

CONTENT



Medicinal mushrooms

Oyster mushroom.....	6
Bearded tooth.....	10
Shaggy ink cap.....	14
Shiitake.....	18
Reishi.....	22
Cordyceps.....	26



Medicinal plants

Sea-buckthorn.....	30
Sea-buckthorn oil.....	34
Black elder.....	38
Rose hip.....	42
Ansu apricots.....	46
Blackberry.....	50
Small-leaved lime.....	54
Acerola.....	58
Water hyssop.....	62
Boswellia serrata.....	66
Lingonberry.....	70
Guarana.....	74
Heart-leaved moonseed.....	78
Yerba mate.....	82
Maidenhair tree.....	86
Tribulus terrestris.....	90
Turmeric.....	94
Maral root.....	98
Lemon balm.....	102
Bearberry.....	106
Grape vine.....	110
Roseroot.....	114
Ceylon cinnamon tree.....	118
Ginger.....	122
Goldenrod.....	126





Oyster mushroom

(PLEUROTUS OSTREATUS)

Due to its taste and medicinal effects, the oyster mushroom is one of the most popular edible mushrooms. Its annual production is 5 million, even surpassing the more famous mushroom – the champignon. Recent world research has shown that it has unique ingredients and contains substances in an optimum amount and proportion suitable for the human organism.



Oyster mushroom

(*PLEUROTUS OSTREATUS*)



Active substances

Compounds containing saccharides moieties (poly/oligo-saccharides: β -glucans, glucans; glycoproteins, proteoglycans) have been isolated and obtained from oyster mushrooms, which primarily strengthen the immune system. The cytolytic protein ostreolysin has been isolated from young sporocarps. Sporocarps further contain various enzymes, peptides and lectin. Lovastatin is also worth mentioning, as belongs to the group of statins, which are efficient remedies for the reduction of cholesterol. The natural statin contained in oyster mushrooms has no adverse effects unlike synthetic drugs for the reduction of cholesterol.

The oyster mushroom is one of the most popular edible mushroom due to its taste and medicinal effects. It is one of the most frequently used medicinal mushroom in Europe and has been proven successful in the treatment of some civilisation diseases. It is a wood mushroom growing on the dead wood of deciduous trees. However, there are many other types of pleurotus mushrooms which have similar medicinal effects. The oyster mushroom grows in autumn and spring.

The most efficient way is to consume the entire oyster mushroom, as it naturally contains a complex of beneficial substances, more than any extracts obtained from oyster mushroom.



Clinical studies

Numerous trials of the oyster mushroom have confirmed its antiviral, antibiotic, antibacterial and anti-inflammatory properties. The anti-cancer effects of the mushroom are attributed especially to the stimulation of the immune system. Recently, several substances with immunostimulating effects were isolated from the oyster mushroom. Scientific data has confirmed that the oyster mushroom has anti-inflammatory effects and also reduces excessive blood clotting. It was discovered that in case of an artificially provoked inflammation, the oyster mushroom responded in a similar way as the commonly used anti-inflammatory drugs. Oyster mushroom reduced the coagulation of thrombocytes by 88 – 95 %. These properties show its potential in the treatment of cardiovascular diseases. Due to its antiviral effects, oyster mushroom could be a good remedy for viral warts, if used internally. The oyster mushroom has two antiviral effects: it acts both indirectly via immunostimulation (supports natural immune system) and directly – it suppresses viruses. Several compounds with antiviral effects have been isolated from oyster mushroom, such as glycoprotein, which stopped the HIV virus. The enzyme lactase isolated from the king oyster mushroom also inhibited HIV. The beta-glucan called pleuran, contained in oyster mushrooms, has immunomodulation and anti-inflammatory effects together with other substances. The oyster mushroom also has antioxidant effects, which contribute to the protection of veins and blood platelets, i.e. they participate in the prevention of cardiovascular diseases.



Health benefits

- Recent trials have shown that the **oyster mushroom reduces blood cholesterol**, reduces blood pressure, prevents excessive blood clotting, reduces blood sugar and has antimicrobial and antiviral effects.
- Doctors recommend the oyster mushroom and its extracts to patients, who suffer from arteriosclerosis. It is used to reduce high blood cholesterol, and it prevents the accumulation of cholesterol in the liver.
- It is also recommended to patients with higher blood sugar, for obesity, rigid muscles, tendons and joints and for general strengthening of the immune system. It is also used for skin diseases and injuries, such as eczema, burns, skin allergies and to treat varicose veins. Even some cosmetic products for reddish and sensitive skin contain the oyster mushroom.
- According to the experience of doctors from traditional Chinese medicine, it strengthens spleens and stomach by removing humidity, relaxes tendons and joints, alleviates cramps, treats numbness in extremities and lumbago, as well as positively affecting blocked spines.
- Positive effects on hair growth, blood cell production, mucous membrane regeneration have been confirmed as well. Western medicine explains this phenomenon by means of a high content of folic acid and other B vitamins, vitamin C, D, K, as well as the content of minerals and amino acids.
- Another important characteristic of the oyster mushroom is that it can accumulate heavy metals, which is why it is suitable for the detoxification of exposed people (employees in heavy industry, and also dentists).



Interesting facts

- The oldest references about the positive effects of the mushroom date back to China to the period of the dynasty Sung (420-479 B.C.), when the oyster mushroom was called "divine flower".
- The oyster mushroom is currently, due to its popularity, the most frequently cultivated mushroom in the world. Its annual production is 5 million tons and it has



surpassed the production of the more famous mushroom – the champignon.

- Its medicinal effects were discovered independently on various continents at the same time. Awareness of its medicinal effects does not come only from Asia, but also from the traditions of Central European, Southern American and African countries.
- Its advantage is that it can also be consumed by diabetics. In case of arteriosclerosis and to strengthen the immune system, the recommended dosage is 6 – 12 g of oyster mushroom per day for a period of 1 – 2 months. This dosage is 10x higher in case of the use of fresh sporocarps.



Bearded tooth

(*HERICIUM ERINACEUS*)

Bearded tooth is a rare medicinal mushroom, which is cultivated predominantly within the territory of North America, Asia and Europe. It is one of the edible mushroom delicacies. Its shape and colour is reminiscent of a snow-white sea coral. The mushroom contains a great amount of biologically active substances.



Bearded tooth

(*HERICIUM ERINACEUS*)

The bearded tooth mushroom is one of the medicinal mushrooms with a culinary use. Its sporocarps are white, circular and have prickles on their surface resembling fur. Their pulp is soft, full, and white with a pleasant fruit-like taste and aroma. In Asia, it is a popular part of the diet and in here it is used dried as a part of dietary supplements. It grows sparingly in our climate, usually from July to October, living as a parasite on the trunks of deciduous trees.

In our country, bearded tooth has been successfully used in combination with herbs and various oils, especially to improve the condition of the digestive system.



Active substances

The sporocarps have a higher content of proteins in the solids (31.7%) than oyster mushrooms (19.5%) or shiitake (18.3%). Bearded tooth contains many medicinal substances including polysaccharides, greasy acids, substances of a phenolic nature called hericenons and diterpenes called erinacines. Powder from the mushroom can be used to stop bleeding. The mushroom has immunomodulation, anti-cancer and antioxidation effects, is used to treat digestive system inflammation and it helps to reduce blood cholesterol and blood sugar. Other mushrooms also have the above-mentioned medicinal effects, for example the oyster mushroom. However, the bearded tooth is unique and necessary in the modern world, because of its beneficial effects on the nervous system. The contained hericenons and erinacines facilitate the production of the protein called NGF (Nerve Growth Factor) in the body.



Clinical studies

The health condition of patients with chronic colon inflammation, who were given bearded tooth in clinical trials, improved in 82 % of the cases and they were completely cured in 52 % of cases. In addition, metastases were reduced in 70 % of cases when compared with the control group in clinical trials exploring the use of bearded tooth in combination with chemotherapy in patients with malignancies of the esophagus and stomach. In a Japanese clinical study, persons with impaired cognitive functions were given tablets from bearded tooth, which led to a significant increase in memory, concentration and thinking after 16 weeks of use when compared with the control group. A clinical trial with 30 women in the age of 35 – 45 tested the effect of the use of dried bearded tooth on problems related to menopause, depression and the quality of sleep. After four weeks, when compared with the control group, an improvement was confirmed in all cases. This study proved that the use of bearded tooth can alleviate depression, which indicates that the mushroom has other, still unknown mechanisms positively affecting the nervous system.

According to traditional Chinese medicine, it is used either preventively or as a cure. It treats stomach and abdominal aches, feelings of pressure and inflation in the stomach area, belching, indigestion, which – according to Western medicine – corresponds to some conditions of stomach inflammations, stomach and duodenum ulcers and intestinal inflammations.



Health benefits

- Due to these properties, bearded tooth is a suitable auxiliary remedy for persons suffering from Alzheimer disease and for the prevention of this disease. The currently available treatments of Alzheimer disease just alleviate the symptoms but cannot prevent it. The preventive use of bearded tooth could thus contribute to solving this problem.



- The mushroom also contributes to the regeneration of the mucous membrane and epithelium of digestive system tissues. It is suitable in the treatment of gastritis, heartburn, stomach ulcers and chronic inflammation of the stomach mucous membrane.
- Polysaccharides from bearded tooth are used for malignant diseases of the stomach, esophagus and skin.
- They modulate the immune system during chemotherapy and eliminate its negative effects.
- The mushroom has a preventive effect – it protects the human organism in case of the consumption of fatty foods or stress and it reduces blood sugar.
- In Japan, powder from the dried sporocarps of bearded tooth affected the growth of the tumours, which either decreased in size or disappeared. However, the cause of this was not a direct effect of the mushroom on the tumours, but a strengthening of the immune system, which prevented the growth of the tumour.
- Bearded tooth acts like a complex reinforcement for the entire immune system – especially during inflammation and overall fatigue of the organism. It is a good fighter against the bacteria *Helicobacter pylori*, which is the main cause of chronic gastritis.



Interesting facts

- Native Americans always carried with them a powder from dried bearded tooth sporocarps to treat injuries and to stop bleeding.



