

The Herb Society of America

Artemisia



Essential Guide

APPLIED HERBAL MEDICINE IN PRACTICE



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Artemisia

An Essential Guide from The Herb Society of America

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Cover Art: *Artemisia arborescens* from the Vienna Dioscorides

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Image by E. Kennel

Longwood Gardens, Kennett Square, PA

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Introduction

Artemisia: Wormwood • Mugwort • Sagebrush • Southernwood

BIDDY WATSON, CONTRIBUTING EDITOR



The genus *Artemisia* is a member of the Asteraceae (formerly Compositae) family and is reputed to have hundreds of species, cultivars, and hybrids. Depending on which reference one consults, two hundred to four hundred varieties are spread from Siberia through Asia on into the Middle East, North Africa, Europe, and finally North America. South Africa claims a few, but with the exception of several in tropical environs, this genus originated and belongs to the drier climes of the Northern Hemisphere.

Shrubby *Artemisias* are modest in their habitat requirements. For the most part, they are sun loving, drought and heat tolerant, and will survive in almost pathetically lean soil. This virtue of meager need to downright neglect is probably one of the reasons that species of this genus have survived for more than 3000 years.

There are various references to *Artemisia* in the Bible, both the Old and New Testaments; Deuteronomy, Lamentations, and Revelations. Invariably, *Artemisia* is referred to as wormwood; although it is believed that the wormwood in question is *A. judaica* or *A. herba-alba* rather than *A. absinthium*, which may not have been in the Middle East at that time. Wormwood and gall are frequently cited together, both being extremely bitter and unpleasant. At that time, any plant that was bitter was considered toxic. Wormwood was bitter, therefore toxic, and being so, was associated with sadness, suffering, and misfortune.

Early on, various *Artemisias* proved their merits as strewing herbs to act as insect repellents or when ingested to act as an anthelmintic, a medicine to destroy parasitic worms; ergo, the name wormwood arose as a general and common name. Leaves or roots were dried and then pounded into a powder to administer orally. Small doses were considered antidotes for mushroom and hemlock poisons (the herbaceous hemlock, *Conium maculatum*, not the North American evergreen tree, *Tsuga*). Although treatments for other ailments, such as digestive tract cure-alls, women's conditions, fevers, gout, malaria, appetite

stimulant, were attributed to these plants (even Dioscorides professed *Artemisia absinthium* to be a remedy for intoxication), the age-old noteworthy claims to fame or notoriety remain as vermifuge and repellent.

The ingested plant or herb may have had its predicted results without lasting or long term consequences, but continued use had dire physical repercussions such as convulsions, mental dysfunction, severe eye problems, even blindness, and death. The responsibility lies with the constituent *thujone* found in many *Artemisias*. It would seem a paradox that *Artemisia* might be named for Artemis, the sublime Greek goddess of the moon and of chastity.

Although the generic name is usually attributed to the Greek goddess, it also might have been in honor of Queen Artemisia of Caria (Helicarnassus), a Turkish botanist who lived about 400 B.C.E. and was the wife of Mausolus (Tucker & DeBaggio, p. 159).

Artemisias are among the bitterest herbs, second only to *Ruta graveolens* (rue), the bitterest. Not only is the taste extremely acrid, but the odors in many are offensive and cloying. Both of these qualities are perhaps starting points for uses for digestive difficulties and insect problems. Given the name wormwood and its reputation over time, one can understand this plant's association with cruelty, sorrow, calamity, distress and tragedy. Although this tag is hardly appropriate for most of the species, it certainly applies to *A. absinthium*, a true culprit.

Even with its overall aura of toxicity, *Artemisia* has at least a couple of culinary candidates in its clan; namely, French tarragon (*A. dracunculus*) and mugwort (*A. vulgaris*). It must also be noted that not all *Artemisias* are herbs, only those which have qualifying properties for medicinal, culinary, beverage, commercial / industrial, or dyeing uses.

Aside from the notable historical medicinal uses and valuable repellents to keep chewing insects at bay, there are many reasons to invite many species and cultivars of *Artemisia* into the garden. Among the first is that they have very attractive foliage to add texture, color, and shrub-like dimensions. These are not plants chosen for spectacular bloom. The flowers, although some are attractive, are very small, mainly pale yellow to bright yellow, and relatively insignificant. It is for their foliage contrast and complement to other flowering plants that they please. The pinnate leaves range from almost filigree to the sturdy broad and raggedly erose (irregularly toothed), while the plants' dispositions can range from small 6- to 8-inch mounds to erect stems and branches reaching up to 10 feet in height. Most garden varieties are between 1 to 4 feet and spread to perhaps 3 feet. A number last and retain their appeal late into the winter months.

Depending on species, *Artemisias* are annuals, biennials, or perennials. Propagation can be a bit tricky; in the wild they reseed themselves easily, but for the gardener, propagation is more reliable by root division or by cuttings.

A number of the plants are silvery white or gray green, reminiscent of moonlight and purity, although many are darker green and some are brown-purple. The white species are particularly attractive. No doubt the goddess Artemis would approve of their showiness in moonlit gardens.

Another characteristic of *Artemisias* is highly aromatic fragrance due to the essential oil *cineole*. If rubbed, the oils are quite distinctive; some are camphor-like, clean and refreshing, some spicy and pleasant, some acrid and disagreeable. Because of these strong odors, as well as bitter taste, deer, rabbits and other “critters” inherently avoid them.

Artemisias do not like clay or rich soil and cannot stand sodden roots, which will kill the plants. Like other tougher-stemmed plants, a good drink once a week during drought and none during prolonged rainy periods will keep these plants happy. A well-drained, good sunlit spot is best with a soil in the neutral pH range. The pH preference varies according to species anywhere from 5.0 to 8.5. They will not survive deep shade, but can tolerate semi-shade as long as they have several hours of sun a day. The strength of the plant is reflected by these factors. These plants are protected by fine hairs which cool and defend them from extreme heat and help them to survive adverse conditions. As in other plants, white varieties are more heat and drought tolerant than their greener cousins.

Because of their natural tendency to grow in somewhat arid conditions, *Artemisias* are good candidates for dried flower arrangements and long-lasting wreaths. To dry easily and rapidly, the branches or stems should be fanned out, not bunched, and preferably hung in a dry, well-ventilated space out of strong sunlight.

There must be a caveat and caution added to any document describing historical medicinal uses of any herb. Those were the practices and treatments passed down from many centuries of use, long ago evaluated and, in many cases, long ago dismissed for their potential to do more harm than good. What is not revealed is the effect on an individual. In the case of *Artemisias*, some can produce allergic reactions causing rashes and congestion merely from handling by those people who may be predisposed to this sort of problem. However, it must be remembered that many *Artemisias* do not cause any allergic reaction. Likewise, to nibble on any plant to sample the taste and note the effect can be entirely misleading and in some cases have dire and unalterable results. It must also be understood that medicinal uses of *Artemisias* still have their place and ongoing potential in the modern medicinal world.

In conclusion, *Artemisias* are among the most beautiful plants in any garden and can give years of pleasure and to grow these lovely and graceful plants can only bring satisfaction and reward to any gardener.

A handwritten signature in cursive script that reads "Biddy Watson". The signature is fluid and elegant, with varying line thicknesses and ink saturation.

[Biddy Watson is an honorary member of the Philadelphia Unit.]

Herbal *Artemisias*

An alphabetical listing

THE HERB SOCIETY OF AMERICA, PHILADELPHIA UNIT

Artemisia is a very widespread genus with representative species on many continents. Not all of them are herbal, but those that are have many uses historically or currently.

What follows is a sampling of these useful plants:



Artemisia abrotanum
Image by E. Kennel

Artemisia abrotanum (southernwood, old man, lad's love) (syn. *A. procera*). This semi-evergreen subshrub is a native of southern Europe and a hardy perennial in the eastern half of the United States. It is hardy in Zones 5-10 although it may need protection in colder regions. It can reach a height and width of 3 to 5 feet.

Rigorous pruning in the spring will help to maintain a good shape. The small, inconspicuous, yellowish-white flowers are seldom seen in plants grown in colder zones. The foliage is fine, feathery and gray-green.

A. abrotanum is valued for its many ornamental uses: as an aromatic in sachets, potpourris and baths; in the landscape as a fine, feathery, gray-green backdrop; as a base in wreaths, baskets, and in dried herb and flower arrangements. Branches are used to make a yellow dye for wool. It is also used to repel moths and fleas. As a moth repellent it could also be used as a companion plant for cabbages.

The leaves are used internally to "improve digestion and liver function, encourage menstrual flow and stimulate the uterus, lower fever, relax spasms, and destroy intestinal worms" (Bown, p. 132). It has also been used against tumors and cancer (Kowalchik, p. 470). It was

known as “lad’s love” due to the belief it would encourage beards to grow and was also made into hair pomade (Gordon, p. 173).

The cultivar *A. abrotanum* ‘Tangerine’ is a hardy perennial in Zones 4-10 reaching a height of 3 to 4 feet and a width of 3 feet. It has a fragrance similar to tangerine. The leaves are more true green than silvery green. According to Tucker & DeBaggio (p. 161) “the botanical and chemical variation in this species has not been fully assessed, and the relationship of ‘camphor-scented’, ‘lemon-scented’, and ‘tangerine-scented’ southernwood is unknown. One very hairy cultivar is known as ‘Silver’ in the trade.”



Artemisia abrotanum

Image by E. Holden



Image by E. Kennel

Artemisia absinthium (wormwood) is a perennial shrub which is commonly found throughout continental Europe and Siberia, Scotland and England, and became naturalized in the United States. It typically grows from 2 to 3 feet tall with an equal spread, in some areas as tall as 5 feet. It is hardy in Zones 4-10. Beautiful silver grey-green celery-like leaves last until frost and can be easily and beautifully dried for use in arrangements and wreaths. Tiny (1/2-inch) bright yellow blooms appear on branched stalks in late July and last through October. Fine white silky hairs protect this species from extreme drought and prolonged heat. The plant produces a very strong pungent acrid odor. It is relatively disease free but prone

to root rot if overly watered. Insects avoid *A. absinthium*.

Seeds are not a very reliable way to reproduce this plant, so propagate it through cuttings and root division.

Of all the *Artemisia* species, aside from the popular culinary *A. dracunculus*, French tarragon, the most recognized in the western world must surely be *A. absinthium*.

For millennia, this herb was used in the ancient Mediterranean and European worlds for any number of maladies, particularly worms, insect parasites, and fevers. It has never been considered an edible food plant. As a strewing herb it was probably without equal to repel insects particularly in bedding and clothing. Because of its extreme bitterness, second only to rue, it was considered toxic and therefore associated with calamity, sorrow, desperation, and cruelty. The common name wormwood comes from the German word *wermet*, meaning to preserve the mind as it was thought to aid in clearing mental ability.

There are references for its use in Egypt in 1550 B.C.E. and in ancient Greece by Galen, Hippocrates, and other physicians, and during the Dark and Middle Ages in Europe and the British Isles. There are even references to its use in Siberia. There are a number of notes on this herb in the Bible, but the biblical *Artemisia* may have been *A. judaica* – which one remains in question, but they may be one and the same. It was said to be infused in the vinegar-wormwood drink offered to Christ at his crucifixion.

Along with its recorded medicinal uses, *A. absinthium* held its place in folklore through the ages. It supposedly grew in the wake of the serpent as it wriggled its way from Eden, and the ancients believed the herb countered the effects of hemlock and toadstool poisonings, as well as sea serpent bites. There were any number of chants to accompany *A. absinthium* love potions for the maidens of the Middle Ages. It held places in the pharmacopoeia and folk tales of many countries. It might have remained “just another” medicinal herb had it not been for its ability to do what it was claimed to do - get rid of intestinal worms and repel insects.

In the late 1700s in France, a concoction of *A. absinthium* was brewed as a tonic for fevers, a digestive cleanser, and a drink to get rid of intestinal worms. It worked remarkably well and became an established cure, but the extremely bitter taste made it unpalatable. A few flowers or other herbs were often added to counter the repulsive taste; even honey was added. Anise finally became the herb flavoring of choice to dull the nasty flavor.

During these same times it had long been infused in wine or beer in Britain and so well known that children, it was said, knew wormwood as well as eggs. It remained in many alcoholic beverages until the 19th century.

