

Valerian

Botanical: *Valeriana officinalis* (LINN.)

Family: N.O. Valerianaceae

Synonyms

Phu (Galen). All-Heal. Great Wild Valerian. Amantilla. Setwall. Setewale Capon's Tail.

Part Used

Root.

Habitat

Europe and Northern Asia.

Two species of Valerian, *Valeriana officinalis* and *V. dioica*, are indigenous in Britain, while a third, *V. pyrenaica*, is naturalized in some parts. The genus comprises about 150 species, which are widely distributed in the temperate parts of the world.

In medicine, the root of *V. officinalis* is intended when Valerian is mentioned. It is supposed to be the *Phu* (an expression of aversion from its offensive odour) of Dioscorides and Galen, by whom it is extolled as an aromatic and diuretic.

It was afterwards found to be useful in certain kinds of epilepsy. The plant was in such esteem in mediaeval times as a remedy, that it received the name of All Heal, which is still given it in some parts of the country.

The plant is found throughout Europe and Northern Asia, and is common in England in marshy thickets and on the borders of ditches and rivers, where its tall stems may generally be seen in the summer towering above the usual herbage, the erect, sturdy growth of the plant, the rich, dark green of the leaves, their beautiful form, and the crowning masses of light-coloured flowers, making the plant conspicuous.

Description

The roots tend to merge into a short, conical root-stock or erect rhizome, the development of which often proceeds for several years before a flowering stem is sent up, but slender horizontal branches which terminate in buds are given off earlier, and from these buds proceed aerial shoots or stolons, which produce fresh plants where they take root. Only one stem arises from the root, which attains a height of 3 or 4 feet. It is round, but grooved and hollow, more or less hairy, especially near the base. It terminates in two or more pairs of flowering stems, each pair being placed at right angles to those above and below it. The lower flowering stems lengthen so as to place their flowers nearly or often quite on a level with the flowers borne by the upper branches, forming a broad and flattened cluster at the summit, called a *cyme*. The leaves are arranged in pairs and are united at their bases. Each leaf is made up of a

series of lance-shaped segments, more or less opposite to one another on each side of the leaf (pinnate). The leaflets vary very much in number, from six to ten pairs as a rule, and vary also in breadth, being broad when few in number and narrower when more numerous; they are usually 2 to 3 inches long. The margins are indented by a few coarsely-cut teeth. The upper surface is strongly veined, the under surface is paler and frequently more or less covered with short, soft hairs. The leaves on the stem are attached by short, broad sheaths, the radical leaves are larger and long-stemmed and the margins more toothed.

The flowers are in bloom from June to September. They are small, tinged with pink and flesh colour, with a somewhat peculiar, but not exactly unpleasant smell. The corolla is tubular, and from the midst of its lobes rise the stamens, only three in number, though there are five lobes to the corolla. The limb of the calyx is remarkable for being at first inrolled and afterwards expanding in the form of a feathery pappus, which aids the dissemination of the fruit. The fruit is a capsule containing one oblong compressed seed. Apart from the flowers, the whole plant has a foetid smell, much accentuated when bruised.

Although more often growing in damp situations, Valerian is also met with on dry, elevated ground. It is found throughout Britain, but in the northern counties is more often found on higher and dryer ground - dry heaths and hilly pastures - than in the south, and then is usually smaller, not more than 2 feet high, with narrow leaves and hairy, and is often named *sylvestris*. The medicinal qualities of this form are considered to be especially strong.

Though none of the varieties differ greatly from the typical form, Valerian is more subject than many plants to deviations, which has caused several more or less permanent varieties to be named by various botanists. One of the chief is *V. sambucifolia* (Mikan), the name signifying 'Elder-leaved,' from the form of its foliage, the segments being fewer (only four to six pairs) and broader than in the type form, and having somewhat of the character of the elder.

V. celtica is supposed to be the *Saliunca* of ancient writers. It is used by Eastern nations to aromatize their baths. The roots are collected by the Styrian peasants, and are exported by way of Trieste to Turkey and Egypt, whence they are conveyed to India and Ethiopia. *V. sitchensis*, a native of northwestern America, is considered by the Russians the most powerful of all species.