- Bearded tooth received its name because of its unusual shape, it is also called “monkey hat” or “white pompom” in other languages.
- The pulp of fresh bearded tooth is juicy and soft with a slight horseradish taste. Powder obtained from bearded tooth has a pleasant sweet aroma after it is dried up. This intensive aroma is produced due to 32 aromatic substances, which are contained in bearded tooth.
- Some components of bearded tooth called erinacines have a character of opiates and are used to alleviate pain.





Shaggy ink cap

(COPRINUS COMATUS)

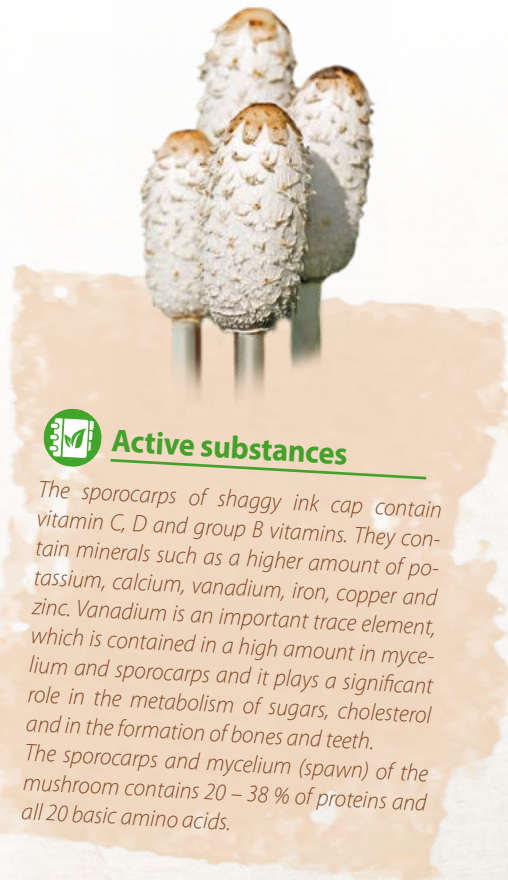
Shaggy Ink Cap is the most important mushroom with antibiotic effects. The history of use of this medicinal mushroom is relatively short. Shaggy Ink Cap is one of the few medicinal mushrooms, which was not used in Eastern medicine. The first knowledge of the medicinal effects of Shaggy Ink Cap was only obtained in the 20th century in Europe.



Shaggy ink cap

(*COPRINUS COMATUS*)

The shaggy ink cap is an edible mushroom which initially has a cylindrical hat, which develops very fast. It is very abundant, usually from May to November, growing on grass, in parks, on fields, mostly in places affected by human activity. The mushroom is edible, but the sporocarps develop fast and their taste is pleasant only when they are young and tightly closed. Its sporocarps cannot be stored in long-term, as they are soon subject to autolysis and then only a black spot remains from them. This mushroom was initially cultivated by scientists in the former Eastern Germany several decades ago, but recently its cultivation has spread especially in China. The shaggy ink cap is very abundant in nature in Europe and in North America; also seeming to have been artificially introduced into Australia and New Zealand. The history of the use of this mushroom is quite short. The shaggy ink cap was one of the few medicinal mushrooms, which was not used in Eastern medicine. The first information about the medicinal properties of shaggy ink cap was only obtained in the 20th century in Europe.



Active substances

The sporocarps of shaggy ink cap contain vitamin C, D and group B vitamins. They contain minerals such as a higher amount of potassium, calcium, vanadium, iron, copper and zinc. Vanadium is an important trace element, which is contained in a high amount in mycelium and sporocarps and it plays a significant role in the metabolism of sugars, cholesterol and in the formation of bones and teeth. The sporocarps and mycelium (spawn) of the mushroom contains 20 – 38 % of proteins and all 20 basic amino acids.

The presence of the shaggy ink cap in food increases appetite, blood circulation and is a prevention of arteriosclerosis.



Clinical studies

The shaggy ink cap is the most important mushroom with anti-diabetic effects. Its long-term consumption decreases blood sugar. Within 90 minutes of consuming the powder from the dried sporocarps of the mushroom, glycaemia (concentration of glucose in blood) decreased by 41 %, by 30 % after 3 hours and by 20 % after another 6 hours. The dosage of the mushroom is determined according to the level of glycaemia. The dosage of shaggy ink cap must correspond to the level of insulin or antidiabetic drugs, so that hypoglycaemia does not occur.



Health benefits

- The presence of shaggy ink cap in the diet improves appetite, blood circulation and is a prevention of arteriosclerosis. It reduces blood sugar, improves digestion and maintains the flexibility of veins.



- It is recommended for hepatitis, intestinal inflammations, stress and constipation.
- Diabetics and patients with high blood pressure and haemorrhoids cannot even imagine their medications without the content of the shaggy ink cap.
- The amino acid ergothionein can be isolated from the sporocarps of the shaggy ink cap, which has antioxidant properties. The human organism is not able to synthesize this amino acid itself, it obtains it from food. This amino acid is a strong antioxidant and has anti-inflammatory and antistress effects. In addition, the protein called y2 can be isolated from the sporocarps of the shaggy ink cap.



Interesting facts

- The only edible kind of coprinus – the shaggy ink cap – is edible only provided you do not consume alcohol after eating it, especially not beer, as this mushroom acts in combination with alcohol as antabus (the drug used in the treatment of alcoholism). If you consume alcohol with shaggy ink cap, unpleasant symptoms occur, which “scare” alcoholics and encourages them to remain abstinent. These symptoms include redness of the skin, difficulties with breathing, headache, palpitations, vomiting. In this case just a sip of alcohol provokes indigestion, vertigo and vomiting.



- This type of mushroom is also called “lawyer’s wig”, as its sporocarps look like English lawyer wigs.
- The common ink cap breaks down into a liquid similar to ink, when it is old. This is the mushroom’s unique way of spreading its spores, which drip off together with the liquid, unlike other mushrooms, the spores of which are blown away like dust.
- Currently, the greatest cultivator, producer and supplier of the shaggy ink cap is China. Chinese companies export dried sporocarps in slices, capsules containing powder from sporocarps, lyophilised sporocarps, frozen mushrooms and canned mushrooms.



Shiitake

(LENTINULA EDODES)

The shiitake mushroom was one of the mushrooms used by ancient doctors at the imperial courts of China and Japan. Remarks about this mushroom can be found in literature dating back to 1309. Both in the past and present, shiitake mushroom has been used especially for conditions in which one needs to restore the functions of the immune system, to harmonise the cardiovascular system and to support the functions of the liver, gallbladder and stomach.

Shiitake

(*LENTINULA EDODES*)

This wood-decaying mushroom does not grow in Europe, but it comes from South-eastern Asia, from mild climate zones, especially Japan and China. The Japanese name shiitake comes from the words "shii" and "take", which means mushroom in Japanese. It is grown artificially and it ranks 2nd with regard to mushroom production. Recently, Europeans have begun to cultivate shiitake as well. Its sporocarps have a distinct mushroom taste with a radish flavour and they are slightly sweet. The first reference to this mushroom appeared in literature as far back as in 1309. Some historical records show, however, that it was used in Japan as early as in the 2nd century A.D. to increase energy, against colds and to expel worms from the body.

Shiitake contains 18 amino acids, of which 8 are essential ones, which represents a better proportion than in the case of milk, soya beans, meat or eggs.



Active substances

The solids of shiitake sporocarps are rich in carbohydrates (68 – 60 %), proteins (20 – 23 %), fats (3 – 4 %) and unsaturated fatty acids. It is a source of vitamins D2, B1, B2, B12 and pantothenic acid and minerals such as calcium, phosphor, iron, potassium, zinc and sodium.

The main group of medicinal substances contained in shiitake includes polycarbohydrates – glucans and lentinan; glucans and insoluble polysaccharides serve as a dietary fibre with anti-cancer effects.

An important active substance in shiitake is eritadenin. This natural substance reduces blood cholesterol and has antithrombotic effects. A newly isolated protein obtained from sporocarps of shiitake is lentin, which has positive effects on leukaemia.

Clinical studies

Lentinan, the only glucan in a pure form approved as a medicinal drug, was injected into tumours in clinical trials in Japan, since its efficiency is somewhat limited when consumed orally owing to its high molecular weight. The success of the supportive immune treatment of a tumour by means of shiitake depends on localisation and the type of the tumour. In case of injection application, lentinan affects the structure of the tumour itself by provoking bleeding and breakdown of its cells. The application of lentinan led to prolonging the life of patients with inoperable stomach carcinomas and of female patients with recurrent breast carcinoma after operation.

If polysaccharide was given 1 – 2x per week together with chemotherapeutic drugs to patients, who did not suffer from a severe disease of liver, kidneys or impaired function of bone marrow, improvement of their immune system responses was statistically confirmed. In a trial with 275 patients with advanced or recurrent stomach tumour, treatment with cytostatics alone was compared with treatment with cytostatics in combination with lentinan. In these patients, prolonging of their life and improvement of their immune system or tumour recession were achieved.

Health benefits

- Shiitake is especially used in conditions, where it is necessary to strengthen the immune system, from colds to malignancies, it is used for weakness and fatigue to increase energy, to support liver and kidney functions and to support weak blood circulation and to reduce high blood pressure.
- It is used for the treatment of patients suffering from cancer.
- It has been proven successful in the treatment of older persons suffering from arthritis, diseases related to metabolism of fats, increased counts of uric acid and fatty liver.



- After the explosion of an atomic bomb in Hiroshima, many natural substances were tried out to achieve a fast restoration of immune system functions in persons affected by radiation. The most efficient substance was proven to be the sporocarps of shiitake mushrooms. The substance contained in the mushroom, which – among others – reduces the effects of radiation on the human organism, is a glucan.
- In Japan, a glucan called lentinan was isolated from shiitake mushrooms. Lentinan significantly supports white blood cell production and increases their activity. Lentinan also has antibacterial effects against *Mycobacterium tuberculosis* causing tuberculosis. Lentinan itself does not directly destroy viruses and bacteria, but its individual components activate the immune system to fight viruses or bacteria.

Interesting facts

- In the 1960s, an epidemiological research took place in Japan mapping out the occurrence of diseases in various parts of the country. One of the trials showed that in two mountain regions there was an unusually low occurrence of tumour diseases.