In the 1830s, fate advanced *A. absinthium*'s herbal role when the French invaded North Africa. For the invading French, the threat of defeat loomed more from the infestation of fleas,

fevers, and intestinal worms rather than from the native populations. *A. absinthium* was issued for clothing and bedding to get rid of fleas and the proven-effective *A. absinthium* herbal tonic, named by the French, absinthe, became the darling of the front. Moreover, since every attempt had been made to make absinthe drinkable, to the troops it had become an acquired taste with a fringe benefit of euphoria and, ultimately, addiction. As the French forces returned home, they took their affection for the anti-parasite solution with them and in so doing, absinthe as the aperitif was born. Forget the worm cure. The sensation and stupor of absinthe had become the obsession of the French and its notoriety arose in the Paris café nightlife of Montmartre, a haven and hangout for the avant-garde crowd of artists and writers of the late 1800s.



Image by E. Kennel

Unfortunately, the aperitif absinthe, which was not consumed with a cure for worms in mind – anything but – had a tragic failing. *A. absinthium* contains the chemical *thujone*, a volatile oil constituent, and the glucoside *absinthin*, which with ongoing consumption can cause dire physical distress: dementia, convulsions, vertigo, and blindness. Ultimately and reluctantly, absinthe met its demise because of this failing, and in the first quarter of the twentieth century it was banned in many nations. However, absinthe never really disappeared, and with the ability to remove/alter the destructive constituent *thujone*, absinthe has had a renaissance. It is

available today in certain bars and shops around the world.

As earlier noted, *A. absinthium* has historically been used for medicinal purposes; primarily ingested for fevers and worms, but also for malaria, to ease female discomforts, and for other assorted internal problems. Externally, ointments and salves were created for uses on the skin.

A. absinthium is a beautiful plant in the garden lending its silver-green feathery texture and dimension to enhance any area. The cultivar *A. a. 'Lambrook Silver'* is particularly beautiful. It can serve as well as a medium-height hedge and, following its traditional use, will help deter plant-nibbling insects from other garden favorites. Deer will avoid it.

Prolonged ingestion of this plant can be fatal.

Cultivars of *A. absinthium*

A. 'Huntington' (syn. *A. absinthium* 'Huntington Gardens'). Introduced by Huntington Gardens. Lovely foliage, but tender perennial in some areas.

A. absinthium 'Lambrook Silver'. Easy to grow, beautiful, and a good *Artemisia* for the hot, humid South; very silvery green filigree foliage: 3 to 5 feet in height; sometimes called fringe tree.

A. absinthium 'Lambrook Giant'. A larger version of 'Lambrook Silver'

A. absinthium 'Silver Frost'. Silvery; not as robust as some of the other cultivars.

A. 'Powis Castle'. This is believed to be a hybrid of *A. absinthium* and *A. arborescens* and developed at Powis Castle in Wales. It is a more compact mix of the two plants.

A. 'Beth Chatto'. Resembles 'Powis Castle' but is shorter (up to 1.5 feet) with silver foliage.



Image by E. Kennel

Artemisia afra (African wormwood, mugwort, wild wormwood). *A. afra* is an erect, clump-forming, herbaceous perennial which grows 2 to 3 feet tall and wide. Although hardy in Zones 6-9, it is not reliably winter hardy without protection/mulch. *A. afra* is the only species of *Artemisia* truly indigenous to Africa, where it grows in thick, bushy, slightly untidy clumps, usually with tall stems, but sometimes as low as 20 inches. It is tough and easy to grow.

The alternate oval-shaped leaves are soft and finely divided, almost fern-like. Their upper surfaces are dark green; the undersides and the stems are covered with small white hairs, which give the shrub a characteristic overall

silver-grey color. Individual flowers are nodding, small (about 0.2 inch in diameter), creamy yellow, and crowded at the tips of the branches. Flowers typically appear in late summer or early fall.

Rising from rhizomatous roots, the stems are thick, woody at the base, becoming thinner and softer towards the top with many smaller side branches shooting from the main stems. Ribs

of strong swollen lines run all the way up the stems. The plant exudes a strong, sticky sweet smell when touched or cut. This smell is very typical of *A. afra*.

In the wild, African wormwood grows at altitudes between 662 to 1,443 feet on damp slopes, along stream banks and forest margins. It tolerates poor soils, but is susceptible to root rot in wet soils. The plant performs best in hot, dry weather, but plants grown in fertile soils and/or in part shade tend to flop in summer. Heavy pruning in the winter will encourage new lush growth in spring, and pinching stems back in late spring to reduce mature plant height will help prevent legginess. High summer humidity or rainfall commonly causes the foliage to decline.

A. afra is best propagated from seed or slips in spring through fall.

A. afra is one of the oldest and best known medicinal plants and is still used effectively today in South Africa by people of all cultures (Van der Walt). It has traditionally been included in African herb gardens.

Uses of *Artemisia afra*

Medicinal: *A. afra* is used for colds, coughs, fever, loss of appetite, colic, headache, intestinal worms, and malaria. Leaves are inserted into nostrils to clear blocked nasal passages, and the roots, stems and leaves are used in enemas, poultices, infusions, body washes, snuffed and smoked. Leaves placed in socks relieve sweaty feet (Van der Walt). A periodontal disease study noted antimicrobial activity against gram-positive bacteria and *Candida albicans* (More et al.)

Culinary: When used as a tea, African wormwood is very bitter in taste and is usually sweetened with sugar or honey. Wilde-als (*A. afra*) brandy is still made and marketed (Van der Walt).

Decorative, crafts: African wormwood is an excellent contrast to flowering plants in beds, borders and herb gardens. It is also very effective in rock gardens and other areas with poor dry soils and has a very attractive appearance when planted with *Salvias*. It is also used in sachets or potpourris.

Cosmetics, beauty, and fragrance: *A. afra* is used in lotions and for essential oils.

Economic: African wormwood is a natural insecticidal spray and moth repellent and a source of wood for carving.

Other: The best forms for using *A. afra* are as infusions, decoctions, and tinctures. Colonists in Africa preferred tinctures as the herb is very bitter. Note: The plant is not for long term use and should be kept out of eyes.

Artemisia alaskana (Alaskan sagebrush, Alaskan wormwood, Siberian wormwood) is a perennial aromatic shrub native to British Columbia, Yukon, Northwest Territories of Canada, and Alaska. It prefers steep south-facing dry rocky slopes.

It grows 1 to 1.5 feet tall and wide from a multi-branched woody base. The foliage is three-lobed, gray-green with flat margins.

Decoctions of *Artemisia alaskana* were used by Native Americans as cold remedies, eye washes, for diabetes treatment, and for cancer treatment (Moerman, p. 83).

Medicinally it is used as a cough medicine, to lower fevers, to cure colic and headaches and to help cure intestinal parasites and malaria (Wikipedia).

Artemisia alba (camphor southernwood, white artemisia) (syns. *A. camphorata*, *A. biasolettiana*, *A. incanescens*, *A. lobelii*, *A. suavis*, *A. alba* subsp. *alba*). *A. alba* is an erect perennial native to the Mediterranean region, southwestern Europe, Morocco, Spain, and Bosnia. It grows 3 to 4 feet tall with an equal spread from a rhizomatous taproot which is woody at its base. Camphor southernwood is hardy from Zones 5a (-20⁰F) to 8b (15⁰F).

The leaves of *A. alba* range from green to white and are hairy. They are aromatic with a camphor-like scent. The leaves vary in shape, size, and fragrance. The base of each leaf has two ear-like lobes. The basal leaves have lance-shaped blades with divided and toothed margins. The small flowers are arranged in a head which looks like a single flower and are largely wind pollinated.

A. alba is deer resistant and suitable for xeriscaping.

Different populations of *A. alba* can contain differing percentages of the same volatiles, depending on what kind of soils they are growing in. Those growing on calcareous rock had a higher concentration of camphor than those growing on serpentine rock, which contained less water and fewer indispensable minerals (Radulović and Blagojević).

Medicinally, *A. alba* has antiseptic, vermifuge, and antispasmodic properties and is grown for its essential oils. It also repels moths.

Other varieties of camphor southernwood include *A. alba* subsp. *chitachensis* and *A. alba* subsp. *kabylica*. The cultivar *A. alba* ‘Canescens’ forms a semi-evergreen bushy subshrub which grows to 20 inches with an equal spread and has much-dissected silvery-grey leaves.



A. caucasica (*A. alpina*)

Image by: Wikipedia Commons

Artemisia alpina (armoise du Caucase, kaukasisk malört) (syn. *A. caucasica*). *A. alpina* is a dwarf species which forms dense silvery-grey tufts. It is very ornamental and appears to great advantage in rock gardens. It is native to the Caucasus (Azerbaijan, Ukraine, Turkey) and was introduced in 1804 (Wooster, p.107).

Bown, (p. 88) describes *A. alpina* as a mat-forming, evergreen or semi-evergreen, aromatic shrublet with silky, finely cut, fernlike, silver-green leaves, growing 6 to 12 inches tall and wide. It is hardy in Zones 4-7. Use leaves, fresh or dried, in herbal posies (Bown, p. 243).

Although *A. alpina* seems to be mostly used as a landscape plant, it has constituents that are antibacterial; it is also potentially allergenic (Quattrocchi, p. 405). Richters Herbs describes it as a medicinal herb.



Image by P. Kenny

Artemisia annua (sweet Annie, annual wormwood, qing hao, sweet sagewort). *A. annua* (first described by Linnaeus) is native to temperate Asia (western and middle Asia and the Caucasus) and eastern and southeastern Europe. It has naturalized in the temperate regions of North America, Europe, and South America. The plant grows readily on hillsides, edges of forests and in wasteland. As indicated by its specific

epithet, sweet Annie is an annual. The stems are erect and can grow 6 to 10 feet tall with a spread of 30 inches. Unlike clump-forming *Artemisias*, *A. annua* has a single main stem with smaller alternating branches arising from it. The stems turn red in autumn.

The leaves of *A. annua* are feathery, deeply divided, and toothed, although their lobes vary in shape – linear, lance-shaped, entire or toothed. They are surrounded at the stem by hairless, shiny bracts. The leaves are deep green in color and sweetly fragrant.

Loose panicles of small, spherical, yellow-green flower heads form from summer to autumn; the flower heads open into small (about 1/8 inch), nodding yellow flowers. The flowers store *artemisinin* as well as highly aromatic volatile oils (essential oils).

Sweet Annie grows readily from seed and can become invasive. It is grown commercially from transplanted seedlings and also by direct seeding. The very viable seeds survive drying and long term freezing. The best time to germinate them is in May or when temperatures reach 65°F. Sweet Annie will tolerate drought and, unlike most *Artemisia* species, water-logging. The plants are extremely vigorous and essentially disease and pest free.

A. annua (qing hao) has been used in traditional Chinese medicine for more than 2,000 years to alleviate fevers. Huxley et al. described it as “a condiment with supposed magical properties.”

All parts of the plant (flower, leaf, stem, seed, and essential oils) have been and continue to be used medicinally: in Indochina to treat jaundice, dysentery, skin eruptions, fevers; by Chinese herbalists to stop wound bleeding, help new muscle growth, and relieve hemorrhoids; to prevent and treat malaria (*Plasmodium falciparum*), even drug-resistant strains. Current research shows that the antimalarial compound, QHS (qinghaosu) or *artemisinin*, isolated from *A. annua* is effective against cancer and some viruses. The plant has a high content of flavonoid compounds which are antioxidant. Seeds of *A. annua* have been used to treat eye disorders. Sweet wormwood is widely planted commercially as a source of essential oils and *artemisinin*.

The essential oils of *A. annua* are used in cosmetics and perfumes. The essential oil from the above-ground parts of the plant has proven to be antimicrobial, antifungal, and antioxidant. A spray made from *A. annua* has been noted to change the development of certain insects.

A. annua is cultivated in Indonesia as a garden ornamental.

The green parts of the plant are eaten as a vegetable; the leaves contain high amounts of vitamin A. Annual wormwood is also used to flavor vermouth.

Sweet Annie is used in potpourri, for making aromatic wreaths, and as a dyeing agent, although it can cause dermatitis and allergic reactions in susceptible individuals. The pollen is extremely allergenic.

Toxicity: Although drinking it as a tea is not recommended, *A. annua* has shown no reported toxicity when taken in appropriate doses for short periods for the treatment of malaria. *A. annua* may cause abdominal pain, bradycardia, diarrhea, nausea, vomiting, decreased

appetite, flu-like symptoms, fever, and decreased reticulocyte count. It may also interact with some drugs and is contraindicated in patients with ulcers or gastrointestinal disorders.



