs, sore throats, bronchitis, influenza, and lockjaw (tetanus). Practitioners believed that it did not “bind up the gut” as opium did but was similar in action.

Keynotes and Guiding Symptoms:

THROBBING PAIN
HOT RED SKIN
VIOLENT ATTACK
SUDDEN ONSET
DRY MOUTH WITH LITTLE THIRST
DILATED PUPILS - WILD ANIMAL LOOK
COLD EXTREMITIES

Modalities:

Worse: aggravations (<) worse for touch, jarring, motion, draughts, bright lights, noise, at 3 p.m. and 10 pm and at midnight, lying down and being uncovered. After eating.

Better: ameliorations (>) - sitting erect, standing and in a warm room.

In most of these modalities we have the opposite of Aconite.

Antidotes:

The effects of Belladonna are antidoted by Camphor, Coffea, Opium and Aconite. These may be used when, for example, a patient exhibits prolonged or severe aggravations from Belladonna.

Dose:

6c - 30c potency and higher (200c). Must be repeated frequently in acute diseases.

- 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.

- **This herb is considered too toxic for current use.**

Leaves of *belladonna*

Thyme *(Thymus vulgaris* L.)

- Turkish Name: Hakiki kekik
- Contraindicated in pregnancy- Emmenagogue, early preg

Equine chronic obstructive pulmonary disease or heaves

Therapeutic Rationale

- Manage underlying disorders, including lung parasites and infection.
- Manage immune reactivity and inflammation.
- Control bronchoconstriction.
- Loosen airway mucus.

Herbs listed in the allergic bronchitis section (earlier) may also be used for horses with heaves.

Bronchipret®, with extracts of *Thymus vulgaris* and *Primula veris,* is a proprietary remedy for the treatment of

Thymus vulgaris

Thyme, *Thymus vulgaris*

Scientific classification

Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
(unranked):	Asterids
Order:	Lamiales
Family:	Lamiaceae
Genus:	*Thymus*
Species:	***T. vulgaris***

Binomial name

Thymus vulgaris

L.

The European Agency for the Evaluation of Medicinal Products
Veterinary Medicines Evaluation Unit

EMEA/MRL/411/98-FINAL
May 1998

COMMITTEE FOR VETERINARY MEDICINAL PRODUCTS

THYMI AETHEROLEUM

SUMMARY REPORT

1. *Thymi aetheroleum* is obtained from *Thymus vulgaris* L. (synonym: thyme) by steam distillation of the aerial parts of the fresh flowering plant, in which it is contained at concentration of 0.3 to 0.5%. It contains thymol (30 to 50%), carvacrol (1 to 5%), *p*-cymene (15 to 20%), ?-terpinene (5 to 10%). The following monoterpenes are present in concentrations between 1 and 3%: Borneol, camphor, limonene, linalool, myrcene, ß-pinene, *cis*-sabinene hydrate and a-terpinene. Present in concentrations lower than 1% are: bornyl acetate, camphene, 1,8-cineol, *p*-cymene-8-ol, linalyl acetate, *cis*-myrcene-8-ol, terpineol, terpinene-4-ol, terpinolene and terpinyl acetate. The sesquiterpene derivative ß-caryophyllene is present in a concentration of 1 to 3%.

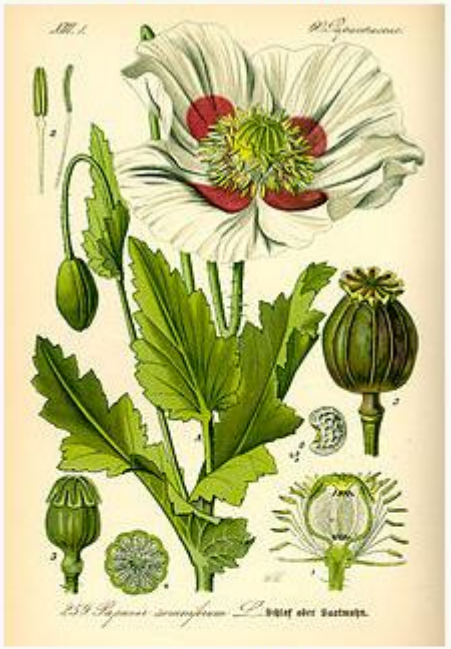
: *Thymus vulgaris*

- This herb possesses anthelmintic (especially hookworms), antibacterial, and antifungal properties.
- Thymol, carvacrol, and thyme oil have antifungal activity against a range of organisms
- In vitro antispasmodic activity of thyme and related herbs has been associated with the phenolic components of the volatile oil and with the flavonoid constituents; their mode of action is thought to involve calcium channel blockage
- Volatile oils and flavonoids that suppress bronchospasm and are mucolytic