- Interestingly, those were regions with the highest concentration of shiitake cultivation and the local people also consumed the mushroom very often.
- Shiitake is an aphrodisiac and stimulates libido.



- In Japan, lentinan is used in the treatment of chronic jaundice.



Reishi

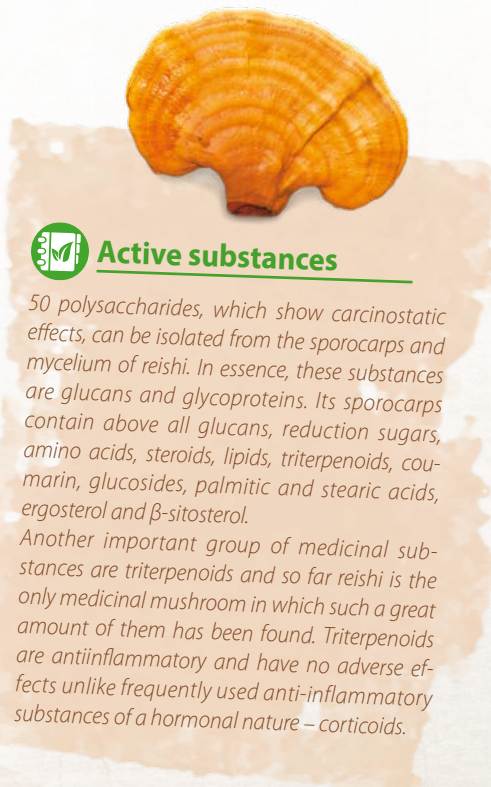
(GANODERMA LUCIDUM)

Reishi is appreciated for its rich content of medicinal substances. It is one of the most important medicinal mushrooms. It has been used in Asia for more than 4000 years.

Reishi

(*GANODERMA LUCIDUM*)

Reishi mushroom, often known under the Chinese name as Ling Zhi (Reishi is its Japanese name) pertains to a group of rugosa mushrooms and causes the white rotting of wood. Its sporocarps are annual and have a shiny appearance when young. The mushroom is relatively rare; it grows from June to October (sometimes as early as May), on roots, tree stumps and dead trunks of oaks and hornbeams, less often on other deciduous trees, predominantly in warm regions. The sporocarps are not edible. Reishi is appreciated for its rich content of medicinal substances. It is one of the most significant medicinal mushrooms. It has been used in Asia for more than 4000 years. It is considered the queen of medicinal herbs, even more important than ginseng.



Active substances

50 polysaccharides, which show carcinostatic effects, can be isolated from the sporocarps and mycelium of reishi. In essence, these substances are glucans and glycoproteins. Its sporocarps contain above all glucans, reduction sugars, amino acids, steroids, lipids, triterpenoids, coumarin, glucosides, palmitic and stearic acids, ergosterol and β -sitosterol.

Another important group of medicinal substances are triterpenoids and so far reishi is the only medicinal mushroom in which such a great amount of them has been found. Triterpenoids are antiinflammatory and have no adverse effects unlike frequently used anti-inflammatory substances of a hormonal nature – corticoids.

Clinical studies

Powder from reishi sporocarps was given to 2,000 patients suffering from chronic bronchitis during clinical trials. 60 – 90 % of patients showed an improvement and increase of appetite after only 2 weeks. The mushroom was proven successful in the treatment of shortness of breath, palpitations, heartache and cardiac arrhythmia in patients suffering from heart diseases. In the New York hospital Mount Sinai, they compared a group of patients with asthma treated by corticoids with a group of patients treated by medicines containing the Chinese product ASHMI with a predominant content of reishi. The treatment by means of the Chinese product was proven more successful and safer, as functions of adrenal glands were not affected unlike in treatment by means of Prednisone. American scientists studied the effect of triterpenoids from reishi on the growth of cancerous cells in breast cancer and they found out that their growth was stopped and their spreading was suppressed. Clinical trials confirmed a significant improvement of health even in patients suffering from type B hepatitis. In 50 % of patients, reishi protected the liver from damage by various physiological and biological factors. Glucans isolated from reishi are a promising way to slow down cirrhosis of the liver.

Health benefits

- Reishi has also proven successful as a supportive treatment of malignant tumours. It boosts the effect of chemotherapy while suppressing its negative effects, such as indigestion and a reduction of white blood cells count. Its advantage is that it does not contain any substances toxic for the human organism.
- In Asian countries, reishi is a part of the treatment of patients after surgical intervention of tumours in the esophagus, stomach, breast, colon or uterus.
- Reishi contains active substances suitable for the treatment of bacterial, viral diseases and mycoses. Extracts from its sporocarps have antibacterial effects against staphylococcus, streptococcus and Bacillus pneumoniae. Extracts from reishi were also proven successful in the treatment of jaundice. Substances contained in reishi can be used for the efficient treatment of the virus Herpes Simplex 1 and Herpes Simplex 2 and of cold sores.
- Consumption of reishi is a suitable remedy for high blood pressure. Reishi reduces blood cholesterol, acts as a prevention of thrombosis and dissolves blood clots. Triterpenoids of this mushroom contribute to the protection of veins against arteriosclerosis by preventing the aggregation of blood platelets.
- Reishi increases the speed of liver metabolism and cleanses toxic substances from the liver. It is suitable in the treatment of chronic hepatitis and eliminates symptoms of the disease, such as vertigo and fatigue. Reishi also reduces symptoms of mountain sickness in the form of various dietary supplements.
- Reishi extracts have shown promise in the treatment of non-malignant prostate enlargement in men. The said extract showed positive effects, which resulted in a decrease in the size of the prostate and the elimination of problems with urination.

Interesting facts

- In the past, reishi collected in nature was used for treatment. Currently, the cultivation technology is far more advanced, so artificially cultivated sporocarps are used, especially from countries of south-eastern Asia.
- Reishi is not only used as a dietary supplement. Some Asian companies supply toothpastes, shower gels, shampoos, hair tonics and products against hair loss with reishi extracts.
- Today, demand for products from reishi is constantly increasing. In 2005, its production was estimated to be 6000 tons. The value of the world production of reishi is currently about 10 – 30 billion US dollars.
- It was also discovered that reishi protects skin from sun radiation, especially UV radiation. It regulates the content of humidity in skin and skin elasticity. It also protects skin from bacterial infections.





Caterpillar fungus

(CORDYCEPS SINENSIS)

Caterpillar fungus is a major medicinal mushroom with a unique ecology. It's an important mushroom used in traditional Chinese medicine that is most valued for its positive effect on potency and the cardiovascular system.



Caterpillar fungus

(CORDYCEPS SINENSIS)

Caterpillar fungus is an entomopathogenic fungus that grows on certain developmental stages of various types of insects and spiders. Caterpillar fungus mostly grows on the larvae of the moth species *Hepialis armoricanus* of the family *Hepialidae*. These moth larvae live in the ground and feed on grass roots. They are only found in the wild in certain provinces of China (Tibet, Sichuan) and in Bhutan and Nepal in cool mountain meadows between 3,800 and 6,000 metres above sea level. Fungus found on the Tibetan Plateau is of very high quality.

The life cycle of this moth lasts five years, most of which is spent in the larval stage. The adult moth only lives 25 days. Females lay eggs on the surface of the soil, and one month later the eggs hatch into larvae that burrow into the ground. The larvae are most easily infected by fungal spores on the soil surface through their respiratory tract or mouth. The spores germinate and the growing mycelium of the fungus gradually parasitises the body of the larva over several years until it finally kills it. The larvae live on the surface of the soil or just beneath it in the summer, burrowing into the soil in the winter. In the last year of larval development, when the mycelium is capable of reproduction, the fungus kills the larva with its mycotoxins, and in the summer (June-July) when the temperature rises, special reddish-brown formations called stromata emerge from the heads of the dead larvae. Artificially cultivated fungus is used today as a dietary supplement.



Active substances

Caterpillar fungus contains all essential amino acids, vitamins E, K, B1, B2, B12, a whole range of carbohydrates (mono-, di- and oligosaccharides, polysaccharides) and proteins. It contains considerable amounts of cyclic dipeptides including Cyclo(Gly-Pro) and Cyclo-(Leu-Pro), and small amounts of polyamines such as 1,3-diaminopropane, spermidine and putrescine, as well as sterols (ergosterol, δ -3-ergosterol, daucosterol, β -sitosterol) and a number of minerals and trace elements (Na, K, Ca, Mg, Fe, Cu, Mn, Zn, Se, Al, Si, Ni, Sr, Cr, Ga and Zr).

It contains the following active substances:

- Nucleosides (*cordycepin and cordycepic acid*)
- Polysaccharides, β -mannans, β -mannan polymers, arabinoxylans and (1 \rightarrow 3) - β -d-glucan
- Cyclosporine – a peptide with immunosuppressive properties (suppresses the immune response)
- Trehalose



Health benefits

Caterpillar fungus is considered the ultimate medicinal mushroom in traditional Chinese medicine. It is used to treat kidney, lung and heart diseases, male and female sexual dysfunction, hemorrhoids, fatigue and hiccups. It was also proven to accelerate the healing of wounds, cancer and tuberculosis, and was used to restore appetite and prolong life.



Clinical studies

In Asia, caterpillar fungus is used to treat chronic hepatitis B and C, and improved liver tests were noted in patients after a 3-month treatment course of post-hepatitis cirrhosis with caterpillar fungus in a daily dose of 6-9 g. The fungus has also proven useful in the treatment of chronic kidney failure, especially in the elderly. Patients with this disease often suffer from hypertension, anaemia and protein in the urine (proteinuria). Adenosine contained in caterpillar fungus is used in the treatment of cardiac arrhythmia, having a positive effect on blood circulation along with other nucleotides. Caterpillar fungus is also used traditionally as a dietary supplement in convalescence after a heart attack. The fungus can be successfully administered to prevent atherosclerosis. Numerous clinical studies have confirmed the positive effects of caterpillar fungus in combination with antibiotics in the treatment of respiratory diseases such as cough, shortness of breath, asthma, bronchitis, chronic obstructive pulmonary disease, emphysema and chronic bronchitis. It also helps get rid of phlegm. The consumption of caterpillar fungus helps alleviate altitude sickness by boosting energy. A daily dose of 3g of caterpillar fungus lowered blood sugar levels in 95% of patients while also keeping their blood sugar levels stable. It was also reported that alcoholics who took caterpillar fungus regularly in experiments lost their appetite for alcohol. Caterpillar fungus is used in supportive care in cancer treatment with chemotherapy and radiotherapy because of its immunostimulating effects. It has also proven beneficial in the treatment of various viral diseases (HIV). The fungus helps the elderly manage pain and alleviates fatigue, as well as other symptoms such as cold intolerance, dizziness, bedwetting, tinnitus and amnesia.