Image by E. Kennel

Artemisia arborescens (tree wormwood, shrubby wormwood, large wormwood) (syns. *A. arborescens* var. *capaniana* and *A. arborescens* f. *rehan*). *A. arborescens* is native to rocky areas along the coasts of Portugal, Spain, France, Italy and Greece although it may have originated in Africa or the Middle East. Popular folklore suggests that it was spread by Moorish invaders and Knights Templar just before the Crusades (Pappas & Sheppard-Hanger, p. 32).

Tree wormwood is an aromatic, upright, evergreen or semi-evergreen shrub with a rounded habit, woody stems, and finely divided, somewhat hairy, silver-gray foliage. It grows 4 to 6 feet tall with an equal spread. It can withstand

temperatures of 25-30° F but is not truly hardy in climates that get much below freezing. Wet and cold usually kill it quickly. A variant of the species which grows in the northwestern U.S. is hardy only during winters with very mild temperatures; otherwise it must be propagated and grown as an annual.

Tree wormwood leaves are sometimes added to the green tea prepared by Moroccans (Maghrebi “thé à la menthe”) in the winter when mint is less available. It can add a bit of bitterness to the brew.

A. arborescens is cultivated in gardens for its color and leaf shape. Leaves can be used fresh or dried in posies.

A. arborescens is a morphologically highly variable species. The chemical compounds in the viscous, almost navy blue oil distilled from its aerial parts can vary as well, depending on the source of the plant. Pappas and Sheppard-Hanger found that a Pacific Northwest variant contained less *thujone* and more *chamazulene* than a Moroccan variant, giving it a slightly sweeter, slightly mintier character. “*A. arborescens* oil has the highest amount of *chamazulene* of any essential oil known and has no detectable amounts of *thujone*, which is desirable from a toxicity standpoint. Essential oils that contain *chamazulene* are important in therapeutic applications because of its apparent radical-scavenging activity. This ability is what is thought

responsible for its effectiveness in treating inflamed skin conditions.” Preparations of tree wormwood are also used to treat respiratory problems. They are best avoided in pregnancy and by babies and children even though they have a low *thujone* content.



Artemisia arbuscula (sagebrush, low sagebrush) (syns. *A. spiciformis* var. *longiloba*, *A. arbuscula* subsp. *longiloba*, *Seriphidium arbusculum*). *A. arbuscula* is native to western N. America and cultivated elsewhere. Low sagebrush is perennial and hardy in Zones 3-5. Reaching a height of only 16 inches, the plant provides low-growing sage-grouse habitat all year long (Gillan & Strand, p. 45).

It also offers an ornamental plant for xeric gardens. As with many *Artemisiias*, researchers are examining its chemical components for potential medicinal use.

Artemisia arctica (alpine sagewort, boreal sagewort, arctic wormwood) is found at high altitudes in the western United States, Alaska and Canada. GRIN describes it as a synonym of *A. norvegica* subsp. *saxatilis*. The plant is a 1.5 to 2-feet tall perennial subshrub which thrives in disturbed areas and is a source of food for local wildlife.

Native Americans used a decoction of *Artemisia arctica* for cancer treatment, a cold remedy, a cough medicine, eye treatment and diabetes (Moerman, p. 83).

Artemisia arenaria is native to temperate Asia (Iran, Azerbaijan, Dagestan, Kazakhstan, Turkmenistan, Uzbekistan, the European part of the Russian Federation, Ukraine) and is widely distributed in northwestern China, where it has been used since ancient times as a folk medicine to treat cough, phlegm, and chronic bronchitis (Wei Guo, p. 828).

The Plant List considers it a synonym of *A. campestris* subsp. *inodora*. GRIN recognizes it as *A. arenaria* with no synonyms listed.

Artemisia australis (Oahu wormwood, Chawaina, ‘Ahinahina, Hanina) is a perennial aromatic shrub which is native to all the main Hawaiian Islands. It grows at high elevations on exposed windward cliffs (Native Plants).

Artemisia australis grows 4 to 5 feet tall and wide. The plant may grow taller but can be pruned regularly to keep it shorter.

The leaves are finely divided, grey green to silvery and slightly fuzzy. The small yellow flowers are in dense clusters. It is propagated by the small seeds when fresh or easily grown from cuttings.

Hawaiians use a decoction of pounded leaves and roots for a steam bath to treat high fevers. It is also used as a pulmonary and reproductive aid. The leaves are an ingredient for asthma medicine (Moerman, p, 83). The flowers are used in leis.

Artemisia biennis (biennial wormwood) is a biennial shrub which originated in the northwestern United States but now grows everywhere in the U.S. except the southern states.

It grows from 1 to 10 feet tall in most soils. The foliage is deeply divided with coarsely toothed edges. The numerous flowers are yellow to green in dense inflorescences. This *Amaranthus*-like inflorescence makes this species easily distinguishable. The plant has little scent and may cause dermatitis.

This is an invasive plant in parts of the United States. It is a serious weed for some crops in the Dakotas and Minnesota. It is often confused with *Artemisia cana*.

Artemisia biennis was used by Native Americans for sores and wounds, as an analgesic, and for gastrointestinal and gynecological problems (Moerman, p. 83).



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Image by: Sally and Andy Wasowski

Artemisia californica (coastal artemisia, California sagebrush) is a perennial highly aromatic deciduous shrub endemic to the lowlands of central and southern California.

The plant grows 3 to 4 feet in height and width with a shallow fibrous root system. The finely divided leaves are light green to grey. It produces two sets of leaves a year. The leaves are larger and green in winter and spring but smaller, grey and more drought tolerant in summer. The grey stems and leaves are covered with dense grayish

white hairs. The plant can be pruned hard in late fall to keep it compact.

The inflorescences consist of small insignificant yellow to brownish flower heads of disk flowers. The flowers are wind pollinated, bloom late in the season, and produce abundant seeds which are spread by wind.

It was used by Native Americans as a cold remedy, a poultice for wounds, for menstruation and gynecological problems, and as an analgesic for tooth problems (Moerman, p. 83). In addition, the plant was used ceremonially and for ritual purification.

Healers may use California sagebrush to remind people of pleasant memories (Adams, p. 23). The aroma of California sagebrush recalls the scents of the early days of cowboys, or “Cowboy Cologne” (Mother Nature’s Backyard).

The plant is an important habitat shrub and a food source for local wildlife. It can also be used to make potpourri, seasoned vinegar, and as a food seasoning.

There are two cultivars which are good garden plants. ‘Canyon Grey’ is a prostrate cultivar, 1 to 2 feet high by 6 feet wide which serves as a ground cover plant and can be used for erosion control and fire resistance. ‘Montara’ is a mounding cultivar which is 2 to 3 feet tall by 3 feet wide.

Artemisia campestris (field sagewort, sand wormwood, northern wormwood, Breckland wormwood, boreal wormwood, Canadian wormwood, field mugwort) (syns: the list is very long and may be found at <http://www.fs.fed.us/database/feis/plants/forb/artcam/all.html>). This is a perennial/biennial plant that grows in high altitudes on dry, sandy soil in the forest (boreal) regions of North America and Eurasia. It starts life with a rosette growth and in the second or later years bolts to 2 to 3.5 feet tall. It has a deep taproot and is faintly aromatic. The stems are reddish brown and tomentose. The corollas are pale yellow and slightly hairy. *A. campestris* is variable; it is wind pollinated and therefore seedlings vary. Only three subspecies are recognized botanically; however, many more may be in existence, which explains the many synonyms.

The Blackfoot, Lakota, and Shuswap Native Americans used this plant for everything from an abortifacient to veterinary uses. It was considered a panacea “Decoction of plants taken as a medicine for everything” (Moerman, p. 84).

Subspecies of *Artemesia campestris*

A. campestris subsp. *borealis* – found in Eurasia and western North America

A. campestris subsp. *campestris* – found in Europe and eastern U.S. (Massachusetts and Connecticut)

A. campestris subsp. *caudata* - found in most of North America

A. campestris subsp. *glutinosa* - found in N. Africa, SE and SW Europe

A. campestris subsp. *inodora* - found in NE Europe



Gary A. Monroe @ USDA-NRCS
PLANTS Database

Artemesia cana (silver sagebrush, Bolander sagebrush, silver wormwood, sticky sagebrush) (syns. *A. bolanderi*, *A. cana* var. *viscidula*, *Seriphidium canum*). This shrubby native perennial *Artemesia* grows well in Zones 3-8 reaching a height of 2 to 4 feet and a width of 2 to 3 feet. It prefers full sun and a growing medium that can range from sand/pebbles to moist soil. Because cuttings are not a successful method of propagation seed sowing is recommended.

“Seeds are very small and ripen late in the season. Harvest the flower heads whole and dry them in a paper bag or hang over newspaper. Seeds will shake out of the bracts as they dry. Seeds need a period of dry storage to ripen, so keep them in a paper envelope in the refrigerator until spring, then surface sow them when temperatures have warmed into the 70s. Seedlings should be carefully moved into plugs as soon as they are big enough to handle, then potted into a coarse mix or held over and planted out directly in the ground the following spring” (Cullina, p. 279).

The plants may be pruned or allowed to grow as a typical sagebrush. The flowers are small and the foliage is also small, narrow, gray and deciduous. Although the flowers are scentless, the plant exudes the fragrance of sweet turpentine after a rain.

Moerman reported that Native Americans used *A. cana* as a medicine (p. 84). Montana Indians used decoctions of leaves as a hair restorer, digestive tonic and general tonic, and to treat other complaints. They also chewed leaves to relieve thirst.

Some tribes used this sagebrush for fall and winter forage for horses, livestock, and game. Others roasted piñon cones over silver sagebrush fires.

This *Artemisia* continues to provide food and shelter for wildlife.

Subspecies of <i>Artemisia cana</i>
<i>A. cana</i> subsp. <i>bolanderi</i>
<i>A. cana</i> subsp. <i>cana</i>
<i>A. cana</i> subsp. <i>viscidula</i>

Artemisia capillaris (wormwood, fragrant wormwood) is a highly aromatic perennial subshrub that will grow in Zones 5–8 and will reach a height and width of 1 to 3 feet. It can tolerate strong winds but not maritime exposure. The plant will be hardier and more aromatic when grown in poor dry soil. Too much moisture will make the plant susceptible to root rot. The foliage consists of purple stems and finely divided, bright green, silky leaves.

Propagate by seed in the spring; by slips with a heel in the summer; by root division in spring or autumn. Prune in the spring taking care to leave sufficient numbers of live buds on the plant.

“Although no reports of toxicity have been seen for this species, skin contact with some members of this genus can cause dermatitis or other allergic reactions in some people” (Plants for a Future, 2013).

A native of China, Korea, Japan, and the Philippines, the leaves and young shoots of this plant are used in Chinese and Japanese medicine (yin chen hao, *Herba Artemisia*). This bitter herb is used in tonics as a diuretic, for the liver and gall bladder, and to lower fevers. It is used externally for headaches (Bown, p. 243).



Al Schneider @ USDA
NRCS Plants Database

Artemisia carruthii (Carruth's sagewort, sagewort, wormwort) (syns. *A. kansana*, *A. carruthii* var. *wrightii*). This rhizomatous, woody, native plant is found mainly in the central and southwestern United States in Zones 3-11. It can also be seen in Illinois, Michigan, and New York.

The plant grows in foothills, prairies and meadows in gravelly soil. It is erect, sparse and thin, growing to several feet. The leaves have narrow leaf divisions, are hairy and soft, silver green and have the sweet pungent scent of sage. With a spread of several feet it is at its peak in the autumn.

The seeds of *A. carruthii* were an important food source for the Zuni tribe; they also threw the seeds on hot coals to promote a sweat to relieve the discomfort of colds (Moerman, p. 84).

It is definitely an allergen which can cause systemic and/or skin reactions.

Artemisia caruifolia (Chinese wormwood, qing hao) (syns. *A. apiacea*, *A. carvifolia*). This biennial *Artemisia* grows in an upright clump, 5 feet high by 1.5 feet wide. It grows in well-drained neutral loamy soil along moist river banks, floodlands, outer edges of forests, and coastal areas at low elevations in the countries of Japan, China and the Himalayas. It is thought to be tolerant of the climate in England. The small yellow hermaphrodite flowers bloom from June through September and are pollinated by the wind. The leaves are aromatic and feathery. Seeds ripen July through September. It is recommended that seeds be surface sown because they require light to germinate.