Opium poppy (*Papaver somniferum)*

- Turkish name: Haşhaş
- It is the species of plant from which opium and poppy seeds are derived and is a valuable ornamental plant, grown in gardens.
- The opium poppy is, as its name indicates, the root source of all opiates. Morphine is the predominant alkaloid found in the varieties of opium poppy plant cultivated in most producing countries

Papaver somniferum



Papaver somniferum

Scientific classification	
Kingdom:	Plantae
(unranked):	Angiosperms
(unranked):	Eudicots
Order:	Ranunculales
Family:	Papaveraceae
Genus:	*Papaver*
Species:	***P. somniferum***

Binomial name

Papaver somniferum
L.[1]

- Use of the opium poppy predates written history. Images of opium poppies have been found in ancient Sumerian artifacts (circa 4000 BC). The making and use of opium was known to the ancient Minoans.
- Its sap was later named opion by the ancient Greeks, from whence it gained its modern name of opium.

- Opium was used for treating asthma, stomach illnesses, and bad eyesight.

Dried poppy seed pods and stems (plate), and seeds (bowl)

Capsule of *Papaver somniferum* showing latex (opium) exuding from incision

Opium poppy (*Papaver somniferum)*

- As the dried juices of the white poppy, opium was frequently used as a pain reliever.
- It worked best as a tincture tincture or extract, rather than as the whole herb: 20 to 40g per dose for horses in crude form, or 2 to 4 drachms (1.8- 7.1 g) of the extract.
- This herb was replaced by aconite for popular use as a painkiller.
- This herb is not used currently because of controlled substance laws.

Papaver somniferum flower

Papaver somniferum plant showing the typical glaucous appearance

- Australia (Tasmania), Turkey and India are the major producers of poppy for medicinal purposes and poppy-based drugs, such as morphine or codeine.
- The Senlis proposal is based in part on the assertion that there is an acute global shortage of opium poppy-based medicines some of which (morphine) are on the World Health Organisation's list of essential drugs as they are the most effective way of relieving severe pain

Poppy seed production in metric tons (2012) Source: FAOSTAT[15]	
Czech Republic	12,814
Spain	7,000
Hungary	4,698
Turkey	3,844
Germany	3,200
France	3,000
Palestine	2,600
Romania	2,350
Croatia	1,509
Austria	1,098
Serbia	1,000
Netherlands	400
Slovakia	296
Macedonia	91

- Opium is the name for the latex produced within the seed pods of the opium poppy, Papaver somniferum.
- Opium contains morphine, codeine, noscapine, papaverine, and thebaine. All but thebaine are used clinically as analgesics to reduce pain without a loss of consciousness. Thebaine is without analgesic effect but is of great pharmaceutical value due to its use in the production of semisynthetic opioid morphine analogues such as oxycodone (Percodan), dihydromorphenone (Dilaudid), and hydrocodone (Vicodin).