Interesting facts

- Shepherds tending to yak herds - cattle inhabiting the high-altitude pastures of Tibet and Nepal - were the first to notice the healing effects of caterpillar fungus. They noted exuberant behaviour and increased sexual appetite in animals on some pastures after they consumed the caterpillar fungus in the spring.
- Because collection of the fungus at high altitudes was difficult, it also came at a very high price. Only members of the imperial court and nobility could afford to use the fungus as a medicinal drug in China.
- The first written record of the caterpillar fungus dates back to 620 AD during the Tang dynasty; it mentions a creature that changes throughout the year from animal to plant in the summer and vice versa. Tibetan scholars gradually began to describe its various healing properties in the 16th century.
- The first description of the medicinal properties of the caterpillar fungus appeared in the *New Compilation of Materia Medica* in 1757 during the Qing Dynasty.
- The price of Chinese caterpillar fungus collected in the wild is very high - 1 kilogram of dry fruiting bodies with the remains of larvae costs 100,000 to 180,000 crowns on the market in Chengdu and Lhasa, depending on the quality of the fungus.
- As demand for the Chinese caterpillar fungus increases every year, so does its price. This is why artificially cultivated caterpillar fungus has become increasingly popular.
- Chinese female athletes consumed caterpillar fungus at the All China Games as a permitted substance, and they broke nine world records.

A close-up photograph of sea-buckthorn branches. The branches are covered in small, bright orange berries and green, needle-like leaves. The background is a bright, hazy sky with a sun flare effect on the left side, creating a warm, golden glow. The overall scene is vibrant and natural.

Sea-buckthorn

(CORDYCEPS SINENSIS)

Sea-buckthorn is called the plant of the future due to its highly positive effects on human health. The content of vitamin C in its berries is 25x higher than in citrus fruits. It is a richer source of carotenoids than a carrot or gourd.

Sea-buckthorn

(HIPPOPHAE RHAMNOIDES)

Sea-buckthorn is called the plant of the future due to its highly positive effects on human health. The content of vitamin C in sea-buckthorn berries is up to 25x higher than in citrus fruits. In nature, it usually grows on the coasts of Europe and on the sandy plains of Central Asia, where it forms abundant bushes usually 3 meters high. Due to the unique chemical composition of its berries, this frost-resistant bush has recently come into the forefront especially in the pharmaceutical industry and modern medicine. Its content of more than 200 biologically active substances ranks seabuckthorn among the most precious medicinal plants in the world. The flowers of sea-buckthorn are small and inconspicuous. Its berries are juicy, aromatic, and are yellow, orange-yellow or red.

Sea-buckthorn berries contain tocopherol – vitamin E. Sea-buckthorn contains the highest amount of vitamin E of all fruit-bearing plants. The cause of the orange-red colour of the berries is a high content of carotenoids – group A vitamins soluble in fats.

Sea-buckthorn is a richer source of carotenoids than a carrot or gourd.

Clinical studies

Sea-buckthorn flavonoids and oils have a great potential for use in modern medicine. In 2006, a study was conducted with a group of patients proving the healing effects of flavonoids on cut wounds. The extent of the effect of flavonoids was comparable with the effect of a far higher amount of aspirin. Eccleston and comp. observed that sea-buckthorn juice, which is rich in antioxidants, protects the cardiovascular system against hypertension, ischemic heart disease, and positively stimulates heart functions. Extensive trials showed that sea-buckthorn flavonoids can positively affect heart muscle contractions, they help to sustain a sufficient supply of blood to heart muscle and they have positive effects on heart arrhythmia.

Sea-buckthorn oils have been proven to have positive effects on liver damage. A set of sea-buckthorn flavonoids reduced the risk of occurrence of pancreas carcinoma by 23% and at the same time positive effects of flavonoids from sea-buckthorn seeds on liver carcinoma cells were confirmed.



Active substances

- glucose
- fructose
- sucrose
- vitamin C
- organic acids
- anthocyanins
- leucoanthocyanins
- catechins
- pectin substances
- tannins
- vitamins B1, B2
- sterines
- vitamin K6
- choline
- saturated fatty acids
- bioflavonoids
- phytoquinines
- vitamin K group
- carotenoids
- vitamin P
- minerals (calcium, magnesium, copper, iron)
- vitamin E

Russian scientists obtained the alkaloid hippophen – serotonin from the peel of sea-buckthorn. It is also called the hormone of “happiness” and has anti-tumour effects.



Health benefits



- Sea-buckthorn has immunomodulation, antioxidant and antibacterial effects. All parts of the plant contain valuable biologically active substances. Nevertheless, the most valuable is sea-buckthorn oil from the berries. One must distinguish between seabuckthorn oil obtained from the pulp and sea-buckthorn oil obtained from the seeds.
- The beta-sitosterol contained in seabuckthorn reduces blood cholesterol and flavonoids reduce blood pressure and have protective effects on vein endothelium cells. Tea from sea-buckthorn leaves is an excellent remedy for prevention of prostate and stomach cancer.
- In Mongolia, they use extract from the leaves and young branches to treat intestinal inflammations and the digestive systems of both people and animals, to treat diarrhea and other problems with the digestive system. Sea-buckthorn roots were used for the treatment of ulcers, especially in the eastern part of Turkey.
- In Tajikistan, sea-buckthorn flowers are abundantly used for the softening of skin. Sea-buckthorn berries are used in Indian and Tibetan medicine for metabolism disorders, problems with digestion as well as pulmonary and cardiovascular health problems. As ancient documents show, common sea-buckthorn is a mild drug, which can reduce fever and has anti-inflammatory and detoxifying effects. It also eliminates inflammations in the respiratory paths, cures coughs, colds and facilitates breathing.



Interesting facts

- According to historical records, seabuckthorn received its name in the time of Alexander the Great, when soldiers used sea-buckthorn for themselves and their horses to restore energy. Horses obtained shiny fur due to the oil content, which led to the origin of its Latin name “hippophae” consisting of the words “hippos”- horse and “phaes” – shine.
- In Russia, they say that “sea-buckthorn gives shiny fur to horses and clear sight to humans”.
- In WWII, sea-buckthorn was abundantly used in the Russian army as a supportive remedy directly in the field.
- Sea-buckthorn was also an indispensable part of the diet of sailors, because of its content of serotonin – neurotransmitter, which helped them to deal with highly stressful situations.
- Due to its unique effects, sea-buckthorn was proclaimed the herb of the year in Finland in 2005.
- Recently, a list of the 10 most efficient herbs in the world was published and seabuckthorn was ranked among the leaders.
- Sea-buckthorn wood is used for the production of pipes, especially due to its aromatic properties.



Sea-buckthorn oil

(HIPPOPHAE RHAMNOIDES OIL)

Sea-buckthorn oil is an efficient medicinal remedy with a broad range of effects. It is a real natural concentrate of carotenes and other biologically active substances – it is a unique natural medicine.

Sea-buckthorn oil

(HIPPOPHAE RHAMNOIDES OIL)

Sea-buckthorn oil from seeds and berries is a precious product, which has healing and protective effects on skin and the mucous membrane. In the past decade, a lot of positive information has been published about sea-buckthorn oil. It has also become an alternative remedy and precious commodity in many countries. Sea-buckthorn oil is an efficient means of treatment with a broad range of effects. Sea-buckthorn oil is a real natural concentrate of carotenes and other biologically active substances – it is a unique and natural medicine.

Sea-buckthorn oil include palmitic and oleic acids, which are considered precious substances for healing of skin injuries and burns.



Active substances

Oil from its seeds and berries contains a great amount of beneficial OMEGA-3, 6 and 7 unsaturated fatty acids, natural antioxidants, vitamins (E, K), carotenoids (β-caroten, lycopene), flavonoids and phytosterols. Important components include palmitic and oleic acids, which are natural components of skin and are considered precious substances for healing of skin injuries and burns. The antioxidation effects of sea-buckthorn oil contribute to faster healing, as free radicals are formed in the area of the burn, which normally slow down the healing process, but antioxidants contained in sea-buckthorn oil (carotenoids and vitamin E or tocopherol) are able to eliminate these free radicals.

Clinical studies

The preventive and medicinal effects of seabuckthorn oil (and of its individual components) consumed orally have been proven by several clinical trials. Sea-buckthorn oil was successfully used for the treatment of oral cavity inflammation with the formation of ulcers in 60 child patients. The peroral use of sea-buckthorn oil has been proven successful even in patients with atopic dermatitis. Clinical trials confirmed a medicinal effect of the oil on irritated or damaged mucous membranes of the digestive system. 151 patients with burns participated in one of the trials. Compresses on the basis of sea-buckthorn oil from the pulp were placed on the burns. This treatment led to a visible alleviation of the swelling, alleviation of pain and to a faster healing process. Clinical trials were not only focused on the healing effects of sea-buckthorn oil. When giving oil extracted from sea-buckthorn berries to healthy males, their blood platelet clotting decreased, which meant a reduced risk of the occurrence of cardiovascular diseases. When giving sea-buckthorn juice with components of sea-buckthorn oil to volunteers, the scientists managed to decrease the amount of blood lipids and blood clotting, which again meant a decrease in the risk of occurrence of cardiovascular diseases. Small doses of sea-buckthorn oil obtained from the pulp of its berries can suppress the syndrome of dry eyes, when consumed orally, and decrease burning or redness of the eyes.