The plant has a history as a cure for just about everything. Leaves are used for tea; young leaves are cooked in the spring. A decoction of the root was used to treat asthma, and the plant was used as a tonic to treat stomach problems, diarrhea, scabies, tidal fever, and as a vermifuge. The plant contains *artemisinin* a substance believed to be effective in the treatment of malaria and it is used interchangeably with *Artemisia annua*. Research is underway at this time to confirm this use. It is also burned to repel insects. Although some members of the *Artemisia* genus can cause allergic reactions, *A. caruifolia* has not shown any toxicity.

Cultivars: *Artemisia caruifolia* var. *caruifolia*, and *A. caruifolia* var. *schochii*

Artemisia chamaemelifolia (syns. *A. chamomillifolia*, *A. iberica* and *A. stechmaniana*).

This critically endangered species grows on grassy, stony terrain in the mountainous areas of Bulgaria. It is also found, sparsely, in the Alps, the Caucasus, and southwest Asia Minor. It is a rhizomatous perennial reaching a height of 20 inches. The stems are brown and the pinnatisect (feathery) leaves are soft green. Its name refers to its similarity to chamomile.

There are ethnobotanical references that state that this plant was used medicinally during the medieval period and as an insect repellent by Spanish Muslims (Wright, p. 11). No references were found regarding modern use.

Artemisia cina (Levant wormseed, silver sagebrush, sea wormwood, santonica) is an upright 3-foot deciduous perennial shrub native to China, Kazakhstan and Kyrgyzstan.

Its small flowers bloom from August through October. The seeds ripen concurrently. The plant is hermaphrodite, and the flowers are wind pollinated. It is best propagated by seed sown in late winter or spring; however, root divisions taken in the fall are also successful.

The plant is considered toxic because of its high levels of *santonin* and is therefore no longer used as an anthelmintic. It has an aromatic scent and a bitter, camphorous taste.

Artemisia douglasiana (California mugwort, Douglas sagewort, dream plant) is an erect aromatic perennial shrub native to the western United States. It grows 3 to 5 feet tall and 4 feet wide with spreading shallow roots. It grows in well-drained soil in sun or shade, preferably near streams or other wetter areas. The topside of the leaves is green and the underside is silvery light grey.

It was used medicinally by Native Americans as a cold remedy, for joint pain, headache, abrasions and rashes, and women's reproductive problems. The leaves were chewed to relieve toothaches. It is a cooling herb and was used to calm nervous symptoms. The calming scent of the leaves and stems, which were made into a pillow, promoted dreaming. (Moerman, pp. 84-85).

Today it is used by modern herbalists for chronic gastritis and gastric ulcers. The tea is antifungal and used topically as first aid for rashes and poison ivy.

The leaves contain *thujone* which is toxic in high doses as well as a cause of complications in pregnancy. The leaves also contain *cineole* which is an antibacterial agent (Wikipedia) used as essential oil. The plant is named after Scottish botanist David Douglas (1798-1834) who identified several species of California plants on his numerous trips to America.



Image by E. Kennel

Artemisia dracunculus (tarragon) includes French tarragon (syn. *A. dracunculus* var. *sativa* or ‘Sativa’), Russian tarragon (syn. *A. dracunculus* var. *dracunculoides* or *A. dracunculus* var. *inodora*), as well as wild tarragon (syn. *A. dracunculus* var. *glauca*).

The name tarragon is derived from the French word *estragon* or from the Arabic word *Tarkun*. Both words mean “little dragon” which refers to the root system which curls around like a dragon’s tail. In early folklore tarragon was thought to cure snake bites as well as bites and stings of venomous beasts and mad dogs.

Tarragon is thought to have come to Europe in the Middle Ages from Siberia and Mongolia. There are indications that tarragon was used by the Greeks as early as 500 B.C.E. It was considered one of the “simples,” the one herb remedy used by Hippocrates (Father of Medicine). Pliny, the Roman naturalist suggested the leaves could prevent fatigue. Pilgrims in the Middle Ages put sprigs in their shoes before beginning long trips by foot. Tarragon came to England under Henry VIII in the 16th century where it was added to the royal garden. It made its way to the United States in the 1800s.

French tarragon, the preferred culinary herb, is a perennial (marginally hardy to Zone 6) with narrow smooth pointed green leaves and a spreading fibrous root system. The stem becomes woody over time. In the summer it may have insignificant yellow flowers which rarely open. French tarragon does not produce viable seeds.

French tarragon grows best in full sun in well-drained soil with good air circulation. It grows 1.5 to 3 feet tall by 2 feet wide. It will rot with too much water. The plant dies down in winter but needs to be protected with mulch as it will not survive a cold moist winter. The plant should be cut back each spring. To renew the plant it needs to be divided or replaced every three to five years.

French tarragon is propagated by root cuttings or divisions in the spring or stem cuttings later in the season. It can be grown in pots and brought inside where it will not die down. The harvested leaves have best flavor if frozen or preserved in vinegar. Dried leaves do not retain flavor over time.

The primary use of the distinct anise flavor of French tarragon is culinary. French tarragon is one of the four *fines herbes* used in French cooking (the others are parsley, chives, and chervil). Tarragon leaves are used to flavor fish, meats, chicken, vegetables, eggs, mustard, salads, sauces, and vinegar. It is the significant flavor of béarnaise sauce. In using tarragon it should be added near the end of preparation because the leaves become bitter if overcooked.

A sugary tarragon concentrate is used in a popular carbonated soft drink called Tarhun in Armenia and parts of Russia. Tarragon is also used as a spice in a sweet cake in Slovenia.

Native Americans used tarragon as antidiarrheal, gastrointestinal, pediatric, urinary, and antirheumatic aids and as an eye wash.

Medicinally tarragon is used for the digestive system to stimulate appetite or to help poor digestion. It is also used to relieve flatulence and colic.

Russian tarragon is a hardier, coarse vigorous plant that grows from seed. It grows up to 5 feet tall with longer narrower leaves than the French tarragon. It is less aromatic and lacks the flavor of French tarragon.

Wild tarragon is a coarse erect deciduous perennial weed. It grows to 5 feet tall and spreads by rhizomes that make the plant difficult to control.



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Image by: Sally and Andy Wasowski

Artemisia filifolia (sand sagebrush, silvery wormwood) is a perennial shrub native to the American Southwest and Great Plains, growing on dunes and at high elevations. Its foliage is feathery, silver-blue, and sweetly pungent. A sun-loving plant, it grows from 3 to 6 feet tall with a 30 to 48-inch spread. It prefers deep, sandy soil. Sand sagebrush grows in an upright clump and shearing may spoil the foliage. It is hardy in Zones 4 to 6.

Propagation is by seeds, and the plant will self-sow in the proper conditions.

A. filifolia has been used traditionally for indigestion, boils, and snakebites. The Comanche made a warm post-childbirth bed by placing the plants over hot coals. The Hopi used the plant to treat boils. A strong infusion treated snakebites (Moerman, p. 87).

A. filifolia reduces wind erosion, provides forage for wildlife and nesting cover for game birds. It is deer resistant and can be an ornamental accent in a garden.



www.wildflower.org
Image by: Sally and Andy Wasowski

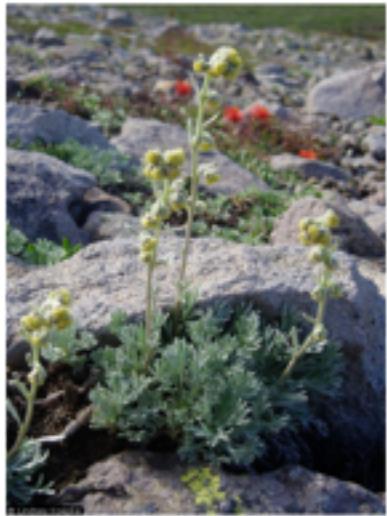
Artemisia frigida (fringed sagebrush, fringed sagewort, prairie sagewort). *A. frigida* is a low-spreading, semi-evergreen shrub 0.5 to 1.5 feet tall and 6 to 12 inches wide. Its leaves are very finely divided, soft, grey-green, and aromatic. The foliage is evergreen in warm winter climates; the plant is hardy from Zones 3 to 10. Fringed sagewort grows in the open, high plains, and alpine areas from western Minnesota, southwest to eastern Colorado and from Wisconsin, north to British

Columbia, Alaska, and Siberia, and south to Arizona and northern New Mexico. It is considered a weed in rangeland because it spreads rapidly in heavily grazed areas, although it has special value to native bees and small animals by providing nesting materials and structures and as winter feed for elk, antelope, and deer.

A. frigida was used by many Native American tribes during ceremonial dances, as a tonic and stimulant, to treat various medical conditions, and to treat horses (Moerman database; Duke database).

Early settlers made a tea of fringed sagewort to treat typhoid fever (USDA/NRCS).

Artemisia fruticosa is a synonym of either *A. alba* or *A. campestris* (The Plant List) and both of those have herbal uses.



Lindsey Koepke @ USDA-NRCS
PLANTS Database

Artemisia furcata (three-forked mugwort, forked sagewort, forked wormwood) (syns: *A. furcata* var. *furcata*, *A. furcata* var. *heterophylla*, *A. trifurcata*). “*Artemisia furcata* extends from the islands of the Bering Sea into southern and interior Alaska, parts of Canada (disjunct in British Columbia and the northernmost Rocky Mountains of Alberta), and on Mt. Rainier in Washington. The array of names applied to *A. furcata* shows the taxonomic confusion arising from a myriad of morphologic variants that may indicate introgression with other species” (Flora of North America, p. 525). This is a perennial plant which grows from a branching crown with stems 2 to 12 inches tall. The basal leaves are tufted and persistent, palmatified into narrow segments often divided once again and mildly aromatic. The flower heads are green/brown on a spike-like raceme; the dark edged bracts are extremely wooly, the

corollas are tubular and pale yellow. To propagate from seed, cold stratification is required; it can also be grown from root divisions or basal cuttings. It is only mildly drought tolerant. *A. furcata* can tolerate temperatures to -18 degrees Fahrenheit. It likes to grow in the sun on open rocky slopes at high elevations. This plant is on the endangered species list of COSEWIC (Committee on the Status of Endangered Wildlife in Canada – see Native Plants website).

The Native American Meskwaki people of Iowa prepared a smudge of the leaves to create a smoke treatment for ponies with distemper (Smith, pp. 325-327). It was used by the Mendocinos as an analgesic, antidiarrheal, antidote for the effects of poison oak, antirheumatic (externally), cold remedy, herbal steam, eye wash, febrifuge, gastrointestinal aid and respiratory aid. The Paiute used it for most of the above but also used it externally to reduce fever in children (Moerman, p. 88). Some used the stems to make small arrows for hunting and fishing.



Image by Wikimedia Commons

Artemisia genipi (genépi, black wormwart, black wormwood, genépi noir) is a low growing (a few inches) shrubby perennial plant endemic to the European Alps to an altitude of 10,000 feet. It can be found in Austria, France, Italy, Slovenia, Switzerland and Lichtenstein. It prefers sun and grows in glacial crevices where it collects water from natural entrapment.

The densely hairy flowers are yellow and nodding and the fragrant foliage is deeply toothed, silver and wooly. The leaves are wild-harvested in the Alps and are used in making a liqueur called Genépy. This plant is rarely grown in the Western Hemisphere which is unfortunate because it has a very nice fragrance (Tucker & DeBaggio, p. 166).

Artemisia glacialis (glacier wormwood, genépi des glaciers) is a perennial plant, hardy to Zone 5, which grows in sunny locations on the dry, rocky slopes of the European Alps. It is densely tufted and grows to a height of 8 inches. The leaves are significantly divided and hairy which gives them a silky appearance. The small yellow flowers are pollinated by insects. This plant is a protected species in the Alps; collection is limited to what an adult hand can hold, and it is forbidden to pull up the roots of the plant or to sell it. The leaves are used to flavor vermouth and various liqueurs. Although it has an attractive fragrance, this plant is rarely grown in the United States.

The herbal uses of this plant are as a digestive, expectorant, sedative, stomachic, and to treat mountain sickness. As do many other *Artemisias*, this plant can cause allergic reactions.

