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An overview of recent studies carried out on the species *Valeriana officinalis* L.

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Abstract

Valeriana officinalis L. is one of the medicinal plants of particular importance in traditional medicine being used as sedative, anxiolytic and tranquilizer since ancient times and after recent studies has been reported to be useful as antispasmodic, antiulcer or myorelaxant. Using parts of the plant in infusions, as powder, tincture, or essential oil it has been proven useful for treating respiratory tract diseases, nervous system disorders, dysmenorrhea, sleep disorders, for improvement of hyperactivity, concentration difficulties and impulsivity in children and also the activity on the cardiovascular system.

Introduction

Valeriana officinalis L. is one of the medicinal plants of particular importance in traditional medicine, having been used since ancient times. What confirms its long-standing use among the people are the popular names that people have given to the plant over the years. Valerian is known as 'cat's love', 'pigeon's claw', 'setwall' or 'all-heal' (Constantinescu & Hațieganu-Buruiană 1968, Muntean et al. 2007, Stănescu et al. 2014, Dittus-Bar 2016).

The best-known actions of *Valeriana officinalis* L. are sedative, anxiolytic and tranquilizing, and it is often used to induce sleep or in anxious states. However, as the species has been increasingly used, people have noticed that it has beneficial effects in reducing spasms, acting as an antispasmodic to smooth muscles, lowering blood pressure and regulating arrhythmias, but also acts as an analgesic in pain of various intensities (Constantinescu et al. 2004, Muntean et al. 2007, Stănescu et al. 2014). The diversity of actions that *Valeriana officinalis* L. has led to the study in more detail the effects it has on the whole body.

In this study we have described notions related to the taxonomic classification of the species *Valeriana officinalis* L., botanical description, range, chemical composition, and therapeutic actions it exerts. At the same time, we looked for folk recipes in which *Valeriana officinalis* L. was used in the past to treat or relieve various ailments, as well as folk myths that were related to it.

Taxonomic classification of the species *Valeriana officinalis* L.

Regn: Plantae

Encrust: Magnoliophyta

Class: Magnoliatae/Magnoliopsida

Subclass: Asteridae

Order: Dipsacales

Family: Valerianaceae

Genus: *Valeriana*

Species: *Valeriana officinalis* L.

Ethnobotany

Valeriana officinalis L. is a medicinal herb that has been widely used since ancient times. Its name comes from the Latin 'valere' meaning 'to be strong' or 'to be healthy' and from the word 'officinalis' meaning 'pharmaceutical'. Therefore, from the name of the plant it is inferred that it has certain therapeutic properties (Mocanu & Răducanu 1989, Muntean et al. 2007).

Popularly, valerian is called 'cat's love', 'pigeon's claw', 'setwall' or 'all-heal'. The name 'cat's love' 'catnip' comes from the fact that the smell emanating from valerian, due to actinidin, acts as a pheromone for cats (Constantinescu & Hațieganu-Buruiană 1968, Muntean et al. 2007, Stănescu et al. 2014, Dittus-Bar 2016).

As early as the 5th century BC. *Valeriana officinalis* L. is mentioned in books and writings related to healing cures, it was mentioned in folk songs and moreover, various myths were created around the plant according to which it was effective for repelling devils and witches (Borza et al. 1968, Dittus-Bar 2016).

In ancient times, the Greeks and Romans used the plant for its diuretic and antispasmodic effects. Also, Dioscorides, who was a physician, pharmacologist, and botanist, recommended the use of *Valeriana officinalis* L. for the treatment of several conditions, such as heart rhythm disorders, digestive diseases, urinary tract infections, as well as epilepsy or insomnia. Also, during this period, the natives of Peru used valerian hydroalcoholic extract as an analgesic for rheumatic pain (Constantinescu et al. 2004, Muntean et al. 2007, Stănescu et al. 2014).

In the Middle Ages, valerian oil was used as a room or clothes freshener. People in Germany at that time chewed valerian roots because they believed that this prevented plague epidemics (Stănescu et al. 2014).

Over time, *Valeriana officinalis* L. has been used as an extract, decoction, infusion, or powder to treat a variety of conditions including gastric neuroses, cardiac neuroses, hypertension, menstrual disorders, intestinal symptoms that are now attributed to irritable bowel, as well as nervous system

disorders including anxiety, childhood behavioral problems and learning disabilities (Stănescu et al. 2014).

Although it was widely known and used for various ailments, valerian was only attributed to its sedative action on the central nervous system in the 18th century (Muntean et al. 2007).

During World War I, valerian was used to prevent and treat mental shock in troops on the front line. During World War II, the herb was administered to calm civilians exposed to air raids (Stănescu et al. 2014).

Today, *Valeriana officinalis* L. is mainly used for its antispasmodic and central sedative actions (Muntean et al. 2007).

Botanical description of *Valeriana officinalis* L.

Valeriana officinalis L. is a perennial, herbaceous, perennial plant. In the wild flora it is widespread on the edge of forests, rivers, in bushes, meadows, ditches, generally found in damp and shady places, both on the plains and in mountainous regions. It is generally found in forest- steppe areas up to the oak and beech stands (Prodan 1939, Săvulescu et al. 1961, Beldie 1979, Muntean et al. 2007, Scarlat & Tohaneanu 2009).

Valeriana officinalis L. has a short, upright, trochoidal rhizome from which numerous roots shoot out in rosettes. Both rhizome and roots are greyish brown in color with a characteristic odour. The stem is erect, can reach heights of up to 200 cm, has longitudinal stripes, is unbranched, has underground stolons at the base. The leaves are oppositely arranged on the stem, are oddly composed, with 5-11 pairs lanceolate lacinia, the basal ones have pericycles and are petiolate, and the middle and upper ones are glabrous and almost sessile. The flowers are clustered in small inflorescences, range in colour from white to purple, and bloom in May- September. The fruit is an alchen, has one vein in the anterior part and three veins in the posterior (Săvulescu et al. 1961, Constantinescu & Hațieganu-Buruiană 1968, Crăciun et al. 1977, Temelie 2006, Milică et al. 2012).

Distribution

Valeriana officinalis L. is one of the wild medicinal plant species found in Europe, reaching up to 2,400 m altitude in the Alps, the Caucasus Mountains, Asia Minor, southern Serbia, as well as in the United States in the South American Andes.

In our country, valerian is mainly found in hilly and mountainous areas. In Sălaj county, it is found spontaneously in Chieşd, Măgura Şimleului, at the edge of the oak-maple mixture, in Zalău (Sărmaş district), Crasna (near Vîrşolţ lake), Mirşid, as well as in the town of Jibou, at the Botanical Garden "Vasile Fatî".