Valerian is cultivated for the sake of the drug in England (in Derbyshire), but to a much greater extent in Prussia, Saxony (in the neighbourhood of Colleda, north of Weimar), in Holland and in the United States (Vermont, New Hampshire and New York). English roots have always commanded about four times the price of the imported. In Derbyshire, the cultivation of Valerian takes place in many villages near Chesterfield, the wild plants occurring in the neighbourhood not being sufficient to supply the demand. Derbyshire Valerian plants are of two varieties: *V. Milkanii* (Syme), on limestone, and *V. sambucifolia* (Mikan) on the coal measures. The former yields most of the cultivated Derbyshire rhizome.

The derivation of the name of this genus of plants is differently given. It is said by some authors to have been named after Valerius, who first used it in medicine; while

others derive the name from the Latin word *valere* (to be in health), on account of its medicinal qualities. The word *Valeriana* is not found in the classical authors; we first meet with it in the ninth or tenth century, at which period and for long afterwards it was used as synonymous with *Phu* or *Fu*; *Fu, id est valeriana*, we find it described in ancient medical works of that period. The word *Valerian* occurs in the recipes of the AngloSaxon leeches (eleventh century). *Valeriana*, *Amantilla* and *Fu* are used as synonymous in the *Alphita*, a mediaeval vocabulary of the important medical school of Salernum. Saladinus of Ascoli (about 1450) directs the collection in the month of August of *radices fu, id est Valerianae*. Referring to the name *Amantilla*, by which it was known in the fourteenth century, Professor Henslow quotes a curious recipe of that period, a translation of which runs as follows: 'Men who begin to fight and when you wish to stop them, give to them the juice of *Amantilla id est Valeriana* and peace will be made immediately.' *Theriacaria*, *Marinella*, *Genicularis* and *Terdina* are other old names by which *Valerian* has been known in former days. Another old name met with in Chaucer and other old writers is 'Setwall' or 'Setewale,' the derivation of which is uncertain. Mediaeval herbalists also called the plant 'Capon's Tail,' which has rather fantastically been explained as a reference to its spreading head of whitish flowers.

Drayton (*Polyolbion*) mentions the use of *Valerian* for cramp; and a tea was made from its roots.

Cultivation

Valerian does well in all ordinary soils, but prefers rich, heavy loam, well supplied with moisture.

In Derbyshire, cultivation is from wild plants collected in local woods and transplanted to the prepared land. Preference is given in collecting to root offsets - daughter plants and young flowering plants, which develop towards the close of summer, at the end of slender runners given off by the perennial rhizomes of old plants. These should be set 1 foot apart in rows, 2 or 3 feet apart. The soil should first be treated with farmyard manure, and after planting it is well to give liquid manure from time to time, as well as plenty of water. The soil must be well manured to secure a good crop. Weeding requires considerable attention.

Propagation may also be by seed, either sown when ripe in cold frames, or in March in gentle heat, or in the open in April. In the first two cases, transplant in May to permanent quarters. But to ensure the best alkaloidal percentage, it is best to transplant and cultivate the daughter plants of the wild *Valerian*.

Harvesting and Preparation for Market

The flowering tops must be cut off as they appear, thus enabling the better development of the rhizome. Many of the young plants do not flower in the first year, but produce a luxuriant crop of leaves, and yield rhizome of good quality in the autumn.

In September or early October, all the tops are cut off with a scythe and the rhizomes are harvested, the clinging character of the Derbyshire soil not allowing them to be left in the ground longer.

The drug as found in commerce consists usually of the entire or sliced erect rhizome, which is dark yellowish-brown externally, about 1 inch long and 1/2 inch thick, and gives off numerous slender brittle roots from 2 1/2 to 4 inches long, whilst short, slender, lateral branches (stolons) are also occasionally present. The root-stock, which is sometimes crowned with the remains of flowering stems and leaf-scales is usually firm, horny and whitish or yellowish internally, but old specimens may be hollow. A transverse section is irregular in outline and exhibits a comparatively narrow bark, separated by a dark line from an irregular circle of wood bundles of varying size.