Artemisia gmelinii (Russian wormwood) (syn. *A. sacrorum*). Russian wormwood is a perennial subshrub native to temperate and tropical Asia (Siberia, Mongolia, Japan, Korea, and northern portions of the Indian subcontinent) and cultivated elsewhere. It has been used in Korea to treat hepatitis, excess lipids, and inflammation of the gallbladder. One report says that the plant is edible, but gives no details (Practical Plants). In rural areas in the Himalayas it has

been used extensively to treat various ailments, for incense, and as animal fodder. Leaves and flower extracts are used medicinally for headache, cold, cough, abdominal upsets, and hepatitis (Shrestha et al., p. 77). Primarily ornamental, it has, like many *Artemisias*, been examined as a potential source of essential oils, and some of its constituents have been tested for fungicidal activity.



Image by Wikimedia Commons

Artemisia herba-alba (white wormwood, armoise herbe blanche) (syn. *Seriphidium herba-album*). *A. herba-alba* is a small perennial shrub native to northern Africa, western Asia, southwestern Europe, and the Arabian Peninsula, where it grows on dry steppes. It grows from 8 to 16 inches tall, is strongly aromatic, and is covered with fine glandular hairs which give it a grayish aspect. Tucker and DeBaggio (p. 166) describe

the scent of armoise as “very variable” and “green-herbaceous, chrysanthemum-like.” Its flowers are hermaphrodite, yellow, and grow in stalkless, nodding flower heads, 2 to 5 flowers per head. The flower bracts are naked (do not have hairs).

It is possible that *A. herba-alba* is the plant translated as “wormwood” in English language versions of the Bible (Gardner, p. 45).

A. herba-alba has been used to promote menstrual flow (emmenagogue) and expel intestinal worms (vermifuge) and to treat enteritis, gastritis, and spasm (Duke database). It is reported to be a traditional remedy for enteritis and various intestinal disturbances among the Bedouins in the Negev desert (Mahomoodally). In the traditional medicine of the northern Badia region of Jordan, a decoction of the plant is used to treat fever and menstrual and nervous problems (Abad et al., p. 2545). Teas based on *A. herba-alba* were used in Iraqi folk medicine to treat diabetes, and aqueous extracts of aerial parts of the plant have demonstrated a hypoglycemic effect in rabbits and mice. The essential oil showed both antibacterial and antispasmodic activity (Tucker and DeBaggio, p. 166).

A. herba-alba is primarily used in perfumery; it is not now cultivated in North America (Tucker & DeBaggio, p. 166).

A. herba-alba is good fodder for grazing animals, mainly sheep, and, in the Algerian steppe, cattle (Mahomoodally).

Artemisia hololeuca (Ukrainian wormwood) is a silver-white, mound-forming, drought-loving perennial which is native to the Volograd area of the Ukraine but is now rare there. It grows from 8 to 12 inches tall and thrives in alkaline soil. It is moderately easy to grow from seed sown from spring to early fall and is hardy in Zones 3-7.

Richters (2014) lists *A. hololeuca* as a medicinal herb, and, indeed, the chemical composition of *Artemisia* oils has been investigated in many species (including *A. hololeuca*) for chemotaxonomic reasons and in a continuous search for new active and/or flavoring molecules (Wright, p. 13).



Artemisia parviflora (*A. japonica*)
Image by E. Kennel

Artemisia japonica (Japanese mugwort) (syn. *A. parviflora*). Japanese mugwort is native to temperate and tropical Asia. It is perennial and grows slightly more than 3 feet tall. It is hardy to Zone 8. Dr. Duke's database reports that *A. japonica* has been used to treat ague, fattening, and vaginitis. A decoction of the leaves promotes a plump figure but when used in excess can cause hypertension (Natural Medicinal Herbs). The leaves are cooling, bitter, and antiviral and are

used to make antitoxifying and antifebrile drugs. Aerial parts of the plant cure convulsions in children. Young leaves promote wound healing and alleviate skin diseases. Leaf ash applied to wounds promotes healing. Leaves and flower heads provide both incense and insecticide. The roots address throat-related problems (Quattrocchi, p. 412-413).

Artemisia judaica (Judean wormwood, al-ba'atharan in Arabic, shih in North Africa) is found in Egypt, Israel, the southern Saudi-Jordan border, where camels graze on it, and in the Saharan desert. It prefers to grow in sandy soil found in wadi beds in the desert and reaches a height of 20-30 inches. It is wind pollinated and self sowing. "According to Al-Esawi (1998) *A. judaica* [are] described as perennial, bushy herbs, strongly aromatic, with woody bases and strong spreading branches, covered by wooly hairs, leaves grayish, dissected, short, crowded,

heads are rounded, crowded and made of tubular florets, ..." (Al-Rawashdeh, p. 279). In the past this plant was widely used as a healer plant, particularly for the treatment of gastrointestinal problems, to reduce fever and stress and to regulate menstruation. It is used in many North African and Middle-Eastern countries as an anthelmintic drug (Abad et al., p. 2545.) *Artemisia judaica* oils may be divided into two chemotypes: an *artemisyl*-oil type [found in southern Israel (Negev)] and a *piperitone*-oil type (native to Egypt and the Sinai) (Wright, p. 15). Modern science is finding that it has antioxidant possibilities and that it might be used for flavoring in the food industry.

Wormwood is mentioned in the Bible and because of the frequent occurrence of *A. judaica* in the region it is assumed that this is the plant of the Bible.



[http://commons.wikimedia.org/wiki/
File:Artemisia_keiskeana_1.JPG](http://commons.wikimedia.org/wiki/File:Artemisia_keiskeana_1.JPG)

Artemisia keiskeana (dog wormwood, inuyomogi, an lu, um lu). *A. keiskeana* is a perennial culinary and medicinal herb grown for medicine in China. It grows from 12 to 24 inches tall. The seeds are used in Tibet to treat male impotence, amenorrhea (lack of menstruation during reproductive years), and post-partum pain (Richters, Plants for a Future). The entire plant is anti-inflammatory and used to stop bleeding. Recent research suggests that it may be effective against cancer, especially breast cancer. Young leaves and shoots can be cooked and eaten. The stalks are used for thatching (Plants for a Future).

Artemisia lactiflora (white mugwort) (syns. *A. lactiflora* var. *incisa*, *A. lactiflora* var. *taibaishanensis*). *Artemisia lactiflora* is a large clump-forming non-invasive perennial plant, hardy in Zones 3-8 (marginally hardy in Zones 3-4). It can grow to a height of 6 feet and a width of 3 to 4 feet; it prefers full sun but will survive in partial sun and likes moist well-drained soil. Propagation is best achieved by dividing the roots every 3 to 5 years in spring or fall. Because of the large size of the plant it is advised to prune the plant in June to help maintain its shape and

then cut it back to the basal foliage in the fall. The sterile flowers are white to creamy white and the foliage is toothed, deep green with silver undersides. The epithet *lactiflora* means milky (white) flower. The plant is native to China and has been used for many years in traditional Chinese medicine for menstrual and liver disorders. The leaves and flowering stems have been used as a tonic and the leaves and flowering stems are used in posies. The plant is lightly aromatic.

As with many *Artemisias*, *A. lactiflora* can be poisonous in large quantities and can cause dermatitis. White rust, downy mildew, powdery mildew fungal leaf and stem rot are the known diseases.

Artemisia lactiflora Guizhou Group ‘Dark Delight’ is a more robust cultivar with young leaves and stems of purple. *A. lactiflora* ‘Variegata’ has variegated gray and green leaves. Other known cultivars are ‘Elfenbien’, ‘Jim Russell’, and ‘Weisses Wunder’.

Artemisia lagocephala (Hakusan wormwood, bai shan hao). Used in far eastern Russia for constipation, gastritis, colitis, and senile weakness, Hakusan wormwood is a perennial medicinal herb hardy in Zones 3-8. It grows on rocky slopes and along forest edges and roadsides in its native China, Mongolia, and eastern Russia. Healing potions and wound poultices are prepared from chopped fresh leaves. Its silver-grey leaves, entire except for notches at the ends, broaden toward their ends and turn yellow and orange in autumn. Grow from seed sown from spring to early fall (Richters Herbs, 2014).

Artemisia lerchiana (white sagebrush) (syn: *Artemisia lercheana*). This snowy white plant is found on the steppes near Volgograd, Russia, throughout the central part of Asia, Siberia, China and in two areas of Romania. Recent research has shown that it is a strong producer of essential oils that may have antibacterial, anticancer and antiallergic properties. It is hardy in Zones 3-8, has tomentose leaves on stems which reach 20 inches above its mounded base, and is strongly aromatic.

Artemisia longifolia (longleaf wormwood) (syns. *A. ludoviciana* var. *integrifolia*; *A. natronensis*; *A. vulgaris* var. *longifolia*; *A. vulgaris* subsp. *longifolia*). Longleaf wormwood is a non-woody perennial indigenous to central western Canada through the north-central U.S.

(Wyoming to Minnesota). It grows 0.5 to 2.5 feet tall and is pleasantly aromatic. The leaves are green and white, very hairy, with margins only occasional notched. The plant prefers to grow on alkaline flats, grasslands, and barren areas in high plains. Lewis and Clark brought back samples of *A. longifolia* from their expedition (Moulton).

While the author found no record of ethnobotanical use, Abad et al. (p. 2556) reported that aerial parts contain a significant amount of *camphor* and *cineole* and that the plant's essential oils had inhibitory effects on the growth of bacteria, yeasts, and fungi which attack the skin.



Artemisia ludoviciana 'Silver Queen'
Image by E. Kennel

Artemisia ludoviciana (silver wormwood, white sagebrush, wild sage, prairie sage, wormwood, white mugwort, western mugwort, gray sagewort, Louisiana sage, Louisiana wormwood, darkleaf mugwort, Mexican sagewort, Chihuahua sagewort, Garfield tea, lobed cudweed, man sage, ghost plant) (syns. *A. palmieri*, *A. purshiana*). This aromatic plant is found in almost every state in the United States, several western provinces of Canada and in Mexico within Zones 4-9. It is an aggressive, rhizomatous perennial growing to 4 feet tall and 2 feet wide. It is upright, prefers full sun and dry, sandy/rocky soil (below 11,483 feet). Leaves are silver green, lanceolate, 4 to 5 inches long, and toothed or divided toward the bottom of the stem.

The word *ludoviciana* comes from the latinization of the word Louisiana. This plant was widely used by Native Americans of the Southwest and Mexico – each tribe seeming to have its own use for it as well as similar uses. Ethnobotanic uses include burning bundles of sage (*Artemisia*) sticks as a smudge to purify sweat lodges as well as ceremonial lodges – the flowers always pointing toward the fire. The leaves were burned to purify and heal members of the tribe. Beyond ceremonial uses there were medicinal and veterinary uses. The Dakota used it for stomach troubles. Cheyenne used crushed leaves as a snuff and also for headaches and nosebleeds. Salves were made and a strong tea was brewed to be used as a treatment for eczema and as an antiperspirant and deodorant. Other uses include treatment of spider and insect bites,

diarrhea, colds, tonsillitis, and more. After a death a sprig was worn around the neck to keep the spirit away (Moerman, pp. 88-90).

Cultivars of *Artemisia ludoviciana*

Artemisia ludoviciana ‘Silver Queen’. Western mugwort ‘Silver Queen’. Upright, 1.5 to 3 feet.

Artemisia ludoviciana ‘Silver King’. White sage. It is aromatic and grows 2 to 3 feet tall. Leaves more finely divided than those of ‘Silver Queen’.

Artemisia ludoviciana ‘Valerie Finnis’. Western mugwort. 1.5 to 2 feet. A more compact plant.

Artemisia maritima (sea mugwort, old woman) is a perennial shrub “found in the northern hemisphere of the Old World occurring in mostly saltish soils” (Grieve, p. 861), in the western Himalayas, from Kashmir to Kumamon (at 5,000 -16,000 feet), and western Tibet (Chopra, p. 26). It may reach a height of 12 to 18 inches, tolerates saline conditions and temperatures down to 65° F (Zone 7). The leaves are doubly pinnatifid (feather-like), covered with white cottony down and are strongly aromatic, although not as aromatic as *A. abrotanum*. Dried flower tops of *A. maritima* are a source of *santonin*, which is a poisonous, slightly bitter crystalline compound found in the unopened flower heads of several *Artemisias* (esp. *A. maritima*) and used as an anthelmintic/vermifuge. “Further medicinal claims are antibacterial, fungistatic, antidiabetic, spasmolytic, carminative, antipyretic, and abortifacient properties. It has also been used to treat jaundice and as a liver protective” (Jambaz & Gilani, 1995 in Wright, p.69).

It is used as a flavoring in some Danish schnapps and liqueurs.