Health benefits

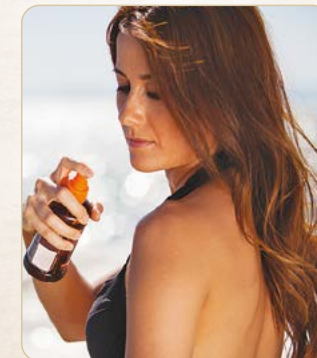
- During the cold war in Russia, sea-buckthorn oil was considered a significant ingredient, as it very efficiently regenerates both skin and mucous membrane in case of burns and the effects of radiation.
- Sea-buckthorn oil protects the mucous membranes of cells against damage from radiation. It regenerates the skin damaged by frostbites and eczema.
- Oils from the berries are used as a part of ointments for disease such as eczema and systemic lupus erythematoses.
- Oil from sea-buckthorn seeds also absorbs UV radiation and so it can be used as a natural ingredient of tanning products. Sea-buckthorn oil acts against the development of inflammation in an injury, as fruits (berries) of seabuckthorn contain antibacterial components.
- Sea-buckthorn oil has strong bactericidal effects. It destroys the golden staphylococcus, haemolytic streptococcus and other microorganisms. It regenerates stomach mucous membrane and suppresses the bacteria *Helicobacter pylori*, which causes stomach ulcers.
- Sea-buckthorn oil is also used in the treatment of arteriosclerosis. The oil together with the corresponding diet improved the health condition of patients with sclerosis of coronary arteries, symptoms of stenocardia (chest ache) were significantly reduced or disappeared, vertigo was eliminated and blood pressure returned to normal.
- It is also used as a prevention of cancerous disease. Sea-buckthorn oil prevents dystrophy of the muscles and regulates the amount of sex hormones. It also alleviates pain from injuries and activates functions of pancreas.

Interesting facts

- Oil from sea-buckthorn, which is the most precious product from sea-buckthorn, was also used for example by astronauts for supplementing of necessary vitamins and protection against cosmic radiation.



- Men are recommended to use 1–2 drops of sea-buckthorn oil per day after shaving. Their skin thus receives a bronze colour and smoothness.
- Carotenoids and other chromophores contained in seed sea-buckthorn oil strongly absorb UV radiation (290 – 320 nm) – so treatment of skin with sea-buckthorn oil protects the skin against harmful sun radiation.





Black elder

(SAMBUCUS NIGRA)

Black Elder is one of the most favourite herbs of folk medicine. The medicinal effects of Black Elder can help virtually anyone. The flower of this herb has no adverse effects.

Black elder

(*SAMBUCUS NIGRA*)

Black elder is one of the most popular herbs of folk medicine. This bush originating from the Caucasus reaches the height of 7–10 m and grows on both sunny and shaded areas in nature. It can often be found in the countryside on fences and in gardens. We can find it in humid forest clearings, in stony places, in gorges, on meadows and even in ruderal environments, as it tolerates a higher content of nitrogen in the soil. It blooms in the form of rich flower sets from June to July. The flowers have a yellowwhite colour with ivory shade. The flowers give out a strong aroma. The berries ripen in September and October. The berries of black elder are small, black, round, shiny stone-berries from five to six millimetres. Black elder grows abundantly in the Czech Republic, too.

All parts of black elder are medicinal. The spring shoots, flowers, bark, leaves and roots all have a high concentration of active substances.

However, the simplest way is just collecting the flowers and berries, or leaves. The flowers, leaves and bark are harvested in June and July.

The black berries containing glycosides, carotenes, anthocyanins, choline, sugars, organic acids and vita-

min C in their fresh state, ripen from August to the middle of November. The peel and seeds contain vitamins A, B1, B2, B6, B12 and panthotenic acid. The leaves and unripe berries contain slightly poisonous substances, so they should not be ingested orally. On the other hand, the flowers and thermally treated berries should be ingested orally. The flowers contain essential oils, tannins and hormone-like substances. The berries are fully ripe in October and they should be harvested at this time. They contain vitamins A and C as well as amino acids.

Black popular herbs of folk medicine. Black elder is one of the most



Active substances

- glycosides
- sambunigrin
- rutin
- bioflavonoids
- anthocyanins
- choline
- essential oils
- volatile oils
- tannins
- slimy substances
- malic acids
- acetic and valeric acid
- OMEGA-3 and OMEGA-6 fatty acids
- panthotenic acids
- carotenes
- vitamins C, B a E
- organic acids
- sugar
- resin
- calcium
- sambucin



Health benefits

- The medicinal effects of black elder can help virtually anyone. The black elder flower has no adverse effects.
- It acts as an efficient neutraliser of free radicals, which can otherwise cause malignant diseases.



- It is a very good calming product, it can be used as a prevention of tonsillitis, during flu or for strong coughs.
- It helps for pains of a nerve origin – migraines and inflammation of the trigeminal nerve.
- It is an efficient remedy for decreased breast milk production.
- Black elder flowers have detoxifying effects. It frees the organism from accumulated toxins, especially from uric acid.
- It cures disorders such as rheumatism and gout, or it can be used as a good prevention of these disorders.
- Fresh berries have laxative effects, on the other hand dry fruits are used against diarrhoea.
- It is good to drink tea from black elder or to use black elder syrup in case of an excessive retention of liquids in the body and swellings.



Interesting facts

- Black elder is considered a magical medicinal plant – in the past, people often used it for purposes of witchcraft.
- Black elder was used in barrows in ancient Britain.
- In the past, young black elder shoots were used to alleviate tooth ache.
- Young leaves mixed with barley flour were used to treat burns and were placed on injuries caused by dog bites with a risk of rabies.
- The powder from the ground dry leaves of black elder was used in folk medicine to stop nose bleeding.
- The juice extracted from the berries was used to colorize foodstuffs and textile, as it has an intense, dark red colour.
- In Slovakia, black elder wood is a significant raw material for the production of traditional music instruments – fujaras and various whistles.
- Black elder berries should not be eaten raw, as they can provoke symptoms of poisoning.
- In Slovakia, it was a custom to give a black elder seedling to a bride, so that she can plant it next to her new home.
- The Slavs considered black elder their sacred tree.



Rose hip

(ROSA CANINA)

The rose has always been a symbol of beauty, youth and love. Rose petals were added to magical potions to cast love spells and roses are given as a gift to beloved persons even today. Rose hip contains 300 different chemical substances, of which 100 have been already defined. Rose hip is a rich source of vitamins and minerals.

Rose hip

(ROSA CANINA)

Rose has always been a symbol of beauty, love and youth. Rose petals were used as a part of magical potions to cast love spells and roses are still given as a gift to beloved persons today.

Rose hip belongs to the tribe of rosaceae and it is a deciduous bush or liana reaching up to three meters in height and up to 10 meters in length. Its branches are full of thorns. You can see a rose hip bush blooming in the beginning of summer, in June and July, rose hips ripen in autumn, usually during September. Rose hip grows in dry, sunny areas and in warm mountain regions. It grows on almost all continents.

Its name rose hip and its Latin name Rosa canina (literal translation really is "rose hip") originates from the times, when a decoction from rose hips was used against dog bites.

The popular rose hip tea is prepared from the pulp of rose hips and it is a precious source of vitamin C especially in winter.



Active substances

It contains various chemical substances, of which 100 have already been defined. Rose are a rich source of vitamins and mineral substances. They contain sugars, pectin, organic acids, fatty oil, essential oil, vitamins A, B, E, P and K and especially a great amount of vitamin C, nicotinic acid, tannins, slime. The red colour of its berries is caused by lycopene, which pertains to the group of carotenoids. This lycopene is a strong antioxidant and its isomers significantly differ from other lycopene contained for example in tomatoes or grapefruits. Due to the content of many other medicinal substances it also acts as a herbal tonic. The active substances from rose hips strengthen veins and alleviate pain in veins and varicose vein. They improve the supply of oxygen to body cells, as well as stimulate libido and potency. The popular rose hip tea is prepared from the pulp of rose hips and it is a precious source of vitamin C especially in winter.



Clinical studies

Studies have shown the positive effects of rose hips on rheumatic arthritis and osteoporosis and significant anti-inflammatory and antioxidant effects. There is evidence that the powder from the berries of Rosa canina added to an everyday diet can alleviate pain related to osteoarthritis and reduce the consumption of synthetic painkillers (Daels-Rakotoarison and col., 2002). Rose hips have been proven to be a reliable prevention of the flu and colds.



Health benefits

- It acts as a herbal tonic, it positively affects metabolism, it is an antirheumaticum and antineuralgicum (against nervous system diseases). It is used as a diureticum, for kidney diseases and urinary bladder diseases, in particular for kidney stones and urinary bladder stones, furthermore for gout, rheumatic diseases, diarrhoea and hives. It has antibacterial and antiviral effects and it increases the production of bile and supports digestion. It is used as an herbal blood tonic and to cough out phlegm.
- Rose hips are used as a prevention and treatment of colds, flu and viral disease.
- It is used for the treatment of vitamin C deficiency and for fever reduction.
- Rose hips strengthen the immune system in case of the overall fatigue of the organism.
- Rose hips help for stomach cramps, a lack of stomach acids, prevention of inflammation of stomach mucous membrane and stomach ulcers, for intestinal diseases, diarrhoea and the prevention of hives.
- Rose hip acts as an excellent laxative and has even been proven successful in the treatment of gall bladder problems and gall bladder stones.
- It helps problems in the lower urinary tract and acts as a diuretic.
- It alleviates pain related to gout or uric acid metabolism disorders.
- It is a supporting natural remedy used in treatment of arthritis, ischias, diabetes and pulmonary diseases.



Interesting facts

- In the medieval ages, rose hip was a frequent plant among medicinal plants planted in castle gardens.
- Rose hips were an indispensable part of folk medicine. Rose hips were even given to patients by Hippocrates himself and their beneficial effects were described in an Anglo-Saxon herbarium from the 11th century.
- Due to the combination of calcium, rutin and vitamin C, rose hips are the best natural remedy for periodontosis and gum diseases.
- Since the 19th century, the oil obtained by the distillation of rose petals has been used in aromatherapy.
- During WWII, when there was a lack of citrus fruit as a consequence of the blockade of trade ships by German submarines, rose hips became the main source of vitamin C.
- In 1930s, the tincture from rose hips was prescribed for throat ache and it was used to a great extent to add taste to other drugs.
- Native Americans frequently used rose hip both as a medicine and as a food. They used all of its parts such as its berries, flowers, leaves and roots for cold, for diarrhoea, for flu and stomach troubles. The Native American tribe called "The Crow" used a decoction from ground roots of rose hip for compresses placed on swellings and its hot vapour for inhalation in case of nose bleeding or oral cavity bleeding. The Cheyennes used decoctions from rose hip bark for diarrhoea and stomach problems. The Arapahos believed that rose hip seeds are good for muscle pain.



