

VALERIAN

MEDICINAL AND AROMATIC PLANTS

INDUSTRIAL PROFILE

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KING'S COLLEGE LONDON

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CHAPTER 1

AN INTRODUCTION TO VALERIAN

Valeriana officinalis and related species

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CHAPTER 1

INTRODUCTION

Valerian is a plant that is steeped in history. Its original use as a perfume or perhaps even as a source of food was totally different to its modern use in herbal medicine today as a sedative and calming agent.

The history of a plant's use or the reported ethnobotany often seems implausible, sometimes the style and description of the writing is quaint and seems amusing. However, it is often startling to discover, that in reviewing the data retrospectively one finds an 'Old Wives Tale' that has been given scientific proof. Galen, who by luck or by judgement, intimated that valerian was a sedative, might have been somewhat bemused to learn that his findings took another fourteen centuries to be rediscovered.

The introduction to valerian begins with all the strange and mystical beliefs that surround valerian and a collection of anecdotes and folk lore that might otherwise be difficult to find assembled in one place. Another chapter will also cover the common names of valerian and show that valerian is an international character, with roots and connections throughout the world.

DERIVATION OF THE NAME

There are a number of explanations for the origin of the name.

It might be from the Latin 'Valere' meaning courage, which one might need to drink the infusion. Another source suggests from the Latin 'valeo' to be strong, or from 'valere' meaning to be in good health or to be healthy [Coombes, A.J.: 1985].

MEDICINAL USES OF VALERIAN

The dried rhizome and roots of *Valeriana officinalis* Linné (Family Valerianaceae) are normally used, although other species of the genus, such as *V. mexicana* De Candolle, also contain active constituents [Tyler, V.E., Brady, L.R., Robber, J.E.: 1988]. The rhizome and rootlets collected in autumn, especially wild plants preferred according to some sources, the English valerian is superior to that of Europe. The root (which is the officinal part of the plant), is possessed of much more powerful properties when harvested from the wetter growing areas (i.e. when compared to the activity of plants growing in drier areas) [Graves, G.:1834]. For medicinal purposes the roots should not be taken up during their greenest state, as their peculiar odour is much more powerful towards the close of autumn and during winter, than at other periods.

English valerian as cultivated in Derbyshire is said to be the produce of *Valeriana officinalis* var. *mikanii*, Syme [British Pharmaceutical Codex: 1923].

A comprehensive review of the constituents of the Valerianaceae exists [Houghton, P.J.: 1988] and is presented with particular reference to the sedative activity of extracts from various constituent species. Other summaries are available on the biological activity [Houghton, P.J.: 1994], [Jasperson-Squibb, R.: 1990].

THE HISTORICAL USES OF VALERIAN

In a concise history of valerian [Hobbs, C: 1994] the early uses of valerian were in the most part for its bitter and aromatic qualities. The Greek physician and pharmacist, Galen (131-201 A.D.), was probably the first to allude to the sedative qualities of valerian, however, it was not until the end of the 16th. century that this use was truly recognised.

The virtues of Setwall or Valerian were described in an early work [Gerard, J: 1597] as follows:-

"The dry root is put into counterpoysons and medicines preservative against the pestilence, as are treacles, mithridates, and such like: whereupon it hath been had (and is to this day among the poore people of our Northerne parts) in such veneration amongst them, that no broths, pottage or physicall meats are worth any thing, if Setwall were not at an end: whereupon some women Poet or other hath made these verses.

They that will have their heale,
Must put Setwall in their keale.

It is used generally in sleight curts, wounds, and small hurts.

Slightly later, another herbalist [Culpeper, N.: 1653] records: "This is under the the influence of Mercury. Dioscorides saith, That the Garden Valerian hath a warming faculty, and that being dried and given to drink it provokes urine, and helps the stranguary. The decoction thereof taken, doth the like also, and takes away pains of the sides, provokes women's courses, and is used in antidotes. Pliny saith, That the powder of the root given in drink, or the decoction thereof taken, helps all stoppings and stranglings in any part of the body, whether they proceed of pains in the chest or sides, and takes them away. The root of Valerian boiled with liquorice, raisins, and anniseed, is singularly good for those that are short-winded, and for those that are troubled with the cough, and helps to open the passages, and to expectorate phlegm easily. It is given to those that are bitten or stung by any venemous creature, being boiled in wine. It is of a special virtue against the plague, the decoction thereof being drank, and the roots being used to smell to. It helps to expel the wind in the belly. The green herb takes away the pains and prickings there, stays rheum and thin distillation, and being boiled in white wine, and a drop thereof put into the eyes, takes away the dimness of the sight, or any pin or web therein. It is of excellent property to heal any inward sores or wounds, and also for outward hurts or wounds, and drawing away splinters or thorns out of the flesh."

By 1883 the pharmaceutical texts [Dispensatory of the United States of America: 1883] were starting to describe the uses of valerian in a way that would almost be accepted today.

“Valerian is gently stimulant, with an especial direction to the nervous system, but without narcotic effects. In large doses it produces a sense of heaviness and dull pain in the head, with various other effects indicating nervous disturbance. The oil, largely taken, is said by M. Barailer, from his own observation, to produce dullness of intellect, drowsiness ending in deep sleep, reduced frequency of pulse, and increased flow of urine. It is useful in cases of irregular nervous action, when not connected with inflammation, or an excited condition of the system. Among the complaint in which it has been particularly recommended are hysteria, hypochondriasis, epilepsy, hemicrania, and low forms of fever, attended with restlessness, morbid vigilance, or other nervous disorder. It has also been used in intermittents, combined with Peruvian bark, and in acute rheumatism. As the virtues of valerian reside chiefly in the volatile oil, the medicine should not be given in decoction or extract. The distilled water is used on the continent of Europe; and the volatile oil is occasionally substituted with advantage for the root.”

“The roots of *Valeriana dioica* are said to be sometimes mingled with those of the officinal plant; but the adulteration is attended with no serious consequences; as, though much weaker than the genuine valerian, they possess similar properties.”

By 1923, there was the first indication [British Pharmaceutical Codex: 1923] that the action of valerian could also act through an odourous pathway. “The action of valerian rhizome is virtually that of its volatile oil, the valerianic esters of which have no stimulating action on the physical functions and the circulation, as was formerly believed, although they possess the usual carminative action of the volatile oils. The action of such malodorous substances as valerian is generally attributed to the mental effect produced by their unpleasant odour and taste. Valerian is used as a carminative and antispasmodic in hysteria and similar nervous manifestations.”

It has been prescribed [Howard, M: 1987] as the perfect herbal tranquilliser, and was used for this purpose in the First World War to treat soldiers suffering from shell shock

During the World War 2 there was a shortage of the dried rhizome and roots of *Valeriana officinalis*, collected in the autumn and a special dispensation was printed in the 1941 edition of Martindale: “As a war emergency measure, when valerian is prescribed or demanded, Indian valerian may be dispensed or supplied.” The description of the uses read as follows: “Given in hysterical and neurotic conditions as a sedative. Its action has been attributed to its unpleasant smell, and if this is so, deodorised preparations cannot possess any activity due to their valerian content.”