Growing shoots are said to repel insects and mice. An infusion is said to deter slugs.



Image by E.Kenner
Longwood Gardens, Kennett Square, PA

Artemisia mauiensis (Maui wormwood, hinahina) (syn. *A. australis* var. *mauiensis*). *A. mauiensis* is one of the three *Artemisias* which are native to the Hawaiian Islands: *A. australis* is found on all the main islands; *A. kauaiensis* on Kauai; and *A. mauiensis* on Haleakalā, Maui. *A. mauiensis* is a sprawling perennial shrub or subshrub which forms a non-woody clump less than 2 feet tall but as much as 6 feet when mature. Although

shorter than *A. australis*, it grows just as wide (4 to 5 feet). The silvery-gray leaves are finely divided, almost feather-like, very tomentose (fuzzy) with a faintly aromatic, sagebrush-like, somewhat sage or anise scent but very bitter to taste. Too much fertilizer or overwatering will lessen the silver color of the leaves. The plant will grow in partial sun, but full sun will bring out its silver color, and it is best planted on a south-facing or steep slope. It is naturally found at elevations of 6200 to 7500 feet.

Early Hawaiian royalty used hinahina to preserve their feather cloaks from insect destruction during storage. Pounded leaves were used to treat asthma. Today *A. mauiensis* would be used as a landscape plant or possibly for lei or flower arrangements.

Artemisia michauxiana (lemon sagewort, Michaux's mugwort, Michaux's wormwood, mountain sagewort) (syns. *A. discolor* var. *discolor*, *A. vulgaris* subsp. *michauxiana*). Lemon sagewort is a perennial *Artemisia* native to western North America – British Columbia to California. It grows in rocky places usually at elevations of 10,000 to 12,000 feet. It grows 8 to 16 inches tall with many erect, lemon-scented, green stems which are unbranched. One-inch-long narrow leaves are green, divided twice, often have small teeth, are hairless on a top surface dotted with yellow glands, but have matted white hairs on their undersides. *A. michauxiana* is hardy to Zone 3.

The plant has been used as a hot infusion to treat headache and as a poultice chewed and applied to sprains and swellings (Moerman, cited by Plants for a Future).



Gary A. Monroe @ USDA-NRCS
PLANTS Database

Artemisia nova (black sagebrush, black-sage, small sagebrush) is a low-growing, perennial shrub native to the dry, rocky, windswept plains, mesas and hills of the western United States. It will reach 3 to 15 inches in height, prefers sun and dry, shallow, rocky soils. It is not tolerant of moist sites. It can be propagated by seed or division of the root crown. The seeds germinate easily.

Leaves are three-toothed, wedge-shaped, dark green and sometimes grayish on dark brown to black twigs. Leaves are not as hairy as other *Artemisias*.

A. nova is used as a cold and cough remedy by Native Americans. It provides nesting material/structure for native bees and forage for wildlife and livestock.

The pollen is a cause of hay fever.

Additional information:

Syns: *A. arbuscula* var. *nova*, *A. arbuscula* subsp. *nova*, *A. nova* var. *duchesnicola*, *A. tridentata* var. *nova*, *A. tridentata* subsp. *nova*, *Seriphidium novum*. USDA, Natural Resources Conservation Service Plant Guide describes *A. nova* var. *duchesnicola* as a different variety having whitish leaves and larger flower heads, and found sporadically in Utah, Nevada, and California.

Artemisia pallens (davana). Davana is an annual *Artemisia* which is native to tropical Asia (India); *pallens* refers to its gray foliage. It grows from 1.5 to 2 feet tall. Its leaves are aromatic, lobed halfway to the midrib, and gray. A silvery white covering of down adds to the grey or white appearance. This species has two distinct morphological types—one short in stature with early-onset flowering and the other in which plants are tall and flower later (Wikipedia).

Davana is easily propagated from seeds or from cuttings and reaches maturity in four months. It is grown commercially for its fragrant leaves and flowers.

The plant's essential oil contains *cis-davanone* and *nerol* which give it a fruity-rose fragrance. It is used as a flavoring ingredient for beverages, candies, tobacco, and baked goods. The essential oil is GRAS up to 11 ppm (Tucker & DeBaggio, p. 167).

Davana is used in India for garlands and bouquets and in folk medicine as a treatment for diabetes. Research from Kerala, India, showed that methanol extracts had a significant blood-glucose lowering effect in diabetic rats (Tucker & DeBaggio, p. 167).

The Hindu faithful bring davana blossoms to Shiva, the God of Transformation, which decorate his altar throughout the day (Wikipedia).

Davana oil is used in making perfume with sweet and fruity fragrances. When applied on the skin, the oil is said to smell differently on different persons—a property highly valued in artisanal perfumery (Wikipedia).

Artemisia pauciflora (Russian santonica, Levant wormseed, Tartarian southernwood) is a medicinal herb from the steppes of central Asia where unexpanded flower buds or heads are used to treat worms (anthelmintic), to encourage menstrual flow (emmenagogue), and as a stimulant. The plant is small (to 12 inches tall), perennial, grey-green, aromatic and bitter. Crusaders returning from the Middle East introduced it to Europe where it was also used to treat worms (Richters, 2014). Hardy in Zones 3-8.



USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. An illustrated flora of the northern United States, Canada and the British Possessions. 3 vols. Charles Scribner's Sons, New York. Vol. 3: 527.

Artemisia pontica (Roman wormwood). Roman wormwood, which is also known as Hungarian wormwood or small absinthe, is a small perennial rhizomatous subshrub native to southern and eastern Europe. Given ideal conditions it will spread rapidly, but its finely cut, aromatic, silver-grey, downy leaves make it an attractive addition to an herb garden. Closely related to *A. absinthium*, it grows on a much smaller scale with smaller, more finely cut leaves, and, although it is more delicate than most wormwoods, it is hardy in Zones 5-9.

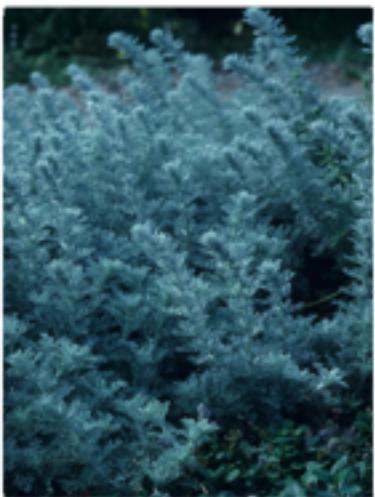
Well known to Culpeper as a stomach strengthener and aid to digestion, Roman wormwood was also used to treat gout, gravel (kidney stones), and obstructions of the spleen and liver (Grieve, p. 861). As a flavoring agent in wine and vermouth, it makes a fine digestive drink, being more aromatic and much less bitter than *A. absinthium*. After wormwood (*A. absinthium*) was banned from liqueurs,

Roman wormwood replaced it in Pernod (the substitute for absinthe); however, at this time, *A. pontica* does not have GRAS status (Tucker & DeBaggio, p. 168).

Griffiths (p. 98) lists one cultivar: *Artemisia pontica* 'Old Warrior' which grows to about 20 inches, with finely cut, pewter-grey, aromatic leaves.

Artemisia princeps (Japanese mugwort; kui hao, yomogi) is a culinary herb the leaves and seedlings of which are much used in Japanese cuisine. Leaves are used medicinally for moxa in

Japan (see *A. vulgaris*, p 42.) to treat eczema, itchy skin and excessive womb bleeding in China (Richters, 2014), and traditionally as an emetic and to treat diarrhea (Dr. Duke's database). It is also used in industry to dye cotton and silk (Richters, 2014). The plant is perennial in Zones 5-9 and can reach 3 feet in height.



[http://www.wildflower.org/
image_archive/640x480/SAW/
SAW_00352.JPG](http://www.wildflower.org/image_archive/640x480/SAW/SAW_00352.JPG)

Artemisia pycnocephala (coastal sagewort, beach wormwood, sandhill sage, beach sagewort). Coastal sagewort is a perennial, evergreen subshrub native to California and Oregon in the U.S. where it lives in the coastal areas of northern California on sandy beaches and dunes. It forms low, dense mounds of delicate, finely divided, aromatic silver-gray foliage densely covered with matted hairs. It grows 1 to 2 feet tall with a 2 to 3-foot spread. It should be pruned back after two years' growth to maintain its shape. As expected of a coastal plant, it tolerates salinity well and even becomes a fire hazard if not moistened by salt spray.

According to the Friends of Pojaro Dunes, Native Americans in California used beach sagewort for a variety of medicinal purposes – inserted into nostrils to cure headaches and clear sinuses, tied around their bodies to promote blood circulation after childbirth, and to treat stomach aches, fevers and eye ailments. Woven necklaces of beach sagewort provided a good luck charm against misfortune, ghosts, and dreams of the dead.

In the wild, coastal sagewort provides nesting materials and structures for native bees (Lady Bird Johnson Wildflower Center).

A. pycnocephala 'David's Choice' is a variety that David Amme selected from plants growing at the Point Reyes Lighthouse in 1980. It was named by Phil Van Soelen of California Flora Nursery. It is tightly mounded, small and compact (1 by 1.5 feet) with very fine foliage and can be substituted for lawn grass. It is hardy to 0°F but might need replacing after three years (San Marcos Growers).

Artemisia rubripes (redfoot wormwood, hong zu hao, yabuyomogi) is a Korean medicinal herb traditionally used for stomach ache, vomiting, diarrhea, and to stop bleeding (Abad et al., p. 2545). Young leaves can also be cooked and eaten. Redfoot wormwood is tall, growing 2.5 to 6 feet in meadows, on slopes and in forests in its native China, Mongolia, Japan, Korea, and far eastern Russia. It is perennial; hardy in Zones 3–8, and grows very easily from seed sown from spring until early fall (Richters Herbs).

Artemisia rupestris (yan hao) is a faintly aromatic perennial with brown-purple stems and deciduous, bright green, feathery leaves. It is native to the steppes, alkaline meadows, and stony slopes of the Baltics, northwestern Russia to central Asia, with populations in Sweden and Germany. There is one population of *A. rupestris* in the Yukon territory of Canada. “The whole plant is used in anti-inflammatory and hemostatic medicines” (Flora of China, p. 680).

Amy Stewart (p. 203) calls it white genipi or white wormwood and notes that it is used in liqueurs.

Artemisia sieberi (dermaneh) (syn. *Seriphidium sieberi*). *A. sieberi* is an ancient medicinal herb which grows in China, Russia, and the desert regions of Iran. It is known to have antifungal, vermicidal, antibacterial, and anticandidal effects. It has shown antimalarial activity in mice (Nahrevanian et al.) and the ability to treat antifungal skin lesions in guinea-pigs (Siamak et al.) and is the subject of much current research.

Artemisia sieversiana (Sieversian wormwood, sagebrush) (syns. *Absinthium moxa*, *Absinthium sieversianum*, *Absinthium sieversianum* var. *absinthioides*, *Absinthium sieversianum* var. *acutangulum*. *Artemisia absinthioides*, *Artemisia chrysolepis*, *Artemisia controversa*, *Artemisia koreana*, *Artemisia moxa*, *Artemisia scaposa*, *Artemisia scariosa*, *Artemisia sieversiana* var. *koreana*, *Artemisia sparsa*). This 1 to 3.5-foot annual/biennial plant grows in the form of a mat until it sends up blooming stalks with rather inconspicuous hermaphrodite yellow flowers in July through September. The flowers are pollinated by insects. The broadly ovate leaves are 5 to 6 inches long, hairy on both sides and divided into 3 to 5 segments. The plant insists on full sun (cannot live in shade).

A. sieversiana is native to China, Siberia, Tibet, Mongolia, India, Pakistan, northeastern Afghanistan, Baltic and Central Asia where it grows at 6500 to 9800 feet.

The leaves and flowering stems of *A. sieversiana* are anthelmintic (destroys parasitic worms), deobstruent (clears blockages), emmenagogue (adjusts menstrual flow), febrifuge (lowers fever) and tonic. Externally, the leaves are used as an antiseptic and discutient (removes pathological accumulation). “Combined with other herbs it is used as a wash to relieve painful joints. A paste of roots is applied to boils” (Manandhar, p. 2002).