The drug may also consist of small, undeveloped rhizomes about 1/4 inch long, crowned with the remains of leaves and bearing short slender roots, the young rhizome having been formed where the stolons given off from mature root-stocks have taken root and produced independent plants.

The roots of Valerian are of similar colour to the erect rhizome, about 1/10 inch thick, striated longitudinally and usually not shrivelled to any great extent; a transverse section shows a thick bark and small wood.

The drug has a camphoraceous, slightly bitter taste and a characteristic, powerful, disagreeable odour, which gradually develops during the process of drying, owing to a change which occurs in the composition of the volatile oil contained in the sub-epidermal layer of cells: the odour of the fresh root, though not very agreeable, is devoid of the unpleasant valerianaceous odour.

The colour and odour of Valerian rhizome distinguish it readily from other drugs. The rhizome somewhat resembles Serpentry rhizome (*Aristolochia Serpentaria*, Virginian Snakeroot), but may be distinguished therefrom by its odour, erect method of growth, and by the roots being thicker, shorter and less brittle.

Substitutes

Valerian root is often fraudulently adulterated with those of other species, notably with those of *V. dioica* (Linn.) (Marsh Valerian), which are smaller and of much feebler odour, and not possessed of such active properties. This Valerian is also a native of Great Britain, found in wet meadows and bogs, but rather scarce. It is a smaller plant than the official Valerian, its stem only growing 6 to 18 inches high. The leaves are very variable, the lower ones generally entire, oval but broader at the base, the upper ones cut into pairs of leaflets, and the flowers *dioecious*, i.e. stamens and pistil, or seed-producing organs in different flowers, the male flowers being arranged rather loosely, and the female flowers, which are smaller and darker, being in more compact heads.

The roots of *V. Phu* (Linn.) are also frequently found mingled with those of the official plant in the imported drug. This species is a native of Southern Europe and Western Asia, often grown in gardens for its decorative golden foliage, being easy of culture. Its rhizome is sometimes known as *V. Radix Majoris*. It is from 4 to 6 inches long, 1/2 inch in thickness, brown and with a feeble, valerian-like odour and taste. Its thicker rhizome lies obliquely in the earth instead of being erect like that of *V. officinalis*, and is rooted at the bottom only, the roots being numerous and yellowish.

It is stated also that in Germany various Ranunculaceous (or Buttercup) roots are a dangerous adulterant of Valerian; they may be readily detected by their want of the peculiar odour of the official root. The Valerian in the markets of Paris is often largely adulterated with the roots of Scabious (*Scabiosus succisa*, Linn.) and *S. arvensis* (Linn.). They are shorter than the genuine root, less rough, very brittle, not striated, or channelled, and with a white fracture. Though inodorous in themselves, they are very apt to acquire odour from contact with the Valerian. The roots of *Geum urbanum*, or Avens, which in themselves are pleasingly aromatic, but may also on contact acquire some of the odour, have also occasionally been found in parcels of imported Valerian root.

Chemical Constituents

The chief constituent of Valerian is a yellowish-green to brownish-yellow oil, which is present in the dried root to the extent of 0.5 to 2 per cent though an average yield rarely exceeds 0.8 per cent. This variation in quantity is partly explained by the influence of locality, a dry, stony soil, yielding a root richer in oil than one that is moist and fertile.

Lindley's *Treasury of Botany* states: 'What is known to chemists as volatile oil of Valerian seems not to exist naturally in the plant, but to be developed by the agency of water.'