THE MODERN USES OF VALERIAN

Today Valerian is a highly respected medicinal plant with many Pharmacopoeial monographs [Newall, C. A., Anderson, L. A. and Phillipson, J. D.: 1996]. The British Herbal Pharmacopoeia 1983, British Herbal Pharmacopoeia 1990, British Pharmaceutical Codex 1963, Martindale 30th edition.

It is also listed in the following pharmacopoeias: Austria, Brazil, Czechoslovakia, Egypt, France, Germany, Greece, Hungary, Italy, Netherlands, Norway, Romania, Russia, Switzerland and Yugoslavia. Egyptian Pharmacopoeia mentions valerian from *Valeriana wallichii* (Indian

Valerian). Japan has Japanese Valerian from *Valeriana fauriei* or allied plants; it also describes Powdered Japanese Valerian [Martindale: 1989].

It has been described [The British Herbal Pharmacopoeia: 1983] as a sedative, mild anodyne, hypnotic, spasmolytic, carminative, hypotensive. Indicated for hysterical states, excitability, insomnia, hypochondriasis, migraine, cramp and rheumatic pain. Another source [Weiss, R.F.: 1986] says that the three main areas of use for valerian are for nervous excitement, nervous sleeplessness, and nervous palpitations.

SMOOTH MUSCLE RELAXANT

The *valeriana* compounds [Hazelhoff, B. *et al*: 1982] probably relax stimulated smooth muscle cells by acting as musculotropic agents and not by interacting with receptors of the autonomic nervous system.

Valeriana officinalis var *latifolia*, which is a variety of *Valeriana officinalis* and has the properties to relieve smooth muscle spasm and powerful vasodilation, [Yang, G.Y.: 1994]. The preparation of a volatile oil fractionated from the root were used to treat patients with angina pectoris, among whom ST-T ischemic changes appeared on ECG in 50 cases before treatment. Its total effective rate for the simple angina (without detectable ischemic findings) was 87.80%; the angina with ischemic findings, 88.00%.

SEDATIVE

One of the earlier papers [Cionga, E.: 1961] stated that valerian had a depressant action on the central nervous system and reported antispasmodic activity. It also speculated an alterative or equalising function (sedative in states of agitation and stimulant in fatigue).

Pharmacological screening of valeranal and some other components of essential oil of *Valeriana officinalis*, showed that the sedative action could be attributed to the essential oil and valepotriate fractions [Wagner, H. *et al*: 1980] and which was subsequently confirmed in further investigations [Hendricks, H. *et al*: 1981].

Valerenic acid inhibits the the enzyme system responsible for the central catabolism of GABA [Riedel, E: 1982], and the valerian extract releases [3H]GABA by reversal of the GABA carrier, which is Na(+)-dependent and Ca(2+)-independent [Santos, M.S. *et al*: 1994]. This increase in [3H]GABA release appears to be independent from Na(+)-K(+)-ATPase activity and the membrane potential. Valerenic acid has also been shown to depress the central nervous system (CNS) activity [Hendricks, H. *et al*: 1985].

This work was further reinforced by the evaluation of a commercially available valerian root extract (Valdispert) revealed pronounced sedative properties in the mouse with respect to a reduction in motility and an increase in the thiopental sleeping-time [Leuschner, J. *et al*: 1993].

A direct comparison with diazepam and chlorpromazine revealed a moderate sedative activity for the tested extract. The extract showed only weak anticonvulsive properties.

Another study in mice showed that intraperitoneal injection also depressed the CNS activity, and that the oral administration had a greatly reduced effect [Veith, J. *et al.*: 1986].

The native sum of valepotriates isolated from *Valeriana alliariifolia* Adams which was named valiracyl exerted a pronounced neurotropic effect [Dunaev, V.V.: 1987]. Valiracyl suppressed the orientation reflex of animals, decreased a spontaneous and caffeine-stimulated motor activity, potentiated and prolonged the action of barbiturates, significantly reduced aggressiveness of animals, decreased sensitivity to the convulsant effects of corasol and thiosemicarbazide, produced the antihypoxic and mild myorelaxant actions. The neurotropic effects of valiracyl were related to increased level of the GABA inhibition mediator and decreased intensity of bioenergetic processes in the brain.

ANTIDEPRESSANT

The psychotropic effects of roots of Japanese valerian, were compared with those of diazepam and imipramine [Sakamoto, T. *et al.* 1992]. Both the ethanolic extract of valerian root and diazepam significantly prolonged hexobarbital-induced sleep in mice. Spontaneous ambulation and rearing were significantly decreased by valerian extract, but kessyl glycol diacetate and diazepam significantly increased ambulation. Diazepam significantly decreased approach-avoidance conflict in mice in a water-lick conflict test, but valerian extract and KGD did not. By contrast, valerian extract and imipramine significantly inhibited immobility induced by a forced swimming test in rats, but did not increase spontaneous motor activity during an open field test just before the forced swimming test. In addition, valerian extract and imipramine significantly reversed reserpine-induced hypothermia in mice. These results indicate that valerian extract acts on the central nervous system and may be an antidepressant.

A methanol extract of the roots of *Valeriana fauriei* exhibited antidepressant activity in mice [Oshima, Y.: 1995]. The extract was fractioned in order to isolate alpha-kessyl alcohol as the active principle. The antidepressant activity of some guaiane and valerane types of sesquiterpenoids in the active fraction was also evaluated.

SLEEP DISORDERS

The effects of valerian at two doses were investigated by computer analysis of sleep stages (sleep profiles) and psychometric methods [Gessner, B. *et al.*: 1984]. Both dosages showed a decrease of sleep stage 4 and a slight reduction of REM-sleep. On the other hand, a slight increase of sleep stage awake, 1 and 2 could be observed. A further increase of sleep stage 3 was identified. After application of 120 mg valerian, the frequency of REM-phases declined during the first half of the night, whereas during the second part of the night, a surplus appeared. Changes of the Beta-intensity of the EEG during REM-sleep showed a stronger hypnotic effect for the larger dose. Maximum effect was observed 2 - 3 hours after medication. Results of the mood scale are

indifferent between the experimental conditions, which indicated no negative side-effects neither by drug nor by testing methods.

In quantifying the effects of mild sedatives both physiological and subjective aspects of sleep must be taken into account [Leathwood, P.D.: 1982]. A questionnaire analysis on a mild sedative (400 mg of an aqueous extract of *Valeriana officinalis* L.) showed that by subjective criteria it is sedative (i.e. it significantly decreased perceived sleep latencies and night awakenings, and improved sleep quality). In an EEG study on the same preparation the pattern of results tended to confirm the subjective evaluation (i.e. shorter mean sleep latency, increased mean latency to first awakening) but the changes did not reach statistical significance.