Requirements for this plant are increasing, which is why the raw material for valerian comes almost exclusively from cultivation. The Timis Plain, the Crişurilor Plain (Bihor County), the Someş Plateau (Maramureş county), the Transylvanian Plateau (Maramureş county) and the Transylvanian Plain (Bihor County) are very suitable for growing valerian. Cluj, Alba, Mureş, Braşov, as well as marginal depressions (Harghita, Covasna, Bistriţa Năsăud counties), but it is also possible to cultivate it in the Plain of Moldavia and eastern Subcarpathians (Suceava and Neamţ counties) (Crăciun et al. 1977, Mocanu & Răducanu 1989, Muntean et al. 2007, Temelie 2006, Negrean et al. 2017).

Macroscopic and microscopic study of *Valeriana officinalis* L.

For the macroscopic and microscopic study of *Valeriana officinalis* L. were used plants collected from the Centre for Biological Research "Vasile Fatî" Botanical Garden - Jibou, Sălaj County, in 2020. In 2021, the Centre for Biological Research became part of Babeş-Bolyai University Cluj-Napoca.

A specimen of the plant *Valeriana officinalis* L. was pressed and is kept in the herbarium of the Department of Pharmacy, Faculty of Medicine and Pharmacy in Oradea, registered under number UOP 05367.

Rhizome

The rhizome of *Valeriana officinalis* L. is upright, short, cylindrical, truncated cone-shaped (Fig. 1), 2-4 cm long and 1-3 cm thick. The color of the rhizome varies from yellow brown to greyish brown on the outside and white on the inside, as can be seen in Fig. 3. It has a bitter-sour taste and a characteristic ethereal oil smell which intensifies after drying. Short underground stolons develop from the rhizome, as well as numerous adventitious rootstocks, about 70, from which later roots of 2nd and 3rd order develop, giving the root system a very bushy appearance, as in Fig. 2. Leaf scars can be seen on the surface of the rhizome (Macovski 1949, Crăciun et al. 1977, Constantinescu et al. 2004, Muntean et al. 2007, Scarlat & Tohaneanu 2009, Pallag 2015).



Figure 1. Rhizome, truncated cone shape.



Figure 2. The bushy appearance of the rhizome.



Figure 3. Interior of the rhizome.

Root

The roots start from the rhizome, are numerous, fleshy, fascicular, and their color is like the rhizome (Temelie 2006, Rădulescu & Matei 2011). Fig. 4 shows the rhizome and roots at three stages of development.



Figure 4. Rhizome and roots at three stages of development.

Stem

The Stem appears most frequently from the second year of vegetation, in summer. At the base, underground stolons can be identified, as well as short peristyles. The stem is aerial, erect, cylindrical, with longitudinal striations all over the surface, which can be seen in Fig. 5. The upper part is glabrous and branched. On the inside it is hollow. The stem height can reach between 25 cm and 150 cm, sometimes reaching heights of up to 200 cm (Săvulescu et al. 1961, Crăciun et al. 1977, Constantinescu 1978, Mocanu & Răducanu 1989, Carabulea 2007, Muntean et al. 2007, Scarlat & Tohaneanu 2009, Pallag 2015).



Figure 5. Longitudinal striations on the stem.

Leaf

The leaves are arranged opposite each other on the stem, the base of the leaf half encircling the stem (Fig. 6). The length of the leaf ranges from 5 cm to 25 cm and their width varies between 0.5 cm and 1.5 cm. The leaves are also

odd pinnate sected with 5-11 pairs of oval-lanceolate lacinia, which may be entire or toothed on the margins. The basal leaves are petiolate, and the petioles descend from the base to the upper part. The middle and upper leaves have increasingly shorter petioles until they become sessile, with small, conglomerate laciniae at the base. Pilosity is present at the base and on the back of the leaf, where it is accentuated, and on the outside the peristyles are short. The middle and upper leaves are glabrous, Fig. 6 (Prodan 1939, Săvulescu et al. 1961, Constantinescu & Hațieganu-Buruiană 1968, Crăciun et al. 1977, Mocanu & Răducanu 1989, Scarlat & Tohaneanu 2009, Crișan 2014).



Figure 6. Position of leaves on the stem.

Flower

The flowers are small, their color can vary from pink, pinkish purple to white, they have a pleasant vanilla scent and are grouped in dense terminal inflorescences. The number of flowers found in inflorescences varies from species to species, and in *Valeriana officinalis* L. there are between 512-782

flowers in each inflorescence. The flowers have an asymmetric structure, are on type 5 with united component elements, and are a umbelliform, trifurcate dicesium. The corolla is between 3 mm and 7 mm long, 5-lobed at the top and basilarly glabrous. The androecium consists of 3 stamens, which exceed the length of the corolla, and the gynoecium is tricarpeal with a trilobed stigma. The plant flowers from May to September (Săvulescu et al. 1961, Constantinescu & Hațieganu-Buruiană 1968, Crăciun et al. 1977, Mocanu & Răducanu 1989, Muntean et al. 2007, Cullen et al. 2011).

Fruit

The fruit is in the form of ovoid achenes, about 2-4 mm long, elongated, pointed, slightly compressed, with one vein on the front and 3 veins on the back, hairless or with a small crown of bristles and yellow brown in color (Borza et al. 1968, Săvulescu et al. 1961, Crăciun et al. 1977, Mocanu & Răducanu 1989, Muntean et al. 2007).

Microscopic study of *Valeriana officinalis* L.

Root and rhizome

The transverse section of the rhizome of *Valeriana officinalis* L. has a periderm on the outside, under which there is a hypoderm consisting of several cell layers, some containing drops of volatile oil. The cortical parenchyma is rich in cells containing numerous starch granules, in the form of granules 3-10 µm in diameter, but can reach diameters of up to 20 µm. The central parenchyma terminates in the endoderm, beneath which is located the central cylinder. The latter contains collateral free-woody bundles joined by a cambium, in the center of which lies the pith. In old rhizomes the pith reabsorbs form a gap. Also, both endoderm and pith contain stone cells (Nemeth et al. 1998, Farmacopeea Română 2004, Nisteanu & Calalb 2016).

The root has, in cross-section on the outside, an epidermis on which there are absorbent hairs, this constituting the piliferous layer. Beneath this is a

hypodermis consisting of about 2-3 cell layers, some of which are suberified and contain volatile oil droplets. After this cell layer, there follows a cortical parenchyma containing the endodermis. The central cylinder is formed by libereneous fascicles as well as woody fascicles, being arranged alternately or with a secondary structure beginning (Nemeth et al. 1998, Farmacopeea Română 2004, Nisteanu & Calalb 2016).



Figure 8. Cross section through the root



Figure 9. Central cylinder.