Ansu apricots

(PRUNUS ARMENIACA)

Apricots are one of the healthiest fruits – they contain about 200 active substances. Apricot seeds contain a significant medicinal substance - vitamin B17, which has been successfully used in the treatment of malignancies.

Ansu apricots

(*PRUNUS ARMENIACA*)

Ansu apricots are among the healthiest fruits ever. Moreover, they contain only 57 calories per 100 g. This cultural fruit woody species was known in China as far back as around 2000 B.C., in Western Europe around the year 800 and in Central European states only in the 14th century.

Why do ansu apricots have a golden orange colour? Because they contain a great amount of beta-carotene – mineral, which prolongs skin tan. The cold-pressed oil from apricot seeds has recently become very popular among gourmets all over the world. It has a high content of all types of vitamin B and also vitamin A in its natural form. The oil has positive effects on digestive organs and liver as well as regulating heart rhythm disorders and improving sight.

To achieve its preventive anti-cancer effects, we should use 100 mg of vitamin B17 from apricot seeds per day.



Zázračný vitamín B17

The highest concentration of active substances containing vitamin B17 are in apricot seeds, which are easily available. To achieve preventive anticancer effects, you should use 100 mg of vitamin B17 from apricot seeds per day. An average seed of ansu apricots contains approximately 4 to 5 mg of vitamin B17. Therefore, it is wise to observe a simple rule that a person should not eat more seeds at once than he or she would probably consume when eating a reasonable amount of whole apricot fruits. It is used in its purified form known under the name laetrile or amygdalin for the treatment of cancer. However, it is necessary to add that the application of laetrile as a medicine has not yet been approved in most countries.



Active substances

The Hunza tribe, whose kingdom is situated between western Pakistan, India and China, enriches its foods with apricot seeds. Oil is extracted from apricot seeds, which they use both orally and externally. The Hunza people also eat a lot of vegetables, buckwheat, millet, alfalfa seeds and sprouted legumes. This means they have an everyday supply of vitamin B17, which has become an object of attention of Dr. Krebs. The Hunzas cannot imagine their meals without apricot seeds.

After a team of doctors arrived in this distant part of the Earth, the renowned British surgeon Robert McCarrison published an article about the effects of apricot seeds in 1922. Afterwards, the Hunzas were repeatedly visited by many other representatives of the world of medicine. Teams from the surrounding world, which visited this place, reported that there are no common civilisation diseases among the Hunzas. Pieces of knowledge were gradually put together and other groups of people, who live isolated from the world and consume foods rich in vegetable proteins, minerals and vitamins, above all vitamin B17, were discovered.

Health benefits

- Apricots contain provitamin A (beta-carotene – which sustains skin tan and prevents cancer as an antioxidant), group B vitamins, for example vitamin B1 suitable for the strengthening of nerves.
- Apricot seeds contain a precious vitamin – B17 or laetrile, which directly affects cancerous cells and destroys them.
- Due to the combination of folic acid with a rich content of copper and cobalt, apricots are the ideal fruits for pale and anaemic persons.
- Ansu apricots support the immune system and rejuvenate and slow down the aging of cells.
- They restore the health of skin, hair, and nails, facilitate the production of cells and improve blood counts.
- They are used as a remedy for dry mucous membranes in the throat and nasopharynx, they alleviate asthma symptoms.
- Apricots decrease blood cholesterol, strengthen the immune system and peristalsis of intestines.
- They sustain a good condition of sight, they are recommended in case of dry conjunctivas or their chronic irritation or itching and in cases of the loss of the sharpness of vision.



Interesting facts

- Apricots contain about 200 active substances, especially bioflavonoids, of which three quarters have not yet been sufficiently researched by scientists.
- Dried apricots are a concentrated source of sugar, energy – and moreover, this form of apricots preserves all its important substances. Dry apricots contain, among other things, fibre, proteins and a significant amount of iron, calcium, potassium and some vitamins. US astronauts used to take them with them on space flights.

History of vitamin B17

Seeds are a significant part of ansu apricots. They contain the substance amygdalin, known under the name laetrile, or vitamin B17. You can find it in more than 1200 plants, however, the highest content of vitamin B17 is in apricot seeds. Laetrile is important due to its anti-cancer effects. Vitamin B17 arrived in laboratories in the 19th century, when the chemist Bohn noticed a release of hydrogen cyanide during distillation of a liquid from almonds. This knowledge was adopted by two French chemists, Pierre-Jean Robiquet and A. F. Boutron-Charlard, who isolated a crystalline substance, which they called amygdalin, from apricot seeds. In the beginnings of the 1950s, the Krebs, a father and son team, joined the research as well. The father, a doctor in San Francisco, came across amygdalin by chance, when he wanted to improve the taste of illegal whiskey. His son later modified the father's extraction process and called the result "laetrile", which he said could be a cure for cancer.



Blackberry

(RUBUS FRUTICOSUS)

Blackberries contain a high amount of anthocyanins, which are antioxidants situated in many different fruits. However, it is still not clear why blackberries are so efficient in colon cancer prevention. It is probable that they contain other active substances, due to which they are so unique in this respect.

Blackberry

(*RUBUS FRUTICOSUS*)

Blackberry is a bush from the tribe of rosaceae. It thrives mostly in sunny areas, such as on the edge of forests. Its berries have an excellent taste and a high medicinal power. If you have no blackberries growing nearby naturally, you can easily cultivate them on your own. Their cultivation, as well as their multiplication, is not difficult. You can easily multiply them by means of offshoots. Blackberries spread rapidly, so you should regularly remove already fruitless or incorrectly growing shoots. Cross-breeding has resulted in many new variants, which differ in the shape of fruits, taste and time of ripening. The distinct taste of blackberries is excellent in jams, marmalades, beverages, teas and fruit salads. Blackberries probably spread to Europe from regions in Asia and Northern America.



Active substances

- *malic, tartaric, citric acid*
- *folic acid*
- *sugars*
- *pectin*
- *volatile oils*
- *vitamin C*
- *carotenes*
- *bioflavonoids*
- *group B vitamins*
- *phosphorus*
- *potassium*
- *iron*
- *calcium*

Blackberries are a great source important vitamin C.

Clinical studies

Scientists from the Illinois university in Chicago discovered that the regular consumption of blackberries resulted in a decrease of the risk of the occurrence of colon cancer by 45 % and the number of tumours by 60 %. Blackberries suppress tumour growth by reducing production of the protein known as beta-catenin. Both fresh and frozen blackberries were used in the study. This indicates that the positive effect of blackberries is not affected by their freshness. Blackberries contain a high amount of anthocyanins, which are antioxidants found in many various fruits. Nevertheless, it is not yet quite clear, why blackberries are so efficient in the prevention of colon cancer. It is probable that blackberries contain other active substances, due to which they are so unique in this respect. Blackberries help both in the prevention of cancer and inflammations and can also protect us against other diseases, such as heart diseases.



Health benefits

- Blackberries are a great source of vitamin C. They are very rich in carotenes, bioflavonoids and strong antioxidants, which eliminate free radicals, regenerate the mucous membrane and give a healthy colour to our complexion.
- Consumption of blackberries is also suitable for the treatment of colds and infectious diseases, tonsillitis, flu, coughs, inflammation of cavities etc., as well as for faster convalescence. They are immensely important for those who suffer from vascular problems, such as varicose veins, weak vascular walls, high blood pressure, hemorrhoids, or troubles with male erection, which was confirmed by expert study trials.
- Blackberries regenerate the mucous membrane and give a healthy colour to the complexion. They have positive effects on the motion of intestines and they harmonise the intestine microflora. While drying decreases the content of vitamin C in the berries, the antioxidation effects of the flavonoids are always preserved.
- Bioflavonoids strengthen and regenerate vascular walls, improve blood flow, strengthen ligaments and slow down aging and withering of the organism in general.
- The leaves are used to prepare a tea with a pleasant taste. The substances contained in leaves are above all anti-inflammatory.
- Many generations have used dried leaves as a remedy for diarrhoea, for which it is good to drink tea from leaves until the problems disappear. Blackberries also have positive effects on the mucous membrane in the stomach and intestines as well as alleviating and curing colic.
- Blackberry has beneficial effects in the treatment of hysteria and menopause disorders. It has also been proven successful for treating fatigue, weakness, cold, hoarse voice, enlarged thyroid gland, high fevers and as a cellular protection during oxygen therapy and ozone therapy. It also protects athletes and hardworking people against free radicals.

Interesting facts

- Its seeds contain up to 24% essential oil.
- According to Hippocrates, blackberries were used in the treatment of inflamed and bleeding injuries.
- In folk medicine, young leaves were used against diarrhoea, for strong menstruation and skin rashes and blackberries were also a remedy used for diabetes.
- Mathioli says in his herbarium that: "Drinking a decoction from the entire flower and fruit of blackberry is a noble medicine".
- Mostly only leaves were used for medicinal purposes until the end of the 20th century.
- Blackberries contain easily digestible sugars and up to 80 percent water.
- Blackberries are perfect for weight loss, as there is only 200 kJ in 100 g blackberries.





Small-leaved lime

(TILIA CORDATA)

A lime or linden tree in a garden is a blessing both for people and bees. This kind tree with a beautiful shape has been the Czech national symbol from the times of the Czech National Revival. The lime tree has always been appreciated due to the medicinal effects of its flowers, as a food for bees and a provider of honey and also due to its wood, which has excellent properties. It has also always been seen as a home of good spirits with power to drive away evil and dark forces.

Small-leaved lime

(*TILIA CORDATA*)

Small-leaved lime in a garden is a blessing both for people and bees. This kind tree with a beautiful shape has been the Czech national symbol from the times of the Czech National Revival. The lime tree has always been appreciated due to the medicinal effects of its flowers, as a food for bees and a provider of honey and also due to its wood, which has excellent properties. It has also always been seen as a home of good spirits with power to drive away evil and dark forces.