Numerous other studies have been carried out on the sedative sleep action of valerian, as a mild sedative [Leathwood, P.D. et al.: 1982-3], to improve sleep quality [Leathwood, P.D., et al. 1982], to reduce the time it takes to fall asleep [Leathwood, P.D., et al.: 1985]. Valerian produced a significant decrease in subjectively evaluated sleep latency scores and a significant improvement in sleep quality: the latter was most notable among people who considered themselves poor or irregular sleepers, smokers, and people who thought they normally had long sleep latencies. Night awakenings, dream recall and somnolence the next morning were relatively unaffected by valerian.

The effect of an aqueous extract of valerian root on sleep was studied in two groups of healthy, young subjects [Balderer, G. et al. 1985]. One group slept at home, the other in the sleep laboratory. Under home conditions, two different doses of valerian extract reduced perceived sleep latency and wake time after sleep onset. Night-time motor activity was enhanced in the middle third of the night and reduced in the last third. The data suggested a dose-dependent effect. In the sleep laboratory, no significant differences from placebo were obtained. However, the direction of the changes in the subjective and objective measures of sleep latency and wake time after sleep onset, as well as in night-time motor activity, corresponded to that observed under home conditions. There was no evidence for a change in sleep stages and EEG spectra. Aqueous valerian extract probably exerts a mild hypnotic action.

A double blind test was run on a preparation [Lindahl, O., et al.: 1989] containing primarily sesquiterpenes. When compared with placebo it showed a good and significant effect on poor sleep. 44% reported perfect sleep and 89% reported improved sleep from the preparation. No side effects were observed.

The effect of acute and repeated treatment with a valerian extract on objective and subjective measures of sleep was studied [Schulz, H.: 1994]. Polysomnography was conducted in 14 elderly poor sleepers on three nights, at one-week intervals. Subjects in the valerian group showed an increase in slow-wave sleep (SWS) and a decrease in sleep stage 1. Density of K-complexes was increased under active treatment. There was no effect on sleep onset time or time awake after sleep onset. REM sleep was unaltered. There was also no effect on self-rated sleep quality. It was hypothesized that valerian increases SWS in subjects with low baseline values.

Other studies have examined the effect of commercial preparations [Schmidt-Voigt, J.: 1986]

The aromatherapeutical use of commercial valerian root oil (Chinese origin) and of pure fragrance compounds--borneol, isoborneol, bornyl acetate (main constituent of the proved valerian root oil) and isobornyl acetate--as potentially drugs with sedative effects after inhalation was investigated in an animal experiment [Buchbauer, G. et al. : 1992].

MEDICINAL USES OF VALERIAN ELSEWHERE

In India, *Nardostachys jatamansi* DC. Mem. is used [Jayaweera, D.M.A.: 1982]. The roots of this are supposed to possess stimulant and antispasmodic properties. They are used in the treatment of epilepsy, hysteria, convulsive ailments, palpitations of the heart, consumption, diseases of the eye, itch, boils, swellings, diseases of the head, hiccough, etc. Also mentioned is *Valeriana wallichii* DC Mem., where the root is used as one of the ingredients in the preparation of snake bite cures. It is also used for liver, kidney and spleen diseases.

In Chinese medicine [Leung, A.Y. *et al*: 1996], both common and Indian valerian as well as those of *Valeriana coreana* Briq., *V. stubendorfi* Kreyer ex Kom., *V. amurensis* P. Smirn. ex Kom., and *V. hardwickii* Wall. are similarly used. In addition, they are used in treating chronic backache, numbness due to rheumatic conditions, colds, menstrual difficulties, bruises and sores etc., among others, generally as a decoction or alcoholic infusion.

Valeriana sylvatica was found in the medicine bag of Canadian Indian warriors as a wound antiseptic [Bremness, L.: 1988].

COSMETIC USES OF VALERIAN

Bathing

Valerian has been used for perfume baths in the East (Graves, G.: 1990) and also as a soothing herb bath (Weiss, R.F.: 1986) or as a vapour bath (Hutchens, A.R.: 1992). According to another source [Bremness, L.: 1991] a decoction is used as a facial wash.

Topical application

The use of an alcoholic extract of valerian for the treatment of dandruff is also mentioned [Leung, A.Y.: 1980] and also the use of valerian for treating sores and pimples. It is said [Bremness, L.: 1988] that the use of a lotion is good for the treatment of acne and skin rashes.

It is reported [Council of Europe: 1989] on the intended cosmetic effect and recommended maximum concentration in cosmetic products. The root and rhizome are used. They report that valerian is soothing, hampers sweat secretion and is relaxing. It is a fragrance material (essential oil). They list other possible effects as sedative, hypotensive, antispasmodic, analgesic and anti-inflammatory. In another report [Jayaweera, D.M.A: 1982] it is said that valerian is used for ailments of the hair. The roots are also used for improving the complexion, increasing the lustre of the eye and promoting the growth and increasing the blackness of the hair.

FOLK LORE OF VALERIAN

The following section is a short list of miscellaneous statements that have been collected over the years. They are given without comment, because science has a wonderful knack of occasionally proving or giving respectability to even the most unlikely of events.

A young woman who carries a sprig of valerian is never said to lack ardent lovers. It was said to inspire love [Gordon, L.: 1980] and so was used as an ingredient in love philtres. It was also cited as an aphrodisiac.

It has also been said that valerian increases psychic perception [Howard, M.: 1987].

It protects a person from thunder and lightning, and was used both for and against witchcraft [Gordon, L.:1980].

Hanging the herb in the house was reputed to prevent the husband and wife from bickering [Law, D: 1973].

Excessive dependance on valerian causes headaches, mental agitation, much restlessness and severe cases of delusion. It is said that Adolf Hitler was a valerian addict and regularly took large and excessive doses [Bairacli Levy, J. de: 1991].

PLANETARY INFLUENCES

There was a time when almost everything was considered to come under the influence of the planets and astral bodies. The astrologers and mystics assigned the futures of the people and the future of the world according to the the positioning of those stars and heavenly configurations. Trees, precious stones and even plants came under the influence of the fermement. According to Law¹, valerian is under the influence of Uranus, however, Culpeper²and Gordon³ say that the plant is under the influence of Mercury.

LANGUAGE OF FLOWERS

In medieval times, the art of writing was limited to only a few, and even then it was more common to write in Latin than in the common tongue. In the Middle Ages there developed a system of communication that revolved around plants (a custom which was revived in Victorian times and at the same time the list probably enlarged). In all likelihood, this floral symbolism started with the heraldic symbols used to distinguish knights in battle, and then developed into a floral language, for example:-

Borage: Your attentions only embarass me

Chamomile: I admire your courage, do not despair

Pink Clover: Do not trifle with my affections

Individual plants could be combined with a wide diversity of others in order to build up a quite a comprehensive message, and thus it became customary to present bouquets of flowers instead of writing letters or notes, and for this purpose hundreds of flowers had designated meanings.