Artemisia sinensis [xi nan yuan tou hao (pinyin, China)] (syns. *Artemisia strongylocephala* var. *sinensis*, *A. strongylocephala* f. *virgata*). This is a perennial herb found in China on the “Alpine or subalpine steppes, shrublands, forest margins, roadsides, often in dry stony situations; 2600-3900 m. [8500 to 12,900 feet]; southwestern Qinghai, western Sichuan, eastern Xizang, northwestern Yunnan” (Flora of China, pp. 695, 709). It grows 2 to 4 feet tall, with yellow, puberulent (downy) leaves. It is used as a moxa treatment in acupuncture (see *Artemisia vulgaris*, p. 42).

Artemisia splendens is an erect, tufted or hummock-forming perennial native to the Caucasus, northern Iran, and northern Iraq. It grows about a foot tall with feathery leaves covered with silky hairs (Griffiths, p. 98). The volatile oils of the aerial parts of *A. splendens* have been studied for insecticidal activity and found to be a potential source of natural insecticides (Afshar et al.).



J.S. Peterson @ USDA-NRCS
PLANTS Database

Artemisia stelleriana (dusty miller, beach wormwood, hoary mugwort, old-woman, armoise de Steller, silber-wermut). Beach wormwood is native to temperate Asia (far eastern Russia, Japan, North Korea, subarctic America – Alaska) and naturalized in Europe and North America where it grows on sand dunes. The plant has pale-green to silver, aromatic leaves, which are covered on both surfaces with woolly hairs. The leaves are 1-inch wide and felt-like, deeply divided and with rounded lobes with a hint of green. Its form is open and upright. It is perennial and hardy in Zones 4-7.

According to the Dr. Duke's database, *A. stelleriana* has been used as a carminative (antiflatulent), hair tonic, nervine, and stomachic, to treat colds, skin disorders, and sores, and to improve the intellect.

Cultivars of <i>Artemisia stelleriana</i>
<i>A. stelleriana</i> 'Silver Brocade' ('Boughton Silver') – silver, 6 to 12 inches tall, forms a spreading mat, hardier than the species (Zones 2-9)
<i>A. stelleriana</i> 'Silver Cascade' – trailing habit; 4 to 8 inches tall
<i>A. stelleriana</i> 'Silver Lace' – attracts wildlife except deer; good groundcover for adverse conditions
<i>A. stelleriana</i> 'Nana' – listed by one nursery (Wolverton Plants Ltd. – Hants)

Artemisia thuscula (syns. *Absinthium canariense*, *Artemisia canariensis*, *Artemisia argentea*). This is an aromatic shrub from the Canary Islands which has been used medicinally by the native islanders. The word *thuscula* comes from the ancient Latin word for incense. It has been found to have antibacterial and antifungal properties. A study by D. Benjumea et al. confirmed its value as a diuretic (pp. 205-209).

Artemisia tilesii (Tilesius' wormwood, Aleutian mugwort, stinkweed). This tough rhizomatous perennial plant is native to the Arctic – Canada, northwestern United States, Japan and Russia. Its ultimate height is 31.5 inches. The stems appear white and have wooly hairs (Wikipedia). The hairy leaves may be green with white variegation and have a strong odor, thus giving the plant the name “stinkweed.”

Native American and First Nations people used this plant in many ways: externally to reduce the pain of arthritis or to reduce swelling, stop bleeding and cure skin infections; internally as a laxative or for stomachache. Leaves were chewed to relieve cough (Moerman, p. 91). Its pain-relieving qualities are due to a certain codeine-like substance found in the plant (Bown, p. 131).

A cultivar developed in Alaska, *A. tilesii* 'Caiggluk', has been used to help control erosion and can grow in areas contaminated by mining. The word *caiggluk* means “wild plant” (Wikipedia).

One reported culinary use was to flavor rice cakes, and the peeled shoots are eaten raw with oil (Moerman, p. 91).



Image by Stan Shebs
Wikimedia Commons

Artemisia tridentata (mountain sagebrush, big sagebrush, Great Basin sagebrush, desert sage, blue sage) is a long-lived pungent perennial shrub which grows in the western United States, British Columbia and Mexico. It has a deep taproot and spreading roots and is extremely drought tolerant. It grows 2 to 9 feet tall but less wide (a very tall plant is an indication of arable land).

The evergreen tips of the leaves are three lobed and silvery. The leaves are covered with fine silvery hairs that can cause dermatitis. The prolific seeds spread in disturbed areas, and shoots also come up from the underground spreading rhizomes.

Purplish insect galls caused by the chemical secretions of insects may appear on the plant. This changes the plant's growth and causes the plant to form a protective covering around the insect larva (Desert USA).

Native Americans used the plant for respiratory, pulmonary, and gastrointestinal aid, as a cold remedy and disinfectant. The leaves were placed in shoes as a foot deodorant.

This plant is toxic to the liver and digestive system if taken internally.

Artemisia tridentata is Nevada's state plant and is a brouse plant for wildlife.

There are several subspecies that prefer distinct habitats:

Artemisia tridentata subsp. *tridentata* (Big Basin sagebrush) grows in valleys where there is more moisture.

Artemisia tridentata subsp. *vaseyana* (Mountain sagebrush) prefers higher elevations. This subspecies has a more pleasant aroma.

Artemisia tridentata subsp. *wyomingensis* (Wyoming big sagebrush) grows in hotter, drier sites.

Artemisia tripartita (three-tip sagebrush) (syns: *A. trifida*; *Seriphidium tripartitum*). *A. tripartita* is a round evergreen shrub which is native to western Canada and northwestern and southwestern U.S. It can grow to about 6 feet. The leaves are typically divided into three linear lobes which in turn can divide into three clefts. The upper leaves may be undivided. When crushed the leaves emit a pungent odor. The bark on older branches can become gray to brown to black and shredded. Seeds are wind dispersed and seed themselves vigorously.

There are two subspecies: *A. tripartita* subsp. *tripartita* (tall three-tip sagebrush) and *A. tripartita* subsp. *rubicola* (Wyoming three-tip sagebrush).

Native Americans in the western U.S. used decoctions and infusions of leaves, branches, and roots to treat colds, sore throats, tonsillitis, headaches, and wounds (Moerman, p. 94).

Xie et al. (pp. 1359-1371) isolated bioactive polysaccharides from the leaves of *A. tripartita* which enhanced immune response against microbial infections thereby protecting host tissues from excessive oxidant injury and promoting wound-healing.

The three types of *A. tripartita* provide food, cover, and nesting habitat for sage grouse. Three-tip sagebrush tolerates understory plants and will resprout after a fire – two very valuable assets for grouse habitat (Gillan & Strand, p. 40). They also add structural and biological diversity, reduce wind and soil erosion, and are occasionally grazed by elk and deer (McArthur & Taylor).

A. umbelliformis (alpine wormwood, genépi) (syns: *Artemisia laxa*; *Artemisia mutellina*).

A. umbelliformis is native to middle and southern Europe. As *A. laxa* it has been used to treat fever and settle the stomach. It also has been used in food as a flavoring additive (Dr. Duke's Database). *A. umbelliformis* extract is added to cosmetics as a skin conditioner; it is antimicrobial and anti-inflammatory and used to protect aging skin (SpecialChem).



Doug Goldman @ USDA-NRCS
PLANTS Database / USDA-NRCS-
NPDT

Artemisia vulgaris (mugwort, moxa herb, felon herb, St. John's plant, Cingulum Sancti Johannis, chrysanthemum weed, wild wormwood, Old Uncle Henry, sailor's tobacco, naughty man or old man). Native to Europe, Asia, Alaska and northern Africa, mugwort has become naturalized in North America in Zones 4-8, where many feel that it is an invasive weed. It grows 3 to 5 feet tall and 1.5 to 2.5 feet wide. The pinnate, toothed leaves are dark green on the top with white tomentose hairs on the bottom. They are strongly aromatic, pungent and resemble chrysanthemum leaves. The upright stem has a slight purplish cast and the small inconspicuous reddish brown hermaphrodite flowers are carried at the top of the plant in clusters. Some references state that viable seed is rarely produced in the United

States. Because of its association with the Greek goddess Artemis and the Roman goddess Diana, this plant historically was used for all women's problems from menstruation, conception, child birth to menopause, and it was carried as a talisman to protect against evil spirits and tiredness. Native Americans used it to treat the pains of afterbirth; however, it should not be given internally to women who are pregnant or nursing.

In traditional Chinese medicine the dried leaves of *Artemisia vulgaris*, known as moxa, are rolled into small dense bundles or cones. The moxa, when lit, smolders rather than creating a flame. It is used in various ways to create unique thermal effects which are highly valued for their benefit in the prevention and treatment of certain illnesses. These include burning the moxa near or directly on a specific area of skin, on top of an acupuncture needle (known as "warm needle technique"), or on top of a slice of fresh ginger, garlic or aconite. This therapy is termed "moxabustion" in the West. In China it is referred to as 'Jiu Fa' (灸法) (Burgoon, personal comm.)

Before the use of hops (*Humulus lupulus*) as a flavoring for beer, *Artemisia vulgaris* was used (Wright, p. 139). In several countries of Europe it is used in cooking certain fish, including eel, and in the Orient it is used to color and flavor rice cakes (Bown, p. 134).

Cultivars of *Artemisia vulgaris*

Artemisia vulgaris var. *kamtschatica* (Kamptschat's wormwood). The Aleut used heated leaves for rheumatism, sore muscles, and to help heal sores.

Artemisia vulgaris 'Oriental Limelight', Zones 4-10, 2 to 5 feet tall, 1 to 3 feet wide, with yellow variegated foliage

Artemisia vulgaris 'Variegata', Zones 4-10, 2 to 5 feet tall, 1 to 3 feet wide, with white flecked foliage

Other *Artemisias*

Not considered herbal, but lovely in garden or landscape

THE HERB SOCIETY OF AMERICA, PHILADELPHIA UNIT

Because of their sometimes dramatic silvery leaf color and finely divided leaves, many *Artemisias* make a striking statement in the landscape, whether as an accent plant or a fine addition to a moon or white garden. Because of their drought tolerance, they are also quite happy in rock gardens.

Artemisia lanata (armoise laineuse). Green PlantSwap describes *A. lanata* as an evergreen or semi-evergreen perennial which is indigenous to South Africa. Its leaves are silver, hairy, and fern-like, and it has a trailing habit. However, Les Senteurs du Quercy state that it originated in the southern European mountains. The foliage and flowers are aromatic. This author found no record of ethnobotanical uses, although Aguilar et al. isolated a constituent from *A. lanata* which is possibly bio-active.

The taxonomy of *A. lanata* is highly contradictory. IPNI and Tropicos name it as a species with subspecies. The Plant List considers it a synonym of several other possible species – *A. campestris*, *A. pedemontana*, or *A. nitida*. GRIN and ITIS do not list it at all.

Artemisia pedemontana (silver spreader, Caucasian artemisia, silky wormwood) (syns. *A. assoana*, *A. lanata*, *A. glacialis*, *A. lanuginosa*). This is a silver, wooly perennial plant, hardy from Zones 4 to 8. Although this low growing (4 to 6 inches) spreading plant is occasionally found in South Africa and South America, it is usually found in the northern hemisphere; southern Europe, central Spain to the Ukraine. It prefers dry, sandy soil. The pinnate (feathery) leaves are aromatic and are used in potpourri and posies.



Image by Wikimedia Commons

Artemisia schmidtiana (angel's hair, silver mound) is an ornamental, mounding perennial native to “grassy slopes in high mountains and on seashores of Japan” (Flora of Japan). It is hardy to -4° Fahrenheit. It may reach a height of 1 foot and width of 2 feet. It grows in well drained, sandy soil in full sun. It will be longer lived, more hardy and aromatic when grown in poor, dry soil. Established plants are drought tolerant and rarely troubled by deer.

Propagate by seed indoors. Move seedlings to individual pots for first winter then plant in late spring or early summer. Propagate by division in spring or autumn and by basal cuttings in late spring. Trim plants in autumn.