Lime aroma in the air is a sure sign of an approaching two months of holidays. Lime blooms during June and July. Its flowers are yellowish-white with a distinct aroma.

Trees can grow up to 30 metres of height and their large heart-shaped leaves provide pleasant shade for the entire summer. Lime flowers are a source of delicious light honey and dried lime flowers also have many applications. Lime is often combined with black elder.

You should collect lime leaves in summer, together with the pellicular leaf and always in dry weather. You should dry the leaves in the shade, in a thin layer with good air access, as the leaves soak humidity, they get darker, and drying in the direct sun deprives them of their nice aroma.

The aroma of tea from lime flowers is enticing and it has a sweetish taste. This delicious warming tea also tastes good with honey added, perhaps even lime honey.

NATURAL COSMETICS

Lime flower has its distinctive and indispensable role in cosmetics. It supports beauty and health of hair, which you should rinse with lime decoction after washing them. Softly



Active substances

- essential oil (alcohol farnesol)
- glycosides
- substances close to vitamin E
- saponine
- tannins
- glycoside tiliroside
- fenolic acids
- flavonoids
- organic acids
- volatile oils
- slimy substances

massage the lime decoction into the skin and do not rinse by water. After rinsing with lime decoction, hair is soft, shiny, flexible and has a pleasant honey-like smell.

Compresses from lime flower placed on the face improve blood supply to the skin, which has a positive effect on the nutrition of subcutaneous cells.

Extracts from lime flowers are added into cosmetic creams, mouthwashes and toothpastes. Lime flower protects sensitive skin against infectious diseases by forming a protective layer on the skin and shows amazing regeneration effects. It maintains the equilibrium of water and fat, immediately soothes irritated skin and also provides a gold shade to the skin. Lime substances soluble in fats, especially vitamin E, pass into the ointment or oil base, which is why lime flower in this form can be used for cosmetic purposes, such as for dry and insufficiently supple complexions. Lime baths are recommended for nerve diseases, for soothing and for the general regeneration of the organism.



Health benefits

- It is recommended for colds, coughs, tonsillitis, bronchitis, especially in connection with fever.
- It alleviates coughs, supports sweating, helps to dissolve phlegm, reduces cramps, as well as having antiinflammatory and calming effects.



- It is used for the treatment of urinary tract diseases.
- It supports the excretion of bile.
- It increases appetite.
- It is used in the case of stomach and intestinal disease, stomach and heart cramps, rheumatism, dysentery and epilepsy, menstruation pains, as well as inflammation in the oral cavity.
- It is recommended to use lime ash with sugar orally for ulcers, inflammations and cancer.
- Lime flower have amazing skin regeneration effects.
- Lime leaves scalded with water are placed on bruises, burns, scratches.



- Even lime bark has medicinal effects – it helps in the treatment of kidney stones, vascular diseases and gout.



Interesting facts

- The oldest Czech lime tree can be found in Lipka u Horního Bradla and, incredibly, it is 600 years old.
- Lime ash is used as a good toothpaste powder (instead of a normal toothpaste).
- Lime is the tree of love, understanding and mutual agreement. It is known that in ancient times, elders used to have meetings under lime trees to discuss the fate of their entire community.
- If you have any “heart troubles” or other negative thoughts, come close to a trunk of a lime tree, preferably a very old lime tree. You can feel the strong and very pleasant energy radiating from the lime tree in places where these trees were planted in a circle. That is why 12 lime trees used to be planted in a circle in the past. In the middle of such a circle, even a not very perceptive person feels blissfulness, joy and peace filling up his or her body and mind.
- Lime flower is a strong sedative, meaning it can become addictive, so you should occasionally interrupt its use for a short period of time. In higher doses, it can have narcotic effects.
- Lime wood serves as a raw material for the preparation of the so-called activated charcoal, which has similar properties and use as the so-called animal charcoal. It helps in the treatment of the gall bladder and liver, or as a remedy after consuming a poison.



Acerola

(MALPIGHIA GLABRA)

Acerola, also called Barbados cherry, is an evergreen bush or small tree. It contains up to 30x more vitamin C than an orange and it is a strong antioxidant. It has proven anti-cancer effects.

Acerola

(MALPIGHIA GLABRA)

Acerola, also called Barbados cherry, is an evergreen bush or small tree (reaching the height of up to 6 m). Its fruits are similar to cherries. The plant does not tolerate permanent cold, but older plants can easily survive a short-term decrease in temperature of up to -2°C , while young plants are far more sensitive. The trees bloom in various periods depending on the current and climatic conditions. The plant starts blooming gradually. Its fruit also ripens gradually, approximately 3 to 4 weeks after it ceases blossoming. Its stonefruits are about 1.5 to 3 cm and weigh 3 to 5 g. When ripe, their shiny thin peel has a scarlet red colour and the juicy sour pulp contains three seeds. Acerola has been known to native tribes all over Southern America for thousands of years, but it has only come to the forefront of scientific interest in recent years. The plant is cultivated (its bred clones in the form of a tree) on plantations in tropical and subtropical regions almost all over the world.



Active substances

The main advantage of acerola, discovered in 1945, is a high content of ascorbic acid in its fruits. Acerola contains up to 30x more vitamin C than an orange. Together with the fruit Camu Camu, it contains the highest amount of vitamin C on the earth. The content of natural vitamin C in ripe fruits is 4.5 %. Vitamin C is important to sustain healthy and elastic veins, a soft and shiny complexion, well-working muscles as well as firm and healthy bones and teeth. Vitamin C is not stored in the human body as a reserve, so we need to consume it every day. Besides vitamin C, scientists have identified 150 other types of substances in acerola, including iron and magnesium. From other vitamins, it also contains vitamin A, B1, B2, B3, B5 and beta-carotene. Acerola bark from the trunk contains up to 25 % tannins. Another important component of acerola are flavonoids (anthocyanins, flavonols, quercetin, aceronidin) – energising and rejuvenating substances.

Clinical studies

Tests have shown that extracts from acerola decrease the risk of the occurrence of pulmonary tumours, or slow down the progress of the disease. In laboratory trials, Hungarian scientists proved that the individual components of acerola are able to destroy malignant cells and they recommend it as a supporting therapy in cancer treatment. The effect of polyphenols from acerola was also proven in study trials on melanogenesis (appearance of pigmentation). It was found out that the effect of polyphenol concentrate of acerola did not result in an increased skin pigmentation caused by UV radiation.

Acerola provides natural vitamin C and other useful vitamins and minerals. It is a strong antioxidant. Another use is as an astringent, it helps for diarrhoea, hepatitis and fever, although these effects were not described in clinical trials.

Health benefits

- Local inhabitants in South America are accustomed to eating this sour fruit especially for colds, coughs, diarrhoea, dysentery and liver diseases.




- Acerola was a subject of clinical trials many times and it was found to be a strong antioxidant. Its anti-cancer effects were also confirmed. Acerola helps to slow down the abnormal growth of cells, so it is very efficient in cancer treatment. It has positive effects against cold, free radicals and high cholesterol. It maintains the youthful appearance of the skin and hair and it has significant beautifying effects.
- In folk medicine, acerola is used in the treatment of inflammations, heart problems, anaemia, rheumatism, tuberculosis and during convalescence after various diseases. Clinical trials have shown that acerola increases effects of other dietary supplements, which decrease the blood cholesterol (e.g. soya, alfalfa) and that it increases their antioxidant effects.
- Substances contained in acerola increase the accessibility of glucans contained in medicinal mushrooms (oyster mushroom, reishi) to the human organism, which results in a strengthening of the immune system.

Interesting facts

- This plant originates from regions from the north of Central America to the centre of South America. Acerola is consumed in various ways. It is added into teas and yoghurts. Acerola juice is a part of many fruit juices and energy beverages. Juice from unripe fruits is a source of pectin and dietary fibre.
- For household use (in beverages, sweet desserts, cake icings, puddings and ice-creams, fruit salads and cups, for making of jellies and jams), harvested fruits must be fully ripe, as ripe fruits have the best taste. One can also make wine from the juice, which preserves 60 % of the original vitamin C after fermentation.
- To obtain high-quality fruits, adult trees must be regularly trimmed and it is necessary to breed bees near the plantation to achieve pollination of such a high concentration of flowers. The productivity is very variable, but individual trees in some regions may bring up to 30 kg of fruits (Portorico). On average, 25 t of fruit are harvested from one hectare, from which you can obtain about 2.5 t of juice and about 500 kg of ascorbic acid.



A close-up photograph of a water hyssop plant (Bacopa monnieri) with several small, five-petaled white flowers. The plant has thick, succulent-like green leaves and is set against a dark, blurred background. The lighting is bright, highlighting the texture of the leaves and the delicate structure of the flowers.

Water hyssop

(BACOPA MONNIERI)

This perennial, creeping tropical herb from the figwort family has been used in Ayurvedic medicine for centuries, mostly for its positive effect on brain activity; it improves concentration and cognitive functions.

Water hyssop

(*BACOPA MONNIERI*)

The genus *Bacopa* includes more than 100 species of this herb. It is found in the wetlands of the tropical regions of the Indian subcontinent in wet and swampy or sandy sites near streams in the warm regions of India, Nepal, Sri Lanka, China, Taiwan and Vietnam. We also find it in Florida and other southern states of the USA. *Bacopa* is a plant belonging to the Scrophulariaceae family. It is a small creeping herb with numerous stems and small oblong leaves and pale purple or white flowers with four or five petals. The whole plant is used medicinally.

Bacopa can also be grown at home, as a houseplant, preferably in hanging baskets or flower pots. When it starts to grow to its usual size, it creates a beautiful clump of greenery with tiny flowers in our apartment, when it seems to pour out of its container and form an imaginary waterfall.



Active substances

The whole plant and plant extract contain bacosides (the main active substances) and triterpenoid bacosaponins, which include bacosides III to V, bacosides A and B and bacosaponins A, B and C (dammarane), hersaponine, monnierine, brahmine, nicotine, alkaloids, plant sterols, betulinic acid, mannitol, flavonoids, polyphenols and sulfhydryl compounds, which show antioxidant activity.

In India, water hyssop is generally known as Brahmi.