There can be few who do not know the symbolic meaning of the red rose. However, be tempered with caution, for a yellow rose means ‘misplaced affection’ or “I love another”!

In the book Language of Flowers [Anon: 1968], valerian is said to mean an accomodating disposition, which is confirmed in another text [Conway, D: 1975] which says that it means a concealed merit - "though lowly, I aspire to love you". Incidentally, Greek Valerian is given the meaning "rupture" (though one must wonder whether this should be rapture?)!

SAINTLY ASSIGNATION

At more or less the same time that the Astrologers were assigning all the plants to planetary influences, there were others who were dedicating the plants to various saints. Valerian is dedicated to St. Bernard [Gordon, L.: 1980]

BIBLICAL REFERENCES

Valerian is mentioned in the Bible a number of times under the name of spikenard. This is most likely the species *Nardostachys jatamansi*.

Song of Solomon I v.12

"While the king sitteth at his table, my spikemard sendeth forth the smell thereof."

Song of Solomon IV v.13-14

"Thy plants are an orchard of pomegranates, with pleasant fruits; camphire, with spikenard, Spikenard and saffron; calamus and cinnamon, with all trees of frankincense; myrrh and aloes, with all the chief spices:"

John XII v.3

"Then took Mary a pound of ointment of spikenard, very costly, and anointed the feet of Jesus, and wiped his feet with her hair: and the house was filled with the odour of the ointment."

Mark XIV v.3

"And being in Bethany in the house of Simon the leper, as he sat at meat, there came a woman having an alabaster box of ointment of spikenard very precious; and she brake the box, and poured it on his head."

THE EFFECT ON ANIMALS

There are frequent references to animals and their reaction to valerian.

It is said [Weiss, R.F.: 1986] that cats are known to be attracted by valerian, which can cause a state of ecstasy in them. This is reported by a number of authors [Phelps-Brown, O.: 1993; Spoerke, D.G.: 1990; Blackmore, S.: 1982] to name but a few. It is also said [Graves, G.: 1990] that the male is more affected by the male than the female and that cats [Hutchens, A.R.: 1973] are so fond of the herb that they will dig up the roots and eat them.

The root also excites rats and that the famous Pied Piper of Hamlyn may not have been such a great flute player, but more of a success because of the valerian root that he carried in his pockets! [Keville, K.: 1991]. A thought echoed by other authors [Howard, M: 1987; Ceres: 1984].

Gypsies use the herb to quieten unfriendly dogs, and that horses are also attracted by the smell of valerian [Conway, D: 1975].

Finally, it is said [Bremness, L.: 1988] that the whole plant stimulates growth of nearby vegetables by stimulating phosphorus and earthworm activity, since the roots also attract the worms.

THE SMELL

The smell has been described [Hooper, M.: 1984] as being that of "tom" cats, as dirty socks [Keville, K.: 1991], as warm and camphorous [Hutchens, A.R.: 1992], as a strong penetrating, disagreeable odour with a camphorous, bitter taste [the British Pharmaceutical Codex 1923]. Others say it is nauseous and unpleasant [Baraicli Levy, J. de: 1991] and it is for this reason that one of its old names was 'Phu' [Hobbs, C.: 1994], a name interpreted from the explanation of disgust with the strong smell of long-dried valerian root. He also likens the odour to well-seasoned dirty socks, while one goes as far [Saunders, C.F.: 1976] goes as far to describe it as vile smelling! Another [Heinerman, J.: 1988] even describes the smell as 'unwashed underwear'. Fresh valerian root smells like ancient leather but, when dried, it is nearer to stale perspiration [Bremness, L.: 1988].

However, this dislike of the smell was not the case in the years up to and including the 16th century, when most reports make no adverse comments on the odour of the plant. In the East the smell was liked immensely and used as a perfume in bathing. Today the oil of valerian is used as a component of many blended perfume oils, where it can impart a 'leathery' note to a fragrance. Valerian is not a recognised aromatherapy oil, and yet there is a growing body of evidence to show that the odour of valerian alone is sufficient to have a sedative effect [Balacs, J.: 1992].

The intense smell can be a problem and contaminate equipment, but [Murrison, R.G.: 1935] the odour may be removed from a scale pan or from the hands by rubbing with sodium bicarbonate.

FOOD USES OF VALERIAN

Valerian might not be to the taste of everyone, however, throughout history, there are reports of the plant being used as a source of food.

Centranthus macrosiphon Boiss. or Long-spurred Valerian is used as a salad plant, particularly in France.

Centranthus ruber (L.) DC. is eaten as a salad [Mabey, R.: 1972] in southern Italy and France the young leaves of this plant are sometimes boiled with butter as greens, or eaten raw in salads, though they can be rather bitter used in this way.

Fedia cornucopiae Gaertn. or Horn-of-Plenty, Valerian, is grown in France as a salad plant.

Valeriana cornucopiae Linn. or African Valerian, is a native of the Mediterranean region and provides a salad plant.

Valerian edulis Nutt. or Tobacco Root is the principle edible root amongst the Indians who inhabit the upper waters and streams on the western side of the Rocky Mountains [Hedrick, U.P.: 1972]. In another text [Saunders, C.F.: 1934] refers to it as another staple of some tribes, occurring in damp grounds from the Great Lakes to Oregon and British Columbia. Its deep, perpendicular root is vile smelling and ill tasting, but long steaming makes it palatable, at least to the Indians. Fremont speaks well of it in his journal, under the Snake name kooyah, though his associate Preuss could not stay in the same tent with it, much less eat it.

Valerianella coronata DC. provides a French salad plant.

Valerianella eriocarpa Desv. or Italian Corn Salad is much used in Europe as a substitute for lettuce in the spring, and when grown in rich soil as a substitute for spinach.

Valerianella locusta or Lamb's Lettuce, Common Corn Salad. is an original European species, native to the Mediterranean [Lanska, D.: 1992]. It grows wild throughout Europe, in the Near East, Caucasus, Northern Africa and North America. According to some it is a spring salad vegetable with a pleasant, slightly nutty flavour. It contains about 60 mg of vitamin C, and a large amount of phosphorous, calcium, iron, saccharides, proteins, fats etc. Lamb's Lettuce is used only fresh in mixed and potato salads, in herb soups, omelettes, etc.

Valerianella olitoria Pollich, commonly Lamb's Lettuce or Corn Salad, one of the widest European examples of a valerian salad herb.

CONCLUSIONS

It is hoped that this chapter has provided an overview and introduction to some of the less well known facts about valerian, in order to allow other authors to concentrate on the magnificent science that has been carried out in the study of this useful plant.

REFERENCES

Anon: The Language of Flowers. 13th impression 1992 (1st edition 1968) Penguin Books Ltd. ISBN No. 0-7181-0593-1.