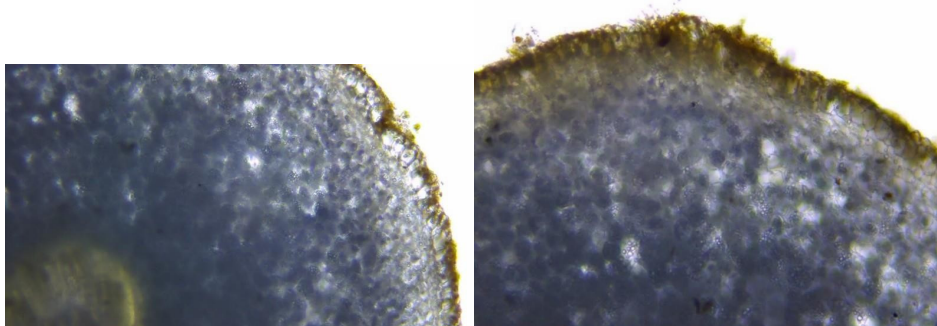


Figure 10-11. Cross-section through the root *Valeriana officinalis* L.

A cross-section was made through the root of the studied plant, above the area with absorbed peristomes. From the outside to the inside, the exodermis is the first layer of defense tissue, underneath which is the bark itself, made up of numerous layers of parenchyma cells, with the role of accumulating reserve substances (Figs 10 – 11). The last layer of the crust is the endodermis. The central cylinder contains the conducting fascicles, the woody fascicles alternating with the free-standing fascicles (Fig. 8). The woody fascicles are larger in diameter than the free-standing fascicles, represented by the proto- and metaphloem. In the middle of the central cylinder is the pith (Fig. 9).

Stem

The epidermis is the unstratified defensive tissue made up of small, tightly packed cells. When observed under the optical microscope in cross-section, the outer walls of the cells that come into contact with the external environment are thickened, cutinized, to fulfill the defense function.

Underneath the single-stratified epidermis there is the multilayered crust. The first region of the bark, the first layers of cells form the assimilatory parenchyma. The bark is continued by the central cylinder, which is well represented in the species studied, comprising a well-developed medullary parenchyma, free-lignoid conducting vessels and medullary rays. Figures 12, 13, 14 represent sections of the stem as seen under the microscope.



Figure 12. Cross-section through the stem.



Figure 13. Cross-section through stem.



Figure 14. Cross-section through stem.

Leaf

In cross-section (Fig. 16), the two single-stratified epidermis, upper and lower, can be seen through the leaf. The epidermis has tector hairs (Fig. 17) and stomata (Fig. 15). Under the upper epidermis, the palisading assimilatory tissue is observed, consisting of three layers, made up of elongated cells, perpendicular to the epidermis, closely united, in which many chloroplasts accumulate. Below the lower epidermis, the lacunar assimilatory tissue is observed, composed of rounded, parenchymatous cells between which large intercellular spaces are observed (Figs. 18, 19).

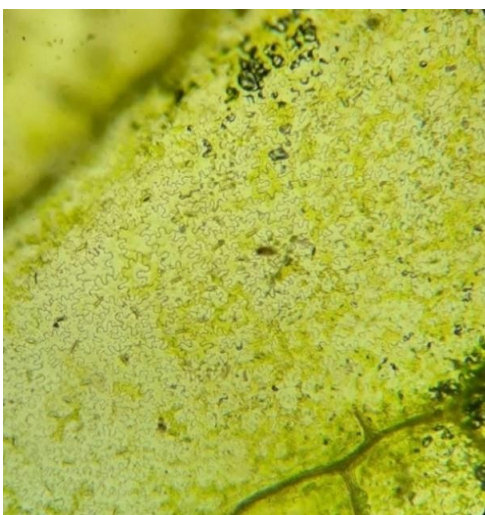


Figure 15. Leaf section obtained by skinning.

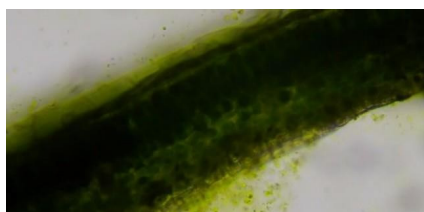


Figure 16. Leaf cross-section

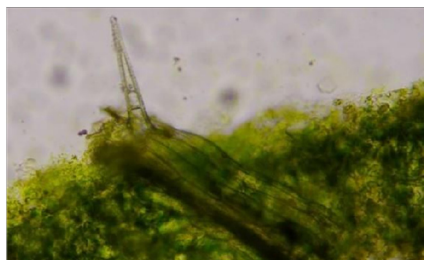


Figure 17. Protective hair

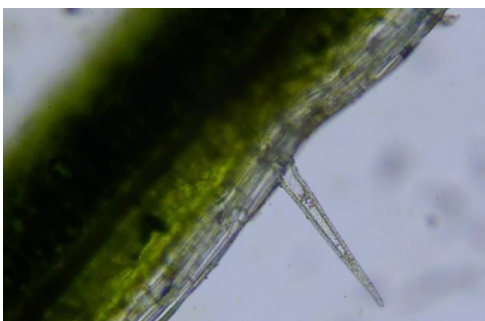


Figure 18. Leaf cross-section, rear view.



Figure 19. Leaf cross-section, rear view.

Chemical composition and therapeutic actions of *Valeriana officinalis* L.

The medicinal plant product used in therapy is the underground parts of the species *Valeriana officinalis* L., consisting of roots and rhizomes (Fig. 20) and is called *Valerianae rhizoma cum radicibus* or *Valerianae rhizoma et radicibus*. The rhizomes together with the roots are harvested in the second year of vegetation, late autumn, after the aerial parts have yellowed, because at that time of the year the concentration of the active principles is higher (Leibold 1993, Constantinescu et al. 2004, Muntean et al. 2007, Milică et al. 2012).



Figure 20. *Valerianae rhizoma cum radicibus*

In the Romanian Pharmacopoeia, 10th Edition, *Valerianae rhizoma cum radicibus* is listed and represents the root and rhizome of the species *Valeriana officinalis* L., dried after being harvested at a temperature of not more than 40°C, containing at least 25% soluble substances and at least 0.3% V/m volatile oil (Farmacopeea Română 2004). Also found in the Romanian Pharmacopoeia is the soft extract of valerian, *Extractum valerianae spissum*, as well as valerian tincture, *Tinctura Valerianae* (Farmacopeea Română 2004).

The soft extract of the species *Valeriana officinalis* L. is called *Extractum valerianae spissum* and is prepared by percolation, according to the provisions of the monograph 'Extracta' of the Romanian Pharmacopoeia, 10th

Edition, from 100 g *Valerianae rhizoma cum radicibus* and diluted alcohol as needed. A soft, dark-brown extract is obtained which will have a characteristic odor and bitter taste. If mixed 1:10 with water, a cloudy solution is obtained, with an acid reaction to blue litmus paper (Farmacopeea Română 2004).

Tinctura Valerianae must comply with the provisions contained in the monograph "Tincturae" of the Romanian Pharmacopoeia, 10th edition. For the preparation 20 g *Valerianae rhizoma cum radicibus* and diluted alcohol, as needed, are used to obtain 100 g of tincture. The tincture is prepared by percolation in accordance with the provisions of the monograph 'Tincturae'. The tincture obtained is a clear, reddish-brown liquid with a characteristic odour and taste and a weak acid reaction (Farmacopeea Română 2004).