Clinical studies

A double-blind, placebo-controlled study was conducted in 2008 to assess the effect of water hyssop on cognitive performance, anxiety and depression in the elderly. The aim of the study was to evaluate the effects of a standardised dry extract of the whole *Bacopa monnieri* plant on cognitive functions, its safety and tolerability in healthy elderly study participants. A total of 54 volunteers older than 65 (with an average age of 73) without clinical symptoms of dementia participated in the study. After the administration of water hyssop, the auditory and verbal skills of the participants improved. Their learning ability and memory also improved compared to the placebo group. There was a significant reduction in the heart rate of those in the water hyssop group. The dose was well tolerated with only a few adverse effects, mostly stomach upset. This study provides further evidence that water hyssop has the potential to safely enhance cognitive function in the aging process. A number of other studies provided evidence of this plant's great potential for improving brain function, many of which were conducted on real patients.

Health benefits

- The plant has been used in the traditional system of Ayurvedic medicine for centuries to improve cognitive function and memory. This traditional Ayurvedic medicine has been used for centuries as a memory enhancer with anti-inflammatory, analgesic, antipyretic, sedative and anti-epileptic effects. The active substances acted as a nervine tonic, diuretic and cardiogenic, as well as a therapeutic agent against epilepsy, insomnia, asthma and rheumatism. It positively affects memory, learning and concentration in both adults and children. With prolonged administration, it helps improve anxiety and depression. The active substances of this plant have the potential to protect against Alzheimer's disease.
- Favourable results were achieved with the administration of water hyssop in attention deficit hyperactivity disorder (ADHD) studies. There is also evidence of potential attenuation of dementia, Parkinson's disease and epilepsy.
- It is also used in traditional medicine for asthma, mental illnesses and epilepsy. Folk healers describe its revitalising effects on brain cells, increased blood flow through the brain (dilation of blood vessels) and improving short-term and long-term memory.
- It seems that this herb can be used as a hepatoprotective agent (one study confirmed this in animals), or in certain states of liver damage (traditional use) as a medicinal means to boost liver function. Two studies from India reported a significant neuroprotective effect in hypoglycemic neonates.

Interesting facts

- *Bacopa monnieri* is commonly known as Brahmi or water hyssop, and it has been used in India in traditional Ayurvedic medicine for over 3,000 years.
- *Bacopa* can be grown in humid environments in our climate, but it needs to be sheltered for the winter. It requires constantly moist, almost boggy, soil; there should always be water in the bowl under the flower pot. It likes partial shade, where it thrives best. It is best grown in hanging pots, as it drapes over the edge.
- It combats exhaustion and premature aging.
- Do not combine water hyssop with Ginkgo biloba, which has some similar effects.
- The plant is also an important aquarium plant, as it grows very well in water too. In places where it grows naturally, it is sometimes also used as a leafy vegetable and added to salads and soups.





Boswellia serrata

(BOSWELLIEA SERRATA)

Boswellia serrata is a medium-sized tree that mostly grows in India, Africa and the Middle East. The main product of boswellia is resin containing boswellic acids, which are known for their strong anti-inflammatory effects.

Boswellia serrata

(BOSWELLIA SERRATA)

Boswellia serrata is a tree from the Burseraceae family, the bark of which is used to obtain an extract used to make frankincense. Boswellia serrata mostly grows in warm and dry mountainous areas in North Africa and Madagascar, as well as in India, Pakistan and Malaysia. The most important countries in terms of the quantity and quality of produced 'African' frankincense are: Ethiopia, Somalia, Yemen and Oman, with India dominating the production of Indian frankincense. Boswellia serrata trees grow to be 2 to 8 metres tall, sometimes in the form of multiple trunks, or a shrub with pale brown bark, mostly deciduous. The bark and wood contain resin canals. Compound pinnate leaves with a short petiole tend to be crowded at the end of the branches, with tiny white to yellowish flowers on short racemes. A rare aromatic gum resin - frankincense - is obtained from the cut bark of the trunk when the trees reach an age of 8 to 10 years. This resin protects the tree as it oozes out, healing a wound or suffocating a parasite.



Active substances

Frankincense contains dozens of terpenes that give it a special aroma; boswellic acids are also important compounds. Especially 11-keto-β-boswellic acid (KBA) and acetyl-11-keto-β-boswellic acid were found to have significant medicinal effects, but other boswellic acids can also affect the immune system. Valuable frankincense oil used in aromatherapy is obtained by distillation of the resin.



Clinical studies

Patients with rheumatoid arthritis under 75 years of age were given 200 mg of boswellic acids 3 times a day for a period of several months to five years. 88% of patients reported a significant improvement in joint stiffness, swelling and joint sensitivity and improved function. No side effects were reported. A randomized, double-blind, placebo-controlled crossover study was used to assess the efficacy, safety, and tolerability of boswellia extract in 30 patients with knee osteoarthritis. Each group of 15 patients received the active substance or placebo for eight weeks, and then the groups were switched. All the patients using BS extract reported reduced knee pain and an increase in mobility and the distance they were able to walk. The frequency of knee swelling was also reduced. No changes were visible on an X-ray. The observed differences between the group taking BS extract and the placebo group were statistically and clinically significant. BS was well tolerated.

Health benefits

- An extract from Boswellia serrata resin can be used as an antiphlogistic (medication to reduce inflammation). A number of studies proving this effect have been conducted. These effects are attributed to boswellic acids. Boswellic acids help reduce symptoms of osteoarthritis and rheumatoid arthritis, joint pain and morning stiffness. Boswellic acids do not just target the joints, they also have a beneficial effect on all chronic inflammatory diseases, such as asthma and inflammatory bowel diseases, e.g. Crohn's disease. They suppress the activity of interleukins and leukotrienes, substances that promote and maintain inflammatory processes in organs.
- The effect of boswellic acids is comparable to that of acetylsalicylic acid (aspirin), but they do not irritate and damage the lining of the stomach and intestines or thin the blood.
- Boswellic acids open collateral vessels (alternative blood supply to specific parts of the body) to ensure adequate blood supply to joints damaged by osteoarthritis. The non-acidic part of Boswellin extract has analgesic and sedative effects. The described effects of Boswellin include reduced joint swelling, increased mobility, reduced morning stiffness, increased tensile strength and overall improvement in the quality of life of patients with osteoarthritis and rheumatoid arthritis. The analgesic and sedative effects of Boswellin begin acting very quickly, usually within five days. Boswellin is an effective anti-inflammatory and anti-arthritic agent for osteoarthritis and rheumatoid arthritis, soft tissue rheumatism and lower back pain.

Interesting facts

- This is not a new discovery; Boswellia serrata has been used in Ayurveda for thousands of years. Its resin has been used in Ayurvedic science for over 5,000 years.
- Boswellia serrata trees were cultivated in the Middle Ages, but now the resin is collected from trees growing in the wild.
- Boswellic acids are used in multicomponent dietary supplements for bone and joint cartilage nutrition.
- Boswellia serrata was also used in ancient Egypt as a means of embalming mummies. In Persia, Greece, Rome and other areas, it was used as an incense to summon or expel spirits and cleanse areas of negative energy. It is therefore no surprise that Boswellia belongs to the same group as the frankincense we like to light on Christmas.
- In Ayurveda, Boswellia serrata is used to treat painful joints, fever, dysentery, sore throat and breathing difficulties. Over time, its beneficial effects on the liver and irregular or painful menstruation were also discovered. Interestingly, Boswellia was first mentioned 600 years ago in the ancient Vedas, which are ancient Hindu texts.



Lingonberry

(*VACCINIUM VITIS-IDAEA*)

Lingonberries are known for their beneficial effect on urinary tract infections. They contain proanthocyanidins, which bind to various bacteria, preventing them from sticking to the walls of the digestive and urinary tracts and causing unpleasant infections.

Lingonberry

(VACCINIUM VITIS-IDAEA)

Lingonberry, which belongs to the heather family, is an evergreen, prostrate, densely branched shrub that is 10 to 20 centimetres tall with leathery, shiny leaves. It has white or pinkish flowers arranged in clusters. Its fruit is a red berry. Both the fruit and leaves contain active substances. It grows in Europe through Asia Minor, the Caucasus and Siberia, extending to East Asia. In North America, it grows in the Northeast. It grows in acidic soils on heaths and bogs, most commonly found in the mountains. The fruits contain a significant amount of flavonoids and polyphenols, which prevent the development of atherosclerosis, the main cause of heart disease. They positively affect cholesterol levels and prevent enzymes from narrowing the arteries, thus supporting blood circulation. The powerful antioxidants contained in lingonberries increase 'good' HDL cholesterol by about 8%.



Active substances

The most important compound extracted from lingonberries are proanthocyanidins, which are a group of flavonoids. They are abbreviated as PAC. In addition to their effect against bacteria that cause inflammation in the urinary tract, they further contribute to better blood vessel elasticity, they have a beneficial effect on digestion, and they generally keep the urinary system and kidneys healthy; they are also what gives lingonberries their bitter flavour. These antioxidants help boost the innate immune system. They also primarily contain the glycoside arbutin, tannins, benzoic, gallic and hydroxycinnamic acid, hydroquinone, cholesterine, tannins, vaccillin, vitamins C, K and provitamin A, with a significant content of anthocyanins and flavonoids.



Clinical studies

In a multicentre trial conducted in the Czech Republic, 215 patients (91% of women with an average age of 41.6 and 9% of men) with recurrent urinary tract infections who experienced three or more relapses during the last 12 months were given lingonberry extract in tablet form equivalent to 7,500 mg of fresh berries. The product was taken once a day for one year in three-month cycles with a one-month break after each cycle. The average number of clinical manifestations of urinary tract infections decreased from 4.6 (3-7) recorded in the last 12 months to 0.76 (0-3) during the administration of lingonberry tablets. Conversely, no positive effects against urinary infections were reported with short-term administration of lingonberry capsules. 132 women were given lingonberry extract capsules equivalent to 17,000 mg of fresh fruit twice daily 4 days before and 5 days after gynaecological vaginal surgery; the incidence of postoperative lower urinary tract infections was not lower than in the control group of 154 women who did not take the lingonberry extract.



Health benefits

- Lingonberries are very suitable for people with diabetes, and they are also used to treat diarrhoea. They