Bairacli Levy, J.de: The illustrated herbal handbook for everyone. 1991 4th edition. Faber and Faber. ISBN No. 0-571-16099-9.

Balacs, T: Research Reports. The International Journal of Aromatherapy, Spring 1992, vol.4, no.1, p.28-30.

Balderer, G., Borbely, A.A.: Effect of valerian on human sleep. Psychopharmacology (Berl) (1985) 87(4):406-9

Blackmore, Stephen: The illustrated guide to Wild Flowers. Blitz Editions. (originally published 1982 Kingfisher Books). ISBN No. 1-856050-24-6.

Bremness.L.: The complete book of herbs. published CLB (Colour Library Books) 1988 original copyright Dorling Kindersley Ltd., this copy 1991. ISBN No. 0-86283-893-2.

British Herbal Pharmacopoeia, The: 1983. B.H.M.A. ISBN 0-903032-07-4.

British Pharmaceutical Codex, The: 1923. An Imperial Dispensatory for the use of Medical Practitioners and Pharmacists. The Pharmaceutical Press. London.

Buchbauer, G., Jager W., Jirovetz, L., Meyer, F., Dietrich, H.: [Effects of valerian root oil, borneol, isoborneol, bornyl acetate and isobornyl acetate on the motility of laboratory animals (mice) after inhalation]. Wirkungen von Baldrianol, Borneol, Isoborneol, Bornylacetat und Isobornylacetat auf die Motilitat von Versuchstieren (Mausen) nach Inhalation. Pharmazie (1992 Aug) 47(8):620-2 (Published in German)

Ceres: The Healing Power of Herbal Teas, 1984. Thorsons Publishers, ISBN 0-72251578-8.

Cionga, E.: Pharmazie. 1961; 16, 43-44.

Conway, D.: The Magic of Herbs. 1975 Readers Union published Jonathon Cape Ltd, ISBN No. unknown.

Coombes, Allen J.: Dictionary of plant names. First published in 1985. This copy 1994. Hamlyn. ISBN No. 0-600-58187-X.

Council of Europe. Plant Preparations used as ingredients of cosmetic products. 1st. edition. Strasbourg 1989. HMSO. ISBN No. 92-871-1689-X.

Culpeper, N: Culpeper's Complete Herbal - a book of natural remedies for ancient ills (originally published in 1653). 1995. Wordsworth Reference Editions Ltd. ISBN No. 1-85326-345-1.

Dispensatory of the United States of America, The: Wood, G. and Bache, F. 15th edition. 1883. J.B.Lippincott & Co.

Dunaev, V.V., Trzhetsinskii, S.D., Tishkin, V.S., Fursa, N.S., Linenko, V.I.: [Biological activity of the sum of the valepotriates isolated from *Valeriana alliariifolia*]. Biologicheskaiia aktivnost' summy valepotriatov, vydelennykh iz valeriany chesnochnikolistnoi. Farmakol Toksikol (1987 Nov-Dec) 50(6):33-7 (Published in Russian).

Gerard, J.: Gerard's Herbal. originally published in 1597. This edition edited Marcus Woodward. Studio editions. First published 1985, this edition 1990. ISBN No. 0-94649-527-0.

Gessner, B., Klasser, M.: [Studies on the effect of Harmonicum Much on sleepusing polygraphic EEG recordings]. Untersuchung der Wirkung von Harmonicum Much auf den Schlaf mit Hilfe polygraphischer EEG-Aufzeichnungen. EEG EMG Z Elektroenzephalogr Verwandte Geb (1984 Mar) 15(1):45-51 (Published in German).

Gordon, L.: A Country Herbal. 1980 Webb and Bower (publishers) Ltd. ISBN No.0-906671-09-4.

Graves, G.: Medicinal Plants - an illustrated guide to more than 180 plants that cure disease and relieve pain. (previously published in 1834 under Hortus Medicus) 1990 (this edition). Bracken Books. ISBN No. 1-85170-350-0.

Hazelhoff, B., Malingre, T.M., Meijer, D.K.: Antispasmodic effects of *valeriana* compounds: an *in-vivo* and *in-vitro* study on the guinea-pig ileum. Arch Int Pharmacodyn Ther (1982 Jun) 257(2):274-87.

Hedrick, U.P. (editor): Sturtevant's Edible Plants of the World. Dover edition. New York. 1972. ISBN No. 0-486-20459-6.

Heinerman, John: Heinerman's Encyclopedia of Fruits, Vegetables and Herbs. Parker Publishing Company, New York. 1988. ISBN No. 0-13-385840-5 (Pbk), ISBN No.0-13-385857-X.

Hendricks, H. *et al.*: Pharmacological screening of valeranal and some other components of essential oil of *Valeriana officinalis*. Planta Med. 1981; 42: 62-8.

Hendricks, H. *et al.*: Central nervous depressant activity of valerenic acid in the mouse. Planta Med. 1985; 51: 28-31.

Hobbs, Christopher: Valerian - the relaxing and sleep herb. Botanica Press, Capitola, CA. 2nd printing 1994. ISBN No. 0-9618470-9-3.

Holy Bible, The. King James VI version

Hooper, M: Herbs and medicinal plants (originally published 1984), 1989 Kingfisher Books ISBN No. 0-86272-484-8.

Houghton, P.J.: The biological activity of Valerian and related plants. *J Ethnopharmacol* (1988 Feb-Mar) 22(2):121-42.

Houghton, P.J.: Valerian. *Pharm. J.* 1994; 253: 95-96.

Howard, M.: *Traditional Folk Remedies, A comprehensive Herbal.* Century paperbacks. 1987. ISBN No. 0-7126-1731-0.

Hutchens, A.R.: *A Handbook of Native American Herbs - the pocket guide to 125 medicinal plants and their uses.* Shambhala. 1992. ISBN No. 0-87773-699-5.

Hutchens, A.R.: *Indian Herbage of North America.* 1973 First paperback edition. Shambhala. ISBN No. 0-87773-639-1.

Jaspersen-Squib, R.: Sédatifs à base de plantes. *Schweiz. Apoth. Ztg.* 1978, 118, 503-8.

Jayaweera, D.M.A.: *Medicinal Plants used in Ceylon Part 5.* National Science Council of Sri Lanka. Colombo 1982.

Keville, K.: *The Illustrated Herb Encyclopaedia - a complete culinary, cosmetic, medicinal and ornamental guide to herbs.* Grange Books. 1991. ISBN No. 1-85627-175-7.

Lanska, Dagmar: *The Illustrated Guide to Edible Plants.* Chancellor Press. 1992. ISBN No. 1-85152-117-8.

Law, D.: *The Concise Herbal Encyclopaedia.* John Bartholomew and Son Ltd. 1973. ISBN No. 0-7028-8091-4.

Leathwood, P.D., Chauffard, F.: Quantifying the effects of mild sedatives. *J Psychiatr Res* (1982-83) 17(2):115-22.