Chemical composition

Volatile oil

Although the whole plant contains volatile oil, it is found in a higher concentration in the underground parts, in the rhizome and roots, the concentration of volatile oil varies between 0.5% and 2%. Thus, between 0.05% and 0.22% volatile oil is found in the fresh rhizome, while a higher concentration of between 0.2% and 2.42% volatile oil is found in the dry rhizome (Muntean et al. 2007, Chen et al. 2015).

Using GC-MS, 150 compounds were detected in the volatile oil of the plant *Valeriana officinalis* L., most of which are monoterpenes and sesquiterpenes (Stănescu et al. 2014, Chen et al. 2015). Among the monoterpenes, camphene, pinene derivatives, borneol and its acetate, formate and isovalerate esters are identified (Stănescu et al. 2014). The identified sesquiterpenes are valerianic acid, which is present in 0.1-0.9%, acetoxivalerianic acid, hydroxivalerianic acid, valerenal, valeron, cryptofurinol, valerianol, bisabolene, caryophyllene and ledol (Muntean et al. 2007, Scarlat & Tohaneanu 2009, Stănescu et al. 2014).

Since the volatile oil content is quite small, many researchers have analyzed its composition in detail (Chen et al. 2015). Between 1987-2011, by using GC-MS it was found that 1% of the active ingredients is represented by the volatile oil, and bornyl acetate was found in 20%-60% of the total amount of volatile oil. Some researchers (Chen et al. 2015) identified by GC-MS combined chromatography 34 components of the volatile oil, representing 91.75% of the total constituents. According to Chen et al. (2015), where the components with the highest concentration identified in the volatile oil are represented, the highest concentration of the total compounds is represented by bornyl acetate 23.93%, followed by nootkatone 14.79% and 6-isopropyl-1-methyl bicyclohexane 14.19%. In addition to these components found in the volatile oil, valerenic acid in a proportion of approximately 0.9%, valerenal, hydroxyvalent valerenic acid and acetoxyvalent valerenic acid have also been identified (Muntean et al. 2007, Scarlat & Tohaneanu 2009, Stănescu et al. 2014).

Another study aimed to analyze the volatile oil components found in the cultivated *Valeriana officinalis* L. plant. In this study, 6 main compounds were also identified by GC-MS combined chromatography method, these were bornyl acetate 60.19%, acetic acid enol ester 3.87%, α -terpinyl acetate 1.55%, acetylkarene 1.68%, α -selinene 26.07% and (Z, E)- α -farnesene 1.56%, all of them representing 94.92% of the total content (Chen et al. 2015).

Iridoids

The main iridoids identified in the rhizome of *Valeriana officinalis* L. are represented by valepotriates, which are found in a proportion of 0.5-9.0% (Chen et al. 2015). Valepotriates, encountered as epoxy-iridoid esters, are lipophilic compounds, esters of some triols, being derived from iridan, 8-10 epoxyates, which are divided into two categories: dienes and monoenes (Constantinescu et al. 2004, Scarlat & Tohaneanu 2009, Stănescu et al. 2014).

In the root of the species *Valeriana officinalis* L. valepotriates have been identified as dienes, and the compounds in the highest quantity are valtrate, isovaltrate, acevaltrate and homovaltrate. Valepotriates have also been

identified as monoenes, with didrovaltrate and iso-valerylhydroxyhydrovaltrate being identified in the highest amount (Stănescu et al. 2014, Chen et al. 2015).

During drying and storage of the medicinal plant product, isovaleric and hydroxy-isovaleric acids are obtained by the hydrolysis of valepotriates, which, together with bornyl isovalerate, give the characteristic odor of the rhizome of *Valeriana officinalis* L. (Stănescu et al. 2014).

Lignans

Recent studies have identified lignans as 7,9-monoepoxy-lignin and a glycoside or a bis-epoxy lignin. Britta Schumacher isolated 8 lignans present in the rhizome of the plant *Valeriana officinalis* L., these being pinorezinol-4-O-D-glucoside, 8'-hydroxy-pinorezinol lignan, 7-9'-monoepoxy-lignan, massonirezinol-4'-O-β-D-glucoside, berchemol-4'-O-D-glucoside, 8'-hydroxy-pinorezinol-4'-O-D-glucoside and 8'-hydroxy-pinorezinol-4'-O-D-glucoside (Chen et al. 2015).

Alkaloids

In the rhizome of the plant *Valeriana officinalis* L. the identified alkaloids constitute between 0.01-1% of the total active principles. The main alkaloids identified are valerine, valerianine, actinidine, chanitine, α-methylpyrrolyketone, but others such as phenanthrene and nanthenine have also been identified (Constantinescu et al. 2004, Scarlat & Tohaneanu 2009, Stănescu et al. 2014, Chen et al. 2015).

Flavonoids

The main flavonoids identified in the medicinal plant product are quercetin, quercitol, hesperidin, linarin, luteolin, methylapigenin and apigenin (Milică et al. 2012, Stănescu et al. 2014, Chen et al. 2015).

Amino acids

Aqueous extract made from the rhizome of *Valeriana officinalis* L. species allowed the identification of free amino acids, including γ-amino butyric

acid (GABA), tyrosine, glutamine and arginine. Being a neurotransmitter inhibitor, γ -amino butyric acid is involved in many metabolic activities, thus it is considered the most important amino acid present in the studied plant (Milică et al. 2012, Stănescu et al. 2014, Chen et al. 2015).

Other components

The roots and rhizome of *Valeriana officinalis* L. contain, in addition to the organic compounds mentioned above, several organic and inorganic substances.

Thus, phenolic acids such as chlorogenic acid, caffeic acid, benzoic acid, formic acid, malic acid, acetic acid as well as salicylic acid are highlighted in the studied medicinal plant product (Scarlat & Tohaneanu 2009, Milică et al. 2012, Stănescu et al. 2014).

To a lesser extent some mineral salts of potassium, calcium, magnesium, and manganese are found (Gurău 2008, Milică et al. 2012).

Also, carbohydrates, tannins, resins, paraffins, lactones, bitter principles, sterols, gums, fatty acids, ketones, protides, and ketones were found in the rhizome and roots of the studied plant (Crăciun et al. 1977, Dragoș et al. 2002, Scarlat & Tohaneanu 2009, Milică et al. 2012, Stănescu et al. 2014).

Pharmacological actions

Although each component found in the medicinal plant product of the species *Valeriana officinalis* L. has its own action, all these components act synergistically to form a phyto-complex with numerous pharmacological properties.

The main actions of *Valeriana officinalis* L. are exerted on the Central Nervous System through its central depressant properties. Thus, aqueous or hydroalcoholic extracts obtained from the roots and rhizome of the plant studied have sedative, anxiolytic and hypno-inducing effects. Also, some components present in the medicinal plant product have antispasmodic, antiulcer or

myorelaxant effects (Constantinescu & Hațieganu-Buruiană 1968, Rădulescu & Matei 2011, Stănescu et al. 2014).