The oil is contained in the sub-epidermal layer of cells in the root, not in isolated cells or glands. It is of complex composition, containing valerianic, formic and acetic acids, the alcohol known as borneol, and pinene. The valerianic acid present in the oil is not the normal acid, but isovalerianic acid, an oily liquid to which the characteristically unpleasant odour of Valerian is due. It is gradually liberated during the process of drying, being yielded by the decomposition of the chief constituent, bornyl-isovalerianate, by the ferment present. It is strongly acid, burning to the palate and with the odour of the plant. The oil is soluble in 30 parts of water and readily in alcohol and ether. It is found in nature in the oil of several plants, also in small proportion in train oil and the oil of *Cetacea* (whales, porpoises, etc.), which owe their smell to it. It is also one of the products of oxidation of animal matters and of fat oils, and is secreted in certain portions of animal bodies. Its salts are soluble and have a sweetish taste and fatty aspect.

The root also contains two alkaloids - Chatarine and Valerianine - which are still under investigation and concerning which little is known, except that they form crystalline salts. There are also a glucoside, alkaloid and resin all physiologically active, discovered in the fresh rhizome by Chevalier as recently as 1907. He claims that the fresh root is of greater medicinal value than the dry on this account.

On incineration, the drug, if free from adherent earthy matter, yields about 8 or 9 per cent of ash.

The chief preparation of the British Pharmacopoeia is the *Tinctura Valerianae Ammoniata*, containing Valerian, oil of Nutmeg, oil of Lemon and Ammonia: it is an extremely nauseous and offensive preparation. An ethereal tincture and the volatile oil

are official in some of the Continental Pharmacopoeias, and a distilled water and syrup in the French Codex.

Valerianate of oxide of ethyl, or valerianic ether is a fragrant compound occurring in some vegetable products. The valerianic acid in use is not prepared from the root, but synthetically from amyl alcohol. Valerianic acid combines with various bases (the oxides of metals) to form salts called Valerianates. Valerianate of zinc, prepared by double decomposition, is used as an antispasmodic and is official in the British Pharmacopoeia.

Medicinal Action and Uses

Valerian is a powerful nervine, stimulant, carminative and antispasmodic.

It has a remarkable influence on the cerebro-spinal system, and is used as a sedative to the higher nerve centres in conditions of nervous unrest, St. Vitus's dance, hypochondriasis, neuralgic pains and the like.

The drug allays pain and promotes sleep. It is of especial use and benefit to those suffering from nervous overstrain, as it possesses none of the after-effects produced by narcotics.

During the recent War, when air-raids were a serious strain on the overwrought nerves of civilian men and women, Valerian, prescribed with other simple ingredients, taken in a single dose, or repeated according to the need, proved wonderfully efficacious, preventing or minimizing serious results.

Though in ordinary doses, it exerts an influence quieting and soothing in its nature upon the brain and nervous system, large doses, too often repeated, have a tendency to produce pain in the head, heaviness and stupor.

It is commonly administered as *Tinctura Valerianae Ammoniata*, and often in association with the alkali bromides, and is sometimes given in combination with quinine, the tonic powers of which it appreciably increases.

Oil of Valerian is employed to a considerable extent on the Continent as a popular remedy for cholera, in the form of cholera drops, and also to a certain extent in soap perfumery.

Ettmuller writes of its virtues in strengthening the eyesight, especially when this is weakened by want of energy in the optic nerve.

The juice of the fresh root, under the name of Energetene of Valerian, has of late been recommended as more certain in its effects, and of value as a narcotic in insomnia, and as an anti-convulsant in epilepsy. Having also some slight influence upon the circulation, slowing the heart and increasing its force, it has been used in the treatment of cardiac palpitations.

Valerian was first brought to notice as a specific for epilepsy by Fabius Calumna in 1592, he having cured himself of the disease with it.

Preparations and Dosages

Fluid extract, 1/2 to 1 drachm. Solid extract, 5 to 10 grains. Tincture, B.P. and U.S.P., 1885, 1 to 2 drachms. Ammoniated tincture, B.P. and U.S.P. 1898, 1/2 to 1 drachm.

Culpepper (1649) joins with many old writers to recommend the use both of herb and root, and praises the herb for its longevity and many comforting virtues, reminding us that it is 'under the influence of Mercury, and therefore hath a warming faculty.'