Leathwood, P.D., Chauffard, F., Heck, E., Munoz-Box, R.: Aqueous extract of valerian root (*Valeriana officinalis* L.) improves sleep quality in man. *Pharmacol Biochem Behav* (1982 Jul) 17(1):65-71.

Leathwood, P.D., Chauffard, F.: Aqueous extract of valerian reduces latency to fall asleep in man. *Planta Med.* 1985; 51: 144-8.

Leathwood, P.D. *et al.*: Effect of *Valeriana officinalis* L. on subjective and objective sleep parameters. *Sleep* 1982, 6th Eu. Congress Sleep Res. Zurich 1982. Basel: Karger. 1983, 402-5.

Leung, A.Y.: *Encyclopedia of Common Natural Ingredients used in food, drugs and cosmetics.* John Wiley 1980. First edition. ISBN No. 0-471-04954-9.

Leung, A.Y., and Foster, Steven: *Encyclopedia of Common Natural Ingredients used in food, drugs and cosmetics.* 2nd. edition. John Wiley 1996 ISBN No. 0-471-50826-8.

Leuschner, J., Muller, J., Rudmann, M.: Characterisation of the central nervous depressant activity of a commercially available valerian root extract. *Arzneimittelforschung* (1993 Jun) 43(6):638-41.

Lindahl, O., Lindwall, L.: Double blind study of a valerian preparation. *Pharmacol Biochem Behav* (1989 Apr) 32(4):1065-6.

Mabey, R.: *Food for Free- a guide to the edible wild plants in Britain*. 1972 First edition. Collins. ISBN No. 0-00-211246-9.

Martindale. *The Extra Pharmacopoeia*. 29th. Edition. 1989. The Pharmaceutical Press. ISBN. No.0-85369-210-6.

Martindale: *The Extra Pharmacopoeia*. 22nd edition. 1941. The Pharmaceutical Press. No ISBN number.

Murrison, R.G.: *Pharm J.*, i/1935, 106.

Newall, Carol A., Anderson, Linda A. and Phillipson, J. David: *Herbal Medicines - a guide for health-care professionals*. London. The Pharmaceutical Press. 1996. ISBN No. 0-85369-289-0.

Oshima, Y., Matsuoka, S., Ohizumi, Y.: Antidepressant principles of *Valeriana fauriei* roots. *Chem Pharm Bull (Tokyo)* (1995 Jan) 43(1):169-70.

Phelps Brown, O.: (A reprint of the long-lost classic) *The Complete Herbalist*. 1993. Newcastle Publishing (Van Nuys, California). Originally published 1875. ISBN No.0-87877-184-0.

Potterton, D. (ed): *Culpeper's Colour Herbal*. 1983. W.Foulsham ISBN 0-572-01152-0.

Riedel, E. *et al.*: Inhibition of γ -aminobutyric acid catabolism by valerenic acid derivatives. *Planta Med.* 1982; 48: 219-20.

Sakamoto, T., Mitani, Y., Nakajima, K.: Psychotropic effects of Japanese valerian root extract. *Chem Pharm Bull (Tokyo)* (1992 Mar) 40(3):758-61.

Santos, M.S., Ferreira, F., Cunha, A.P., Carvalho, A.P., Ribeiro, C.F., Macedo, T.,: Synaptosomal GABA release as influenced by valerian root extract-involvement of the GABA carrier. *Arch Int Pharmacodyn Ther* (1994 Mar-Apr) 327(2):220-31

Saunders, Charles Francis: *Edible and Useful Wild Plants of the United States and Canada*. Dover Books. 1976 (first published 1934). ISBN No. 0-486-23310-3.

Schmidt-Voigt, J.: Treatment of nervous sleep disorders and unrest with a sedative of purely vegetable origin. *Therapieworche* 1986; 36: 663-7.

Schulz, H., Stolz, C., Muller, J.: The effect of valerian extract on sleep polygraphy in poor sleepers: a pilot study. *Pharmacopsychiatry* (1994 Jul) 27(4):147-51

Spoerke, D.G.: Herbal Medications. Woodbridge Press (Santa Barbara, California 93160). 1990. ISBN No. 0-88007-181-8.

Tyler, V.E., Brady L.R., Robbers, J.E.: Pharmacognosy. 9th edition. Lea & Febiger. 1988. ISBN No. 0-8121-1071-4.

Veith, J. *et al.*: The influence of some degradation products of valepotriates on the motor activity of light-dark synchronised mice. *Planta Med.* 1986; 52: 179-83.

Wagner, H. *et al.*: Comparative studies on the sedative action of *Valeriana* extracts, valepotriates and their degradation products. *Planta Med.* 1980; 42: 358-65.

Weiss, R.F.: Herbal Medicine. (translated from the 6th. German edition of *Lehrbuch der Phytotherapie* by A.R.Meuss). The Bath Press 1986. ISBN 0-906584-19-1.

Yang, G.Y., Wang, W.: [Clinical studies on the treatment of coronary heart disease with *Valeriana officinalis* var *latifolia*]. *Chung Kuo Chung Hsi I Chieh Ho Tsa Chih* (1994 Sep) 14(9):540-2 (Published in Chinese).

VALERIAN

MEDICINAL AND AROMATIC PLANTS INDUSTRIAL PROFILE

Edited by Dr. Peter Houghton
KING'S COLLEGE LONDON

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CHAPTER 2

A LISTING OF THE VALERIANACEAE FAMILY

Valeriana officinalis and related species

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18th. May 1996

SPECIES AND COMMON NAMES

The number of species of valerian is fairly large, the following list is a large cross-section of the species and common names where applicable:-

Centranthus macrosiphon Boiss.

Long-spurred Valerian

Centranthus ruber (L.) DC. = *Valeriana ruber*

English: Red Valerian, Jupiter's Beard, Fox's Brush

Welsh: Triaglog Coch

Fedia cornucopiae Gaertn.

English: Horn-of-Plenty, Valerian

Nardostachys jatamansi DC. Mem. = *Nardostachys grandiflora* DC.

= *Patrinia jatamansi* Don,

= *Valeriana jatamansi* Wall.,

= *Fedia grandiflora* Wall.

English: Spikenard

Sinhalese: Jatamansa

Tamil: Jatamashi

Hindi: Balchhar, Balchir, Baluchar, Jatalasi, Jatamansi, Kanuchara

Sanskrit: Akashamansi, Amritajata, Bhutajata, Bhutakeshi, Chakravartini, Gandhamansi, Gauri, Hinsra, Jadamansi, Janani, Jatala, Jatamansi, Jatavali, Jati, Jatila, Keshi, Khasambhava, Kiratini, Kravjadi, Krishnajata, Laghumansi, Limasha, Mansi, Mansini, Mata, Mishika, Misi, Mrigabhaksha, Nalada, Nirlamba, Parvatavasini, Peshi, Peshini, Pishachi, Pishita, Putena, Sevali, Shvetakeshi, Sukshmajatamansi, Sukshmapatri, Tamasi, Tapasvini, Vahnini.