The central depressant action of *Valeriana officinalis* L. is intensively studied, however the mechanisms by which it acts are not sufficiently clarified. However, the main mechanism of action includes interaction with gamma-aminobutyric acid (GABA) receptors, agonist action on α 1-adenosine receptors and binding of serotonergic 5-HT_{1A} receptors (Rădulescu & Matei 2011, Stănescu et al. 2014).

Both components found in the volatile oil as well as lignan, iridoid and flavonoid derivatives are involved in the sedative action. Valepotriates and some sesquiterpene compounds, such as valerenic acid, valerenal and valerenone, inhibit the degradation of the neurotransmitter GABA, thus negatively influencing the activity of GABA-transaminase. Valerenic acid possesses modulatory activity on GABA receptors, being a partial agonist of 5-HT receptors, with a high affinity for the 5-HT_{5a} receptor and serotonin transporter. The sedative effect is also due to the action of hesperidin, a flavonoid that facilitates the onset of sleep (Scarlat & Tohaneanu 2009, Stănescu et al. 2014).

The anxiolytic action is mainly due to valerenic acid and valerenal. A specific binding site with nanomolecular affinity has been identified for these two compounds. At the same time, the lignan compound hydroxypinoresinol has an agonistic action on benzodiazepine receptors, also contributing to the anxiolytic effect of the medicinal plant product (Scarlat & Tohaneanu 2009, Stănescu et al. 2014).

The spasmolytic effect is exerted by both valerenic acid and valepotriates. While valerenic acid acts as a myorelaxant, valerenone acts as a tranquilizer, and these two compounds are joined by valerenal, which decreases motor activity and tone of the smooth abdominal muscles, producing ataxia, when administered at a sufficiently high dose (Dragoș et al. 2002, Scarlat & Tohaneanu 2009, Rădulescu & Matei 2011, Stănescu et al. 2014).

The valepotrienes present in the medicinal plant product of *Valeriana officinalis* L. also exhibit a tranquilizing effect, via didrovaltrate, but also act as

an antidepressant-tymolytic due to the presence of valtrate and acevaltrate (Dragoş et al. 2002, Scarlat & Tohaneanu 2009, Stănescu et al. 2014).

At the same time, in some animal studies, valepotriates have been shown to prevent the onset of acute coronary artery failure, block vasopressin-induced arrhythmias, as well as inotropic- positive and chronotropic-negative effects, but these are moderate (Stănescu et al. 2014).

Recipes from folk medicine

As a plant with multiple uses, *Valeriana officinalis* L. has been used since ancient times to treat various ailments of the heart, gastrointestinal tract, or central nervous system. The rhizome, thanks to its rich content of active principles such as volatile oil, valepotriates, lignans, enzymes, tannins, phenolic acids, or alkaloids, was and is used as a raw material for treating or alleviating various pathologies.

Diseases of the cardiovascular system

The medicinal product used is Radix Valerianae, which, due to its sedative effect, is used especially for the treatment of heart rhythm disorders, which are of functional origin (fatigue, neuroses, coffee, tobacco, or alcohol consumption) (Bojor & Alexan 1981, Geiculescu 1986).

It is used as an infusion, powder, and tincture.

- infusion- one teaspoon of the plant is added to a cup of warm water: drink 2 cups a day, morning and evening, for a week, 6 times a year.
- powder- 3 times a day a pinch, preferably in small cups.
- tincture- 20 g root macerated in 100 ml 70° alcohol for 8 days. Take 2-3 times a day, 15- 20 drops. Combination with hawthorn tincture is recommended (Bojor & Alexan 1981, Radu & Andranescu 1984, Scarlat & Tohaneanu 2009).

Various herbal combinations were also known to act synergistically to relieve heart rhythm disorders.

a. Rp. / Folium Crataegi cum floribus

Radix Valerianae

Herba Leonuri

Flores Tiliae

Folium Menthae

M.f. infusion, one teaspoon to one cup

D.S. internally, administered as needed, especially in the evening (Bojor & Alexan 1981, Muntean et al. 2007).

b. Rp. / Fructus Crataegi

Herba Leonuri

Radix Valerianae a.a.

M.f. infusion, one teaspoon per cup

D.S. internally, 1-2 cups per day, in multiple servings (Bojor & Alexan 1981)

c. Rp. / Radix Valerianae 20 g

Flores Tiliae 30 g

Folium Menthae 30 g

Herba Serpylli 20 g

M.f. infusion, one teaspoon per cup

D.S. internally, 1-2 cups per day, in multiple servings (Bojor & Alexan 1981, Muntean et al. 2007)

d. Rp. / Herba Leonuri

Radix Valerianae

Folium Melissae

Fructus Carvi a.a.

M.f. infusion, one tablespoon to one cup

D.S. internally, maximum 3 cups per day (Bojor & Alexan 1981)

e. Rp. / Radix Valerianae 20 g

Folium Melissae 20 g

Herba Equiseti 30 g

Herba Hyperici 30 g

M.f. infusion, one tablespoon to one cup

D.S. internally, 1-2 cups per day, in sips (Bojor & Alexan 1981, Constantinescu et al. 2004)

At the same time, the people recommended decoction of valerian root and sweet fern root or rhizome for high blood pressure and "enlarged heart", and tea from the whole plant was recommended for "heart pain" (Geiculescu 1986).

In angina pectoris, herbal teas and tinctures were recommended only as adjuvants. Herbs were chosen to have a sedative and dilating action on the coronary vessels (Bojor & Alexan 1981, Drăgulescu & Mărculescu 2020).

Diseases of the digestive system

A common symptom of any condition involving the digestive system and beyond is emesis, or vomiting. Usually, emesis occurs following digestive conditions such as gastritis, ulcer or food poisoning, nervous system disorders, but it can also occur in pregnancy, postoperatively, dizziness or following car trips, so treatment is symptomatic (Bojor & Alexan 1981).

Radix Valerianae is used in the symptomatic treatment of vomiting due to its sedative action on the nervous system. It is administered as a powder or tincture.

- powder- a pinch is taken 3 times a day, or as needed.
- Tincture- 20 g of the plant macerated for 8 days in 100 ml of alcohol; 15-20 drops are taken 2-3 times a day (Bojor & Alexan 1981).

In other areas, valerian root is used to treat dysentery in children. Dysentery is an infectious disease of the intestine, associated with diarrhea, and the signs and symptoms are generally mild. Children diagnosed with dysentery were given a decoction of valerian root and boiled valerian roots were applied to the abdomen (Drăgulescu & Mărculescu 2020).

Another use of valerian root was as an enema for conditions such as dysentery, diarrhoea, renal colic or intestinal viemas. To obtain the enema, 8-10

g of valerian root was boiled in 150 ml of water, and after cooling, anal enemas were made (Radu & Andranescu 1984).

Radix Valerianae is recommended, due to its antispasmodic effect, in hyperacid gastritis as well as in gastric ulcers. Along with other herbs, valerian root is found in the formula of a hyposecretory tea (Bojor & Alexan 1981).