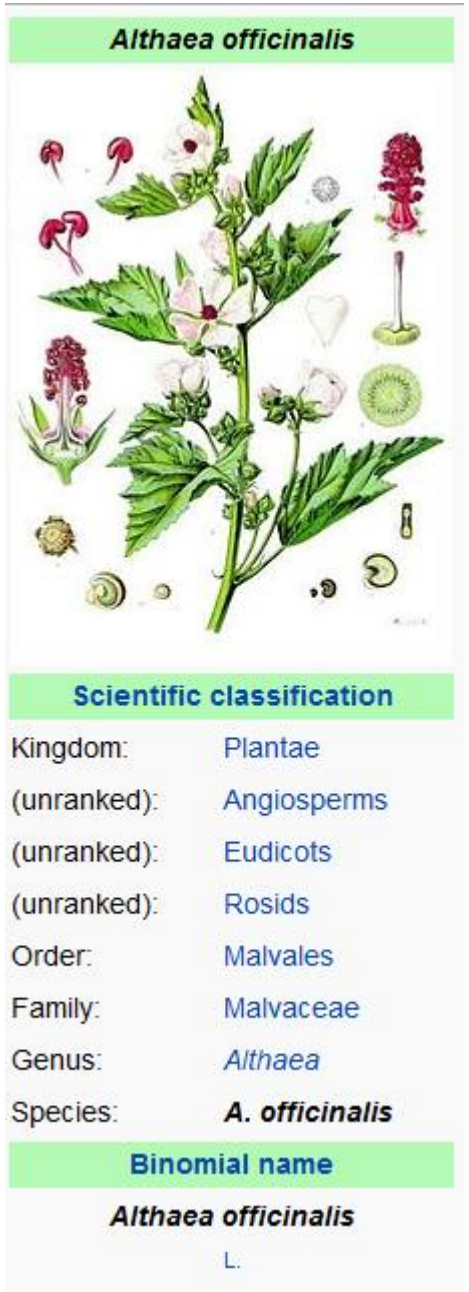
- For diarrhea
- Opium powder, cattle 10-25 g, horse 5-20 g, sheep-goat 1-2 g, dog 0.1-0.5 g; tentüre cattle: 50-120 ml, horse 20-100 ml, goat and sheep: 5-20 ml, dog 1-5 ml

Dried poppy seed pods next to glass jars of blue, gray, and white poppy seeds used for pastries in Germany.

White poppy seeds, close up.

Marshmallow *(Althaea officinalis* L)

- Turkish name: Hatmi
- **Other Names:** Schloss tea, guimauve tea, malve, guimauve, malvavisco, malvavisce, gul-khairu, k'uei, *Althaeae radix*
- **Parts Used:** Root from 2-year plants, in early spring or autumn. The fleshy part is used and woody parts discarded.
- The leaf is sometimes used



- **Selected Constituents:**
- *Root:* 5%-35% mucilage; asparagines, tannins
- *Leaf:* mucilage, flavonoids, phenolic acids
- **Clinical Action:** Nutritive, demulcent, vulnerary, diuretic

Small Animal:
Dried herb: 25-300 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 in 25%-30% ethanol or glycetract) 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.

Marshmallow

- The decoction is advantageous for nearly every kidney and bladder problem; it lists “diseases of the mucous tissues” that affect most systems, which include hoarseness, respiratory problems, cystitis, urethritis, and diarrhea.
- It has also been used as a poultice for local inflammatory disorders such as wounds, cellulitis, tumors, and burns.
- The German Commission E recommends marshmallow root for irritation of the oral and pharyngeal mucosa and associated dry cough, and for mild inflammation of the gastric mucosa

Marshmallow

Marshmallow (*Althaea officinalis*)

- **Indications:** Digestive complaints, especially gastroenteritis, gastric ulcer, colitis, diarrhea, urinary tract inflammation (cystitis, nephritis, urethritis), stomatitis, laryngitis, and bronchitis.
- Topically for ruptured abscesses, ulcers, and open wounds
- **Potential Veterinary Indications:**
- **D**igestive complaints, especially gastroenteritis, gastric ulcer, colitis, diarrhea, urinary tract inflammation (cystitis, nephritis, urethritis), stomatitis, laryngitis, bronchitis, and other chronic coughs. Topically for ruptured abscesses, ulcers, and open wounds


Marshmallow roots

- The leaves, flowers and the root of A. officinalis (marshmallow) have been used in traditional herbal medice. This use reflected in the name of the genus, which comes from the Greek ἄλθειν (althein), meaning "to heal".
- In traditional Chinese medicine, Althaea officinalis is known as 藥蜀葵 (pinyin: yàoshǔkuí).

- Marshmallow is traditionally used for irritation of mucous membranes, including use as a gargle for mouth and throat ulcers and gastric ulcers.
- The root was used in the Middle Ages for sore throat.[2]

- Intragastric administration to cats of an extract of marshmallow root, or the polysaccharide fraction, demonstrated significant antitussive activity, depressing the cough that resulted from irritation of laryngopharyngeal and tracheobronchial mucosa.
- The isolated polysaccharide, administered at 50 mg/kg, was as effective as marshmallow syrup administered at 1 g/kg and was more effective than the whole extract, administered at 100mg/kg