Patrinia scabiosaefolia Fisch

Patrinia scabiosaefolia Link

Valeriana acutiloba = *Valeriana dioica*
Tobaccoroot, Wild heliotrope.

Valeriana adscendens Turcz.

Valeriana agrimonifolia Killip

Valeriana alliariifolia Adams

Valeriana alternifolia Ledeb = *Valeriana officinalis* L.

Valeriana amphiphis Graebn.

Valeriana amurensis P. Smirn. ex Kom.

Valeriana angustifolia
Japanese Valerian, Kesso

Valeriana arizonica

Valeriana armeriifolia Schldl. = *Valeriana coarctata* Ruiz & Pav.

Valeriana aschersoniana Graebner ex Weberbauer
= *Aretiastrum aschersonianum* Graebn.

Valeriana asplenifolia Killip

Valeriana baltana Graebn.

Valeriana bambusicaulis Killip

Valeriana candolleana Gardner

Valeriana capitata

Valeriana celtica = *Nardus celtica*
Celtic Nard

Valeriana cephalantha Schlecht.

Valeriana chaerophylla Pers.

Valeriana chaerophylloides Sm.

Valeriana clematitidis Kunth

Valeriana clematoides Graebn.

Valeriana coarctata Ruiz & Pav.

Valeriana coccinea = *Cetranthus ruber*

Valeriana comosa Eriksen

Valeriana condamoana Graebn.

Valeriana connata Ruiz & Pav.

Valeriana connata var. *nutans* Graebn.

Valeriana convallarioides (Schmale) B.B. Larsen

Valeriana convallarioides (Schmale) B.B. Larsen = *Phyllactis convallarioides* Schmale

Valeriana coreana Briq.

Valeriana cornucopiae Linn.

African Valerian

Valeriana costata Schmale

Valeriana crassipes (Wedd.) Hoeck

Valeriana cumbemayensis Eriksen

Valeriana decussata Ruiz & Pav.

Valeriana dioica L. = *Valeriana acutiloba*

Marsh Valerian, Tobaccoroot, Wild Heliotrope

Valeriana dioscorides = *Valeriana phu*

Phu

Valeriana dipsacoides Graebn.

Valeriana edulis Nutt. ex. Torr. & Gray = *Valeriana mexicana*

Tobacco Root

Valeriana edulis Nutt, ssp *procera* Meyer

Mexican valerian, Tobacco Root

Valeriana elatior Graebn.

Valeriana erysimoides Poepp. & Endl.

Valeriana exalta [diploid]

Valeriana exaltata Mikan

Valeriana excelsa Poiret = *Valeriana officinalis* [2n=56]

Valeriana exscapa Griseb.

Valeriana fauriei

English: Japanese Valerian, Kisso

Japanese: Kanokosou, Kissoukon

Valeriana friasana Schmale

Valeriana globifera Pers. = *Valeriana globiflora* Ruiz & Pav.

Valeriana globiflora Ruiz & Pav. = *Valeriana globiflora* Pers.

Valeriana globularioides Graebn.

Valeriana globularis A. Gray = *Valeriana globularis* Graebn.

Valeriana grisiana Wedd. = *Valeriana grisiana* Killip

Valeriana hadros Graebn.

Valeriana hardwickii Wall.

Valeriana herrerae Killip

Valeriana hirsutissima Killip = *Valeriana macbridei* Killip

Valeriana hirtella Kunth

Valeriana hispida (Wedd.) Hoeck hom. illeg. = *Valeriana niphobia* Briq.

Valeriana hortensis

Valeriana humboldtii Hook. & Arn. = *Valeriana humboldtii* Briq.
= *Valeriana humboldtii* Willd. ex Steud.

Valeriana hyalinorhiza Ruiz & Pav. = *V. mathewsii*?

Valeriana illyrica

Valeriana imbricata Killip = *Aretiastrum imbricatum* (Killip) Killip

Valeriana interrupta Ruiz & Pav.

Valeriana interrupta Ruiz & Pav. var. *interrupta*
= *Valeriana interrupta interrupta* (Ruiz & Pav.) Dufresne
= *Valeriana interrupta interrupta* Graebn.
= *Valeriana interrupta* var. *interrupta* Ball

Valeriana interrupta var. *elatior* (Graebn.) Killip = *Valeriana interrupta elatior* Graebn.,
= *Valeriana interrupta elatior* Graebn.

Valeriana interrupta var. *minor* Ball = *Valeriana interrupta* Ruiz & Pav. var. *interrupta*

Valeriana isoetifolia Killip

Valeriana italica

Phu, Gallic Nard

Valeriana jasminoides Briq.

Valeriana jatamansii Jones = *Valeriana wallichii* DC

Indian Valerian

Valeriana jatamensi

Nard, Spikenard, Sunbul, Syrian Nard, Indian Nard

Valeriana kilimandascharia

Valeriana laciniata Ruiz & Pav. = *Astrephia chaerophylloides* (Sm.) DC.

Valeriana laevigata Willd. ex Steud. = *Valeriana humboldtii* Hook. & Arn.

Valeriana ledoides Graebn.

Valeriana linearifolia Killip = *Valeriana grisiana* Wedd.

Valeriana locusta

Common Corn Salad, Lamb's Lettuce

Valeriana longifolia Kunth

Valeriana longifolia var. *pilosa* (Ruiz & Pav.) Wedd. = *Valeriana pilosa* Ruiz & Pav.

Valeriana lyrata M. Vahl = *Valeriana lyrata* Ball
= *Valeriana lyrata* Graebn.

Valeriana macbridei Killip = *Valeriana macbridei* Killip

Valeriana malvacea Graebn.

Valeriana mathewsii Briq. = *Valeriana humboldtii* Hook. & Arn.

Valeriana maxima Killip = *Valeriana dipsacoides* Graebn.

Valeriana melanocarpa Killip = *Valeriana decussata* Ruiz & Pav.

Valeriana merxmulleri Seitz

Valeriana mexicana De Candolle = *Centranthus ruber*

Mey. = *Valeriana* ²⁶ *sorbifolia* H.B.K. var. *mexicana* (DC) F.G.

Valeriana microphylla Kunth = *Valeriana microphylla* Graebn.

Valeriana micropterina Wedd.

Valeriana montana

Valeriana nigricans Graebn.

Valeriana niphobia Briq. = *Valeriana niphobia* (Wedd.) Graebn.
= *Valeriana niphobia* (Wedd.) Hoeck

Valeriana nitida Kreyer [tetraploid]

Valeriana nivalis Wedd.

Valeriana oblongifolia Ruiz & Pav.

Valeriana obovata

Valeriana occidentalis

Valeriana officinalis Willd.