Rp. / Flores Acaciae
Radix Symphyti
Herba Equiseti
Valerianae
Dracocephali herb

M.f. infusion, one tablespoon to one cup

D.S. internally, 2-3 cups/day, after main meals (Bojor & Alexan 1981)

Valerian root is also indicated for treating abdominal pain in adults. Abdominal pain, or colic, occurs suddenly in the form of seizures in enterocolitis, pancreatitis, or other conditions and manifests itself as spasms of a neurovegetative nature. *Valeriana officinalis* L. is used as an infusion, powder, or tincture.

- infusion- one teaspoon to one cup, drink within one day.
- powder- a pinch is used 3 times a day
- tincture- 20 g root is macerated in 100 ml alcohol for 8 days; 15-20 drops are taken 2-3 times a day (Bojor & Alexan 1981).

In hepato-biliary colic, of a nervous nature, valerian root is administered, due to its antispasmodic effect, along with other herbs, in the form of infusion.

Rp. / Flowers Lavandulae 10 g
Flowers Millefolii 10 g
Folium Menthae 15g
Herba Leonuri 30g
Herba Hyperici 10g
Radix Valerianae 20g
Fructus Foeniculi 5g

M.f. infusion, one tablespoon to one cup

D.S. internally, 1-2 cups per day, drink slowly as needed (Bojor & Alexan 1981, Muntean et al. 2007)

Respiratory tract diseases

Valeriana officinalis L., due to its antispasmodic effect, is also indicated in the adjuvant treatment of bronchial asthma. Bronchial asthma is characterized by restricted airflow to the airways, caused by chronic airway inflammation. Bronchial asthma attacks are manifested by difficulty in breathing and compulsive coughing, and treatment should contain active substances with an antispasmodic role in the bronchi, as well as sedative, vasodilator, and antiseptic substances (Bojor & Alexan 1981).

Radix Valerianae is administered as a powder, infusion, and tincture, both in attacks of bronchial asthma and prophylactically.

- powder- a pinch 3 times a day.
- infusion- one teaspoon to one cup, drink over one day.
- tincture - 20 g of the plant is left to macerate for 8 days in 100 ml of alcohol; 15-20 drops are taken 2-3 times a day (Bojor & Alexan 1981).

Together with Flores Millefolii and Folium Menthae, Radix Valerianae is found in an infusion with an antispasmodic, antiseptic, calming, slightly sedative role.

Rp. / Flores Millefolii 60 g
Folium Menthae 20 g
Radix Valerianea 20 g

M.f. infusion, one teaspoon per cup

D.S. internally, 3 cups per day (Bojor & Alexan 1981, Constantinescu et al. 2004)

Nervous system disorders

The main action of *Valeriana officinalis* L. is exerted on the nervous system, acting as a general sedative by reducing its excitability, so the powder, infusion, or tincture of the roots of the plant are used mainly to combat insomnia, but also for its calming effect (Bojor & Alexan 1981, Muntean et al. 2007).

- powder - a pinch 3 times a day.
- infusion - one teaspoon of plant to one cup; drink gradually over a day for a calming effect, and for insomnia drink the whole amount before bedtime.
- tincture- 20 g roots are macerated for 8 days in 100 ml alcohol; 15-20 drops are taken 3 times a day (Bojor & Alexan 1981, Radu & Andranescu 1984).

Valeriana officinalis L. root is found in tea formulations, along with other herbs, which are used as sedatives, tranquilizers or for inducing sleep (Bojor & Alexan 1981, Muntean et al. 2007).

a. Rp. / Radix Valerianae 1.5 p

Strobuli Lupuli 1 p

Flowers Tiliae cum bracteis 1 p

Fructus Crataegi 1 p

Herba Leonuri 1.5 p

M.f. infusion 2%

D.S. internal, 250 ml as needed (Muntean et al. 2007)

b. Rp. / Radix Valerianae 1.5 p

Strobuli Lupuli 2.5 p

Herb Origani 1p

Flowers Tiliae cum bracteis 1 p

Capita Papaveris 0.5 p

Herba Leonuri 1.25 p

M.f. infusion, 3 g per 250 ml water

D.S. internally, 250 ml before bedtime (Muntean et al. 2007)

c. Rp. / Radix Valerianae 20 g

Flowers Lavandulae 10 g

Foliage Crataegi cum floribus 25 g

Fructus Anisi 15 g

Herb Leonuri 30 g

M.f. decoction, one tablespoon roots to one cup

D.S. internally, 2 cups per day, in several doses (Bojor & Alexan 1981).

Also, the folklore indicates that "*tea from the roots is drunk to calm the nerves*", "*the insane was treated with boiled valerian, and from the gravy in which the plant boiled the patient was given to drink*". Children who had insomnia "*suffered from the bad watch, and from fright, and from the children's sickness and from Samca were also bathed in valerian decoction and given a little to drink*". At the same time, "*for nervous diseases, hysteria, palpitations, the tincture of the root was taken in brandy*" (Drăgulescu & Mărculescu 2020).

Various uses

Girls in the past used to wash their hair with infusion of *Radix Valerianae*, as it was believed that this plant helped hair growth (Drăgulescu & Mărculescu 2020).

People with chills had a compress of *Valeriana officinalis* L. root, lovage (*Leviscticum officinale*) and wormwood (*Artemisia absinthium*) applied to their foreheads. All herbs were crushed and mixed with vinegar (Drăgulescu & Mărculescu 2020).

Also, tincture of *Radix Valerianae* was administered to patients with epilepsy, popularly known as the "disease of the going in the desert" (Drăgulescu & Mărculescu 2020).

Indications. Contraindications. Warnings

The presence of a large number of organic and inorganic compounds in the medicinal plant product of *Valeriana officinalis* L. allows its use in the relief or treatment of a large number of medical conditions. Of course, the therapeutic effect depends on the dose administered.

The main therapeutic indications of *Valeriana officinalis* L. are related to its therapeutic action on the Central Nervous System. Thus, aqueous, hydroalcoholic or dried extracts of the medicinal plant product are indicated in insomnia, intense fatigue, anxiety states, migraine, stress relief, treatment of psychosomatic and psychomotor disorders, depression, intellectual fatigue, or

even epilepsy, ADHD, and seizures in children (Scarlat & Tohaneanu 2009, Rădulescu & Matei 2011, Milică et al. 2012, Stănescu et al. 2014).

Due to the antispasmodic action that the studied species possesses, the extracts obtained from its root and rhizomes are indicated for the relaxation of the smooth mucosa located in the lung, intestinal, digestive, urinary, uterine and cardiac muscles.