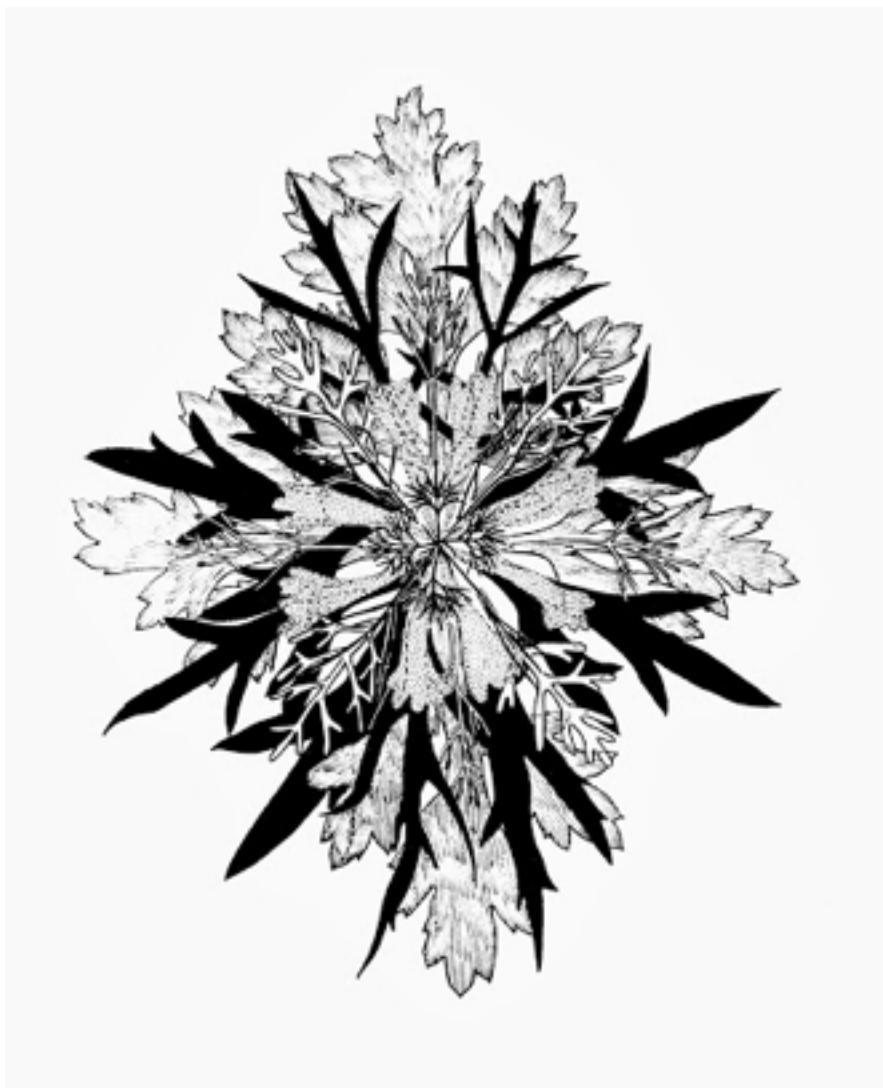
Inconspicuous flowers bloom from August to November. The foliage is many branched, feathery silver-grey consisting of bipinnate leaves covered with long, soft, hair.

A. schmidtiana ‘Nana’ (‘Silver Mound’) is a somewhat smaller form with extremely fine foliage. It is not invasive. It may grow larger in fertile soil causing the clump to split. This can be prevented or delayed by shearing the foliage back halfway in July before flowering begins.

Artemisia sericea is a perennial shrub that is native to Russia (Asian region), India, Pakistan, and China. It grows in Zones 5-8. The plant requires full sun and will reach a height of 2.5 feet and a width of 3.3 feet. It needs dry, infertile soil. It will not tolerate excessive moisture. The foliage is grayish-green.

A. sericea will “... form pretty rockwork shrubs” (Grieve, p. 858). Deadheading will prolong the health and form of the plant. Compared to *A. absinthium* ‘Lambrook Silver’, *A. alba*, *A. lactiflora*, *A. lactiflora* Guizhou Group, *A. ludoviciana* ‘Valerie Finnis’, and *A. schmidtiana*, it performed poorly in the Chicago Botanic Garden Plant Evaluation.

Artemisia versicolor ‘Seafoam’ (Curlicue sage). Curlicue sage is offered by High Country Gardens. It has a very interesting shape and texture, having brush-like spikes of tightly bunched silver-grey leaves. It is widely written up in gardening magazines and is available in the trade but has no validly described name (Saylor Plants).



Tussie Mussie of mixed *Artemisia*
Original drawing by Pat Kenny, Potomac Unit

For Use and For Delight

Absinthe



Image by E. Kennel

Now that absinthe liqueur is back in fashion (and no longer banned), the equipment for drinking it in the traditional manner has become readily available – spoons, glasses, and even carafes for slowly dripping water.

Pour a little absinthe (1.25 to 1.5 ounces) into your glass. Place a slotted spoon (made for this purpose) across the top of the glass. Place a cube of sugar on the spoon and slowly drip cold water through the sugar cube into the absinthe. As the water mixes with the absinthe, the drink becomes cloudy green (summoning the Green Fairy or Green Muse).

Absinthe is rather strongly flavored and somewhat bitter, so a little sugar makes it much more palatable. The addition of sweet herbs like anise and fennel temper the *Artemisia* bite even more.

True absinthe is flavored with *A. absinthium*. However, several other species have traditionally been used, most notably *A. pontica*. Species historically known to be used in absinthe before 1915 (when it was banned): *A. genipi*, *A. glacialis*, *A. pontica*, *A. rupestris* (The Wormwood Society).

There are many sources of cocktail recipes in which absinthe is an ingredient. Paul Owens and Paul Nathan have written an entire book on the subject – *The Little Green Book of Absinthe* with recipes by Dave Herlong. There are also other *Artemisia*-flavored liqueurs such as Génépy des Alpes. *The Wall Street Journal* published an essay by Daniel Handler on Génépy des Alpes in which he experimented with substituting Génépy in cocktails which traditionally use a different liqueur (April 19-20, 2014).

Crafting

The silvery-green color and feathery shape of *Artemisia* leaves make them ideal candidates for pressed flowers. With pressed leaves and a scanner you can let your imagination soar.



Image by E.Kennel

Tussie Mussels

Artemisias are also useful in tussie-mussies (posies), potpourri, wreaths, and fresh arrangements. They keep their color over time even when dried. A strongly-scented species such as *A. abrotanum* or *A. annua* can add a medicinal note to a tussie-mussie, so use them sparingly (unless you are making a get-well tussie). *A. annua* is best used before its flowers

open as many people are allergic to the pollen. *Artemisia* flowers do not make a large statement, but flower stems can be used for a very subtle touch.

Pretty-in-Pink Insect Repellent Sachets

Materials

8 ½ inch circle of muslin fabric

8 ½ inch circle of decorative fabric

8-inch length of ¼-inch ribbon to match

2 TBSP. dried highly scented *Artemisia* leaves (*A. absinthium*, *A. abrotanum*, *A. annua*)

2 TBSP. dried mint leaves

2 TBSP. dried lavender flowers

Mix the dried herbs together. Place the muslin circle on top of the decorative circle. Pile the mixed herbs in the middle (as much as will fit). Gather into a sack-like shape and tie with the ribbon. Add silk flowers, buttons, or any other embellishment you would like. Place in closets, drawers, and storage boxes to discourage moths and other insects.



Image by E.Kennel

Cooking

Tarragon Vinegar

Anne Kellett, Philadelphia Unit

A traditional use of *Artemisia dracunculus* (French tarragon):

Ingredients

2 cups vinegar (champagne vinegar or white wine vinegar)

1 cup fresh tarragon



Heat vinegar until bubbles begin to appear. Pour vinegar into jars containing tarragon. Bruise or crumble the herbs before adding vinegar. Cool. Cover and chill in the refrigerator for at least two weeks before using.

Hints: Distilled vinegar is not recommended. Metal lids tend to turn the vinegar dark.

[Note: Some of this information is from the July 2009 edition of *Southern Living*]

Bordelaise Sauce

Lori Schaeffer, Pennsylvania Heartland Unit

Ingredients

½ cup sliced fresh mushrooms ¼ tsp. garlic powder

1 TBSP. butter ½ tsp. chopped parsley

2 TBSP. flour 1 tsp. tarragon

1 ½ cups beef stock 1 TBSP. minced onion

1 TBSP. lemon juice 1 bay leaf

¼ cup red wine ¼ tsp. thyme

¼ tsp. pepper Freshly ground black pepper

Sauté mushrooms in butter; add flour, then beef stock, lemon juice, and red wine. Stir constantly over low heat until thickened. Add remaining herbs and seasonings.

[from *The Herb Society of America's Essential Guide to Growing and Cooking with Herbs*, Kathy Schlosser (Ed.). 2007. Baton Rouge, LA: Louisiana State University Press, p. 228.]

Tarragon-Marmalade Cream Cheese

Elizabeth Kennel – Philadelphia Unit

Ingredients

- 8 oz. cream cheese
- 2 TBSP. orange marmalade
- ½ tsp. dried tarragon leaves, crumbled



Image by E. Kennel

Combine the ingredients and stir until mixed. Allow the flavors to meld overnight (if you can wait that long). Serve on crackers or stuff into celery sticks.

Hints: If using fresh, chopped tarragon leaves, use two to three times as much. Peach jam and apricot jam also work well in this recipe.

Tarragon Goat Cheese Mousse

Linda Franzo – New Orleans Unit

Ingredients

- 15 oz. ricotta cheese
- 4 oz. goat cheese
- 1 whole head garlic
- 2 TBSP. chopped fresh chives
- 2 (5-inch) sprigs tarragon
- 1 tsp. olive oil

Preheat oven to 400°F. Slice top from the head of garlic and place head on a large square of aluminum foil. Drizzle olive oil over the top and wrap. Bake for about 30 minutes – until soft and lightly browned.

Drain the ricotta cheese in a cheesecloth-lined strainer for about an hour. In a food processor, mince the herbs.

Squeeze the soft garlic out of the head and into the herbs; add cheeses, salt, and pepper to taste. Process until blended. Chill and serve with crackers.

[from *The Herb Society of America's Essential Guide to Growing and Cooking with Herbs*, Kathy Schlosser (Ed.). 2007. Baton Rouge, LA: Louisiana State University Press, p. 118.]

Bernaise Sauce

Mary Ann Thomas – Philadelphia Unit

Ingredients

3 TBSP. chicken or beef broth	3 egg yolks
3 TBSP. tarragon vinegar	1/2 cup butter at room temperature
1 TBSP. chopped onion	sprig of parsley, chopped
1 tsp. red wine	1/2 tsp. salt
1 tsp. lemon juice	dash pepper
	few tarragon leaves, chopped

Bring first five ingredients to a boil.

Place second group of ingredients in blender. Place cover on blender. Remove center cap of blender cover. With blender running, slowly pour in hot mixture. Blend well (about 1 minute). Pour from blender and cook mixture over hot water (not boiling) to consistency of soft custard. Makes one cup of sauce.

Tarragon Chicken

Caroline Amidon – Philadelphia Unit

Ingredients

Boned and skinned chicken cutlets	Salt and pepper
Dried tarragon	Angostura Bitters
1/4 to 1/2 pound butter	Sour cream

[Note: Ingredient amounts depend on the number of people being served.]

Liberally sprinkle dried tarragon on boned and skinned chicken cutlets. Melt 1/4 to 1/2 pound butter in a pan. Add the chicken and cook very gently until the chicken turns white.

Remove and put in a casserole dish. Cover with foil and bake at 325° F in a preheated oven until done, 15 minutes or so. Remove from oven and drain the juices back into the pan. Add salt and pepper and several good shakes of Angostura Bitters (to taste). Cook over moderate heat until reduced by half or more. Swirl in sour cream. Return the chicken to the pan and serve with steamed white rice.

Index to Changes in Taxonomy

As botanists study and compare plants, they frequently discover that a plant more appropriately belongs within a different genus or species. As a result, some of the herbal *Artemisias* have acquired new names.

The following is a short list of those changes:

A. apiacea (see *A. caruifolia*)

A. assoana (see *A. pedemontana*)

A. borealis (see *A. campestris*)

A. camphorata (see *A. alba*)

A. canadensis (see *A. campestris*)

A. canariensis (see *A. thuscula*)

A. caucasica (see *A. alpina*)

A. caudata (see *A. campestris*)

A. cinerea (see *A. maritima*)

A. dracunculoides (see *A. dracunculus*)

A. dracunculus var. *sativum* or *A. dracunculus* ‘Sativa’ (see *A. dracunculus*)

A. laxa (see *A. umbelliformis*)

A. moxa (see *A. sieversiana*)

A. nana (see *A. campestris*)

A. norvegica subsp. *saxatilis* (see *A. arctica*)

A. parviflora (see *A. japonica*)

A. procera (see *A. abrotanum*)

A. redowskii (see *A. dracunculus*)

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