Common Valerian, All-heal, Garden Heliotrope (wrongly), Great Wild Valerian, Official Valerian, Wild Valerian, Setwell, Capon's Tail, Valerian, St. George's Herb, Setwall, Valeriana, Theriacaria, Amantilla, Herba Benedicta,

Valeriana officinalis Linné [2n=28]

English: Valerian

French: Valériane

German: Baldrian, Katzenwurz, Balderbrackenwurz, Baldrianwurz (wurzel=root)

Italian: Valeriana

Spanish: Valeriana

Dutch: Valeriaan

Welsh: Llysiau Cadwgan

All heal, Amantilla, Belgian valerian, Cat's love, Cat's valerian, Common valerian, Fragrant valerian, Garden heliotrope, Garden Valerian, Great wild valerian, Ka-no-ko-so, Kesso root, Kissokon, Kuanyexiccao, Luj, Nard, Ntiv, Racine de Valeriane St. George herb, Setwall, txham laaj, Valerian fragrant, Great wild valerian, Valeriana extranjera, Valeriana, Valeriane, and Vandal root, Waliryana, Wild valerian.

Valeriana officinalis L. subsp. *collina* Wallr. Nyman

Valeriana officinalis L. subsp. *sambucifolia* (Mik.f.) Celak,

Valeriana officinalis var. *latifolia* = *Valeriana angustifolia*

Valeriana officinalis var. *Mikanii*, Syme.

English Valerian, Common valerian, Belgian Valerian, All Heal, Fragrant Valerian, Garden Valerian

Valeriana oligodonta Killip = *Valeriana plectritoides* var. *plectritoides* Graebn.

Valeriana oxyrioides Graebn. = *Valeriana lyrata* M. Vahl

Valeriana pauciflora

Valeriana paniculata Ruiz & Pav.

Valeriana pardoana Graebn.

Valeriana parvula Killip

Valeriana pavonii Poepp. & Endl.

Valeriana pedicularioides Graebn. = *Valeriana interrupta* Ruiz & Pav. var. *interrupta*

Valeriana pennellii Killip

Valeriana phu

Valeriana pilosa Ruiz & Pav. = *Valeriana pilosa* (Ruiz & Pav.) Wedd.

Valeriana pimpinelloides Graebn. = *Valeriana interrupta* var. *elatior* (Graebn.) Killip

Valeriana pinnatifida Ruiz & Pav.

Valeriana plectritoides Graebn.

Valeriana plectritoides var. *pallida* Graebn.

Valeriana plectritoides var. *plectritoides* Graebn.

= *Valeriana plectritoides plectritoides* Killip

Valeriana pratensis

Valeriana prionophylla

Valeriana procurrens Wallr. [octaploid]

Valeriana pulchella

Valeriana punctata F. Meyer

Valeriana pycnantha A. Gray

Valeriana pygmaea Graebn. = *Valeriana globularis* A. Gray

Valeriana pyrenaica L.

Pyrenean Valerian

Valeriana quadrangularis Kunth

Valeriana radicata Graebn.

Valeriana remota Ball = *Valeriana lyrata* M. Vahl

Valeriana renifolia Killip

Valeriana repens Host. = *Valeriana procurrens* Wallr.

Valeriana rhizantha A. Gray = *Stangea rhizantha* (A. Gray) Killip

Valeriana rigida Ruiz & Pav. = *Phyllactis rigida* (Ruiz & Pav.) Pers.

Valeriana romanana Graebn. = *Valeriana condamoana* Graebn.

Valeriana rufescens Killip

Valeriana rumicoides Wedd.

Valeriana salina Pleigel

Valeriana sambucifolia

Valeriana saxatalis

Valeriana scandens L.

Valeriana serrata Ruiz & Pav.

Valeriana sitchensis

Valeriana sitchensis sp. *scouleri*

Pacific Valerian

Valeriana sorbifolia H.B.K. var. *mexicana* (DC) F.G. Mey.

Valeriana spathulata Ruiz & Pav. = *Belonanthus spathulatus* (Ruiz Lopez & Pavon)

Schmale

Valeriana sphaerocephala Graebn.

Valeriana spicata

Valeriana stolonifera Czern.

Valeriana stubendorfi Kreyer ex Kom.

Valeriana supina

Valeriana sylvatica

Valeriana sylvestris Grosch. = *Valeriana officinalis* L.

Valeriana tenuifolia Ruiz & Pav. = *Phyllactis tenuifolia* (Ruiz & Pav.) Pers.

Valeriana tessendorffiana Graebn.

Valeriana thalictroides Graebn.

Valeriana tiliifolia Troitzky

Valeriana tomentosa Kunth

Valeriana trichomanes Graebn.

Valeriana tripteris L.

Three-leaved valerian

Valeriana tuberosa = *Nardus montana*
Valeriane

Valeriana urticifolia Kunth

Valeriana variabilis Graebn.

Valeriana verrucosa Schmale

Valeriana versifolia Brügger

Valeriana virgata Ruiz & Pav.

Valeriana wallichii DC = *Valeriana villosa* Wall.
= *Valeriana jatamansi* Jones.
= *Valeriana spica* Vahl.]

English: Indian Valerian.

Ayurveda: Tagar

Sinhalese: Kattakumanjal, Thuwarda

Sanskrit: Barhena, Chakra, Danda, Dandahasta, Dipana, Hasti, Jimha, Kalanusakara, Kalanusariva, Kalanusarya, Kshatra, Kunchina, Kutil, Laghusha, Mahoraga, Nahushakhya, Nata, Padika, Parthiva, Pindatagara, Rajaharshana, Shatha, Tagara, Vakra, Vinamra.

Valeriana warburgii Graebn.

Valeriana weberbaueri Graebn.

Valerianella carinata Loisel

Keeled-fruited Corn Salad

Valerianella coronata DC.

Valerianella dentata (L.) Pollich. = *V. morisonii*

Narrow-fruited Corn Salad

Valerianella eriocarpa Desv.

Hairy-fruited Corn Salad, Italian Corn Salad

Valerianella locusta L. Lattarade

Common Corn Salad, Lamb's Lettuce

Valerianella olitoria Pollich

Lamb's Lettuce or Corn Salad

Valerianella ramosa Bast. = *V. auricula*

Broad-fruited Corn Salad

PLANTS CONFUSED WITH VALERIAN

As with all plants that share common names, there is always the possibility that people will become confused and use the incorrect plant, trusting in the country name alone. The following list is a compilation of the most commonly reported errors and mistakes.

Cypripedium pubescens Willd.

American Valerian, Ladies' Slipper

Cypripedium acaule Ait. (Orchidaceae)

American Valerian, Pink Lady's Slipper

Cypripedium calceolus var. *pubescens* Correll

American Valerian

Heliotropium arborescens

Garden Heliotrope

Polemonium coeruleum

Greek Valerian, Jacob's Ladder

Polemonium reptans L.

Greek Valerian, Jacob's Ladder

Senecio aureus

Life Roots, False Valerian