Thus, at the pulmonary level, it relaxes the bronchi, and valerian extracts are indicated in the treatment of bronchial asthma, psychogenic dyspnoea, psychic conditioned bronchial spasm, but also in bronchitis or cough (Dragoş et al. 2002, Scarlat & Tohaneanu 2009, Milică et al. 2012). The spasmolytic action is also exerted on the cardiac muscle, the medicinal plant product is thus indicated in the treatment of hypertension, extra-systolic arrhythmia, tachycardia, atherosclerosis, cardiac neuroses, and circulatory disorders, both as monotherapy and in combination therapy (Dragoş et al. 2002, Scarlat & Tohaneanu 2009, Milică et al. 2012).

In the digestive, excretory, and reproductive tracts, extracts of *Valeriana officinalis* L. relax the smooth muscles of the stomach, intestines, gall bladder and uterus and are thus used in intestinal colic, irritable bowel syndrome, flatulence, emesis, diarrhea, dysentery, urinary retention, renal colic, dysmenorrhea, and menopausal disorders. The spasmolytic action is also exerted on the cardiac muscle, the medicinal plant product is thus indicated in the treatment of hypertension, extra-systolic arrhythmia, tachycardia, atherosclerosis, cardiac neuroses, and circulatory disorders (Dragoş et al. 2002, Scarlat & Tohaneanu 2009, Milică et al. 2012).

Like any pharmaceutical product, whether natural or synthetic, extracts obtained from *Valeriana officinalis* L. present certain risks when taken. In this respect, it is not recommended for use during pregnancy and breastfeeding, in children under 12 years of age and in cases of hypersensitivity to compounds found in *Valeriana officinalis* L. (Stănescu et al. 2014, Wilkinson & Dunford 2007).

The medicinal plant product does not mix with antidepressants, sedatives, hypnotics, opioid analgesics, as valerian extracts potentiate the

effects of these drugs. It should also be avoided in association with alcohol, as it causes marked drowsiness (Wilkinson & Dunford 2007, Stănescu et al. 2014).

Adverse effects that may occur after taking valerian extract occur rarely, generally associated with ingestion of a large dose or overdose. These include nausea, abdominal spasms, increased tiredness, and in the case of overdose blurred vision, heart rate changes, headache, restlessness, mydriasis, upper limb tremor (Stănescu et al. 2014).

Recent studies on *Valeriana officinalis* L.

Because of its complex chemical composition, the plant *Valeriana officinalis* L. has been, over the years, the focus of scientific studies aimed at identifying its pharmacological actions and therapeutic uses. To this end, we studied scientific articles written over the last 10 years to see which of the plant's actions are most often studied.

Effects of valerian on severe and systemic manifestations of dysmenorrhea

A double-blind study aimed to highlight the sedative and antispasmodic effects of the dried extract obtained from the roots and rhizome of *Valeriana officinalis* L. on the uterine nether muscularis in young women with dysmenorrhea using a product containing 225 mg dried root and rhizome extract of *Valeriana officinalis* L. According to the results, the pain decreased in intensity in the group taking valerian extract capsules. Systemic symptoms associated with dysmenorrhea were significantly reduced in both groups, and statistically the differences were statistically insignificant, except for syncope, which was more reduced in the valerian capsule group. The number of NSAIDs administered decreased significantly more in the group taking valerian capsules (Mirabi et al. 2011).

Efficacy of acupressure with valerian essential oil on sleep in intensive care patients

The aim of this study was to determine the effectiveness of acupressure with valerian essential oil on the sleep of intensive care patients, as it was previously

known that valerian oil used in aromatherapy helps to promote sleep. As far as heart rate was concerned, it did not undergo statistically significant changes, however, it showed the appearance of relaxation of patients after performing the valerian essential oil acupressure. Based on previous data, researchers support the hypothesis that acupressure with valerian essential oil applied to the points indicated by the traditional Chinese medicine practitioner improves the duration and quality of sleep in intensive care patients (Chen et al. 2012).

Use of extracts of *Valeriana officinalis* L. and *Melissa officinalis* for sleep disorders during menopause

This clinical study aimed to compare the effect of pharmaceutical supplements containing botanical extracts from *Valeriana officinalis* L. and *Melissa officinalis* on the sleep of menopausal women aged 50-60 years with a control group, one group received two capsules each containing 160 mg valerian extract and 80 mg *Melissa officinalis* extract, the other group got the placebo. The results showed that the experimental group saw a 36% improvement in sleep quality, while the control group saw only an 8% improvement, also the sleep disturbance score decreased statistically significantly in the experimental group with improvement of sleep quality among the participants in the experimental group (Taavoni et al. 2013).

Use of root extract of *Valeriana officinalis* L. and *Melissa officinalis* species to improve hyperactivity, concentration difficulties and impulsivity in children

The researchers who conducted this study examined whether a fixed concentration of root and rhizome extract of *Valeriana officinalis* L. and *Melissa officinalis* can improve concentration, hyperactivity, and impulsivity in primary school children. The study builds on previous research confirming that these two plant extracts are effective and well tolerated in children under 12 years of age who suffer from insomnia and restlessness. Each participant received 2 film-coated tablets containing 640 mg valerian dry extract and 320 mg *Melissa officinalis* dry extract twice daily. The treatment lasted 7

weeks. Symptoms such as concentration problems, hyperactivity, pushiness, impaired social behavior, difficulty settling down to sleep, or sleep throughout the night and morning fatigue can be relieved in 7 weeks using tablets containing dry extracts of valerian and *Melissa officinalis* (Gromball et al. 2014).

Activity of *Valeriana officinalis* L. on the cardiovascular system

First, the reduction of blood pressure and heart rate levels was studied, as these are responsible for primary hypertension, the underlying pathological mechanism of which is related to an increase in peripheral vascular tone and structural alteration of blood vessel walls. In addition, disorders of vascular smooth muscle cell structure and function have largely contributed to this abnormal change (Chen et al. 2015). The key in the treatment of hypertension lies in structural improvement of vascular smooth muscle cells and inhibition of their abnormal growth. Some researchers harvested medial aortic smooth muscle cells from an aborted 6-month-old fetus and examined the migration of the harvested cells. These researchers observed that valerian essential oil significantly inhibited the migration of vascular smooth muscle cells in a dose-dependent manner (Chen et al. 2015). Other researchers also concluded that valerian essential oil could decrease heart rate and blood pressure (especially systolic blood pressure) in rabbits by prolonging ST and T segments in the electrocardiogram, the result being dose dependent. It is also thought that valerian essential oil may decrease heart rate and blood pressure stimulated by adrenaline, which may be related to relaxation of vascular smooth muscle cells, dilation of coronary arteries and decreased myocardial oxygen consumption (Chen et al. 2015).