Among other uses, he adds:

'The root boiled with liquorice, raisons and aniseed is good for those troubled with cough. Also, it is of special value against the plague, the decoction thereof being drunk and the root smelled. The green herb being bruised and applied to the head taketh away pain and pricking thereof.'

Gerard tells us that herbalists of his time thought it 'excellent for those burdened and for such as be troubled with croup and other like convulsions, and also for those that are bruised with falls.' He relates that the dried root was held in such esteem as a medicine among the poorer classes in the northern counties and the south of Scotland, that 'no broth or pottage or physicall meats be worth anything if Setewale (the old name for Valerian) be not there.'

Sutherland describes many varieties of Valerian, and himself grew the Indian Valerian which is still sent to Mincing Lane, and offered on the British market. Hanbury states that, according to its habitat, it has many variations which some botanists take as separate species. In the south of England, when once it obtains a hold of the ground, nothing will eradicate it. It was well known to the Anglo-Saxons, who used it as a salad.

Valerian has an effect on the nervous system of many animals, especially cats, which seem to be thrown into a kind of intoxication by its scent. It is scarcely possible to keep a plant of Valerian in a garden after the leaves or root have been bruised or disturbed in any way, for cats are at once attracted and roll on the unfortunate plant. It is equally attractive to rats and is often used by rat-catchers to bait their traps. It has been suggested that the famous Pied Piper of Hamelin owed his irresistible power over rats to the fact that he secreted Valerian roots about his person.

In the Middle Ages, the root was used not only as a medicine but also as a spice, and even as a perfume. It was the custom to lay the roots among clothes as a perfume (*vide* Turner, *Herbal*, 1568, Pt. III, p. 56), just as some of the Himalayan Valerians are still used in the East, especially *V. Jatamansi*, the Nard of the Ancients, believed to be the Spikenard referred to in the Scriptures. It is still much used in ointments. Its odour is not so unpleasant as that of our native Valerians, and this and other species of Valerian are used by Asiatic nations in the manufacture of precious scents. Several aromatic roots were known to the Ancients under the name of *Nardus*, distinguished according to their origin or place of growth by the names of *Nardus indica*, *N. celtica*, *N. montana*, etc., and supposed to have been derived from different valerianaceous plants. Thus the *N. indica* is referred to *V. Jatamansi* (Roxb.), of Bengal, the *N. celtica* to *V. celtica* (Linn.), inhabiting the Alps and the *N. montana* to *V. tuberosa*, which grows in the mountains of the south of Europe.

Other Species

JAPANESE VALERIAN, or Kesso Root, was formerly believed to be the product of *Patrinia scabiosaefolia* (Link.), but is now known to be obtained from a Japanese variety of *V. officinalis*. It yields a volatile oil. By the absence of a well-marked, upright rhizome, it widely differs from true Valerian, though at first sight agrees to some extent with it. In colour and taste it is almost identical.

The roots of *V. Mexicana* (D.C.), MEXICAN VALERIAN, which occurs in Mexican commerce in slices, or fleshy disks, contain a large percentage of valerianic acid, which they yield readily and economically. As much as 3.3 per cent of oil has been extracted from the roots of this species.

V. pyrenaica (Linn.), the HEART-LEAVED VALERIAN, a native of the Pyrenees, is occasionally found in Great Britain naturalized in plantations. It is a large, coarse herb, the stem 2 to 4 feet high, the radical leaves sometimes very large, often a foot in diameter, heart-shaped, the upper ones smaller, with a few basal leaflets, the flowers much as in *V. officinalis*. It is not employed medicinally.

V. montana and *V. angustifolia* are Alpine varieties, but can be grown in this country with a little care. They are almost entirely grown for decorative purposes, flowering from May to August, and possessing none of the unpleasant smell of Valerian.

Culpepper describes a plant which he calls 'Water Valerian' (*V. Aquatica*), with 'much larger' flowers than the garden Valerian, which, however, they resemble, and of a 'pale purple colour.' He states it grows 'promiscuously in marshy grounds and moist meadows' and flowers in May.