Another action of *Valeriana offiinalis* L. that has been studied is its antiarrhythmic effect. Arrhythmia is a common phenomenon that occurs because of several mechanisms, but researchers have focused on one of the mechanisms by which arrhythmia occurs. Thus, some researchers have found that valerian extract, especially monoterpenes and sesquiterpenes, could reduce, dose-dependently, the duration of action and inhibition of sodium, calcium, and transient potassium channels. Inhibition of these ions appears to be related to the action of

antiarrhythmic of the plant (Chen et al. 2015). Another study to demonstrate the antiarrhythmic effect of *Valeriana officinalis* L. showed that the aqueous extract, essential oil and other fractions of valerian can prevent arrhythmias in laboratory mice, thereby lowering their mortality rate by inhibiting potassium channels (Chen et al. 2015). Furthermore, it was concluded that didrovaltrate blocks calcium channels, in a dose-dependent concentration, at a concentration of 30 µg/L or 100 µg/L, it halves the calcium ion peak (Chen et al. 2015).

Regulating blood cholesterol levels is another action of *Valeriana officinalis* L. that has been studied. Researchers examined the effects of valerian essential oil on lipid metabolism in the blood of rabbits with hyperlipidaemia. Valerian essential oil showed a marked antilipid peroxidation effect, reducing total cholesterol, triglyceride, LDL-C levels, and increased HDL-C concentration (Chen et al. 2015).

Antiparasitic action of the hydroalcoholic extract of *Valeriana officinalis* L. on *Giardia lamblia* cysts

Using a hydroalcoholic extract obtained from *Valeriana officinalis* L. on cysts of the parasite *Giardia lamblia* and at concentrations of 100 and 200 mg/mL, the mortality rate of *Giardia* being 100% after one hour (Khalilidehkordi et al. 2016).

Modulation of cortical excitatory circuits in humans using *Valeriana officinalis* L. extract

The aim of this study was to elucidate the mechanism of action and neuroprotective properties of the extract obtained from *Valeriana officinalis* L., by investigating the acute dose effect recommended in a randomized clinical trial using a wide range of measures including transcranial magnetic stimulation (TMS) of motor cortex excitability. Thus, valerian extract has been shown to induce a reversible decrease in intercortical tension, and researchers recommend further studies on the mechanisms of action of *Valeriana officinalis* L. species components in terms of its neuromodulatory effect (Mineo et al. 2017).

Cytoprotective and antispasmodic action of *Valeriana officinalis* L.

Some researchers have studied the potential cytoprotective effects of aqueous. The results showed that the two valerian extracts possessed significant coronary antispasmodic, antihypertensive and anti-bronchospastic properties. Therefore, this study justifies the use of this plant for the treatment of some respiratory and cardiovascular diseases (Nandhini et al. 2018).

Analgesic effect of valerian root and turnip root extract

This study aimed to determine the analgesic effect of valerian and turnip extracts on laboratory animals. The results of this study showed that there was a reduction in pain in both the acute and chronic phases in both valerian and turnip extract animals compared to the control group. Researchers concluded that hydroalcoholic extracts of valerian and turnip had anti-inflammatory and analgesic properties that may be due to flavonoid compounds in these plants (Zare et al. 2018).

Effects of valerian extract in treating tension headaches

The effects of valerian extract in treating tension headaches, the most common form of headache, have been studied. Previous research demonstrating the effectiveness of valerian extract in treating headaches was the basis of this study. After one month of medication, the impact of tension headache on daily life was significantly reduced in the experimental group (51.2%) compared to the control group (57%). Pain levels were also reduced in the experimental group compared to the control group (Azizi et al. 2020).

Conclusions

Valeriana officinalis L. is a perennial, herbaceous plant. In the wild flora it is generally found in shady and damp places, both in the lowland and mountainous regions, in the forest-steppe areas, up to the oak and beech tree

levels. Due to the widespread use of this species, raw material is obtained almost exclusively from crops.

Valeriana officinalis L. has a short, upright, trochoidal rhizome from which numerous roots shoot out in rosettes. Both rhizome and roots are greyish brown in color with a characteristic odor. The stem is erect, can reach heights of up to 200 cm, has longitudinal stripes, is unbranched, has underground stolons at the base. The leaves are oppositely arranged on the stem, are odd pinnate sected, with 5-11 lanceolate lacinal pairs, the basal ones have pericycles and are petiolate, and the middle and upper ones are glabrous and almost sessile. The flowers are clustered in small inflorescences, range in color from white to purple, and bloom in May- September. The fruit is an achene, has one vein in the anterior and three veins in the posterior.

The medicinal plant product used in therapy consists of the roots and rhizomes of *Valeriana officinalis* L. and is called *Valerianae rhizoma cum radicibus*. The 10th edition of the Romanian Pharmacopoeia describes two monographs, *Extractum valerianae spissum* and *Tinctura Valerianae*.

The chemical components present in the medicinal plant product of *Valeriana officinalis* L. are mainly represented by volatile oil, iridoids, lignans, alkaloids, flavonoids, as well as other organic acids and mineral salts, all of which make up a phytocomplex that is attributed to the species studied numerous therapeutic actions.

The main actions of valerian are exerted at the level of the Central Nervous System, the species being used as anxiolytic, sedative, or hypo-inducing. However, some components found in the volatile oil and among the iridoids give the species antispasmodic, antiulcer and myorelaxant effects. The actions of *Valeriana officinalis* L. recommend it for use in the relief or treatment of various medical conditions such as anxiety, depression, stress relief, antispasmodic in the lungs, digestive or genital tract and in diseases of the cardiovascular system.

In folk medicine *Valeriana officinalis* L., was used in the form of powder, macerate, infusion, decoction, tincture, or enema, in monotherapy or combined

therapy, for the relief or treatment of disorders of the nervous, cardiovascular, digestive, respiratory, and dermatological systems.

Over the years, the complex composition and use of *Valeriana officinalis* L. since ancient times has been the subject of studies to determine its diverse therapeutic actions and indications.

The paper includes a theoretical part, where we have described the taxonomic classification of the species *Valeriana officinalis* L., its botanical description, range, chemical composition, and therapeutic actions. At the same time, we searched for folk recipes in which *Valeriana officinalis* L. was used in the past to treat or relieve various ailments, as well as popular myths that were related to it. The practical part consisted of carrying out macroscopic and microscopic studies of the species. We followed the development of the plant in the Botanical Garden in the town of Jibou for a year and harvested the plant for pressing. We also carried out microscopic analysis of the rhizome, stem, and leaf sections, and studied its indications and therapeutic actions in the literature.

Following studies published in the specialist literature we found that even before 1990 the anxiolytic, sedative and hypnotic effects of the species were intensively studied and are still topical today, with researchers trying to discover the exact mechanisms underlying the actions. However, in the last 10 years, researchers have also turned their attention to the species' other actions, studying its antispasmodic, antihypertensive, antiarrhythmic, antiplatelet, and analgesic effects, both in clinical studies and in specialist laboratories. New actions of extracts obtained from *Valeriana officinalis* L., such as cytoprotective action, analgesic effect, or even inhibitory action on the cysts of certain parasites, are also being tested in laboratories.

In line with the above, *Valeriana officinalis* L. is a topical subject in the treatment and relief of various medical conditions. The ancient recipes used in folk medicine form the basis of scientific research carried out over the years, aimed at defining the exact mechanisms by which the species exerts its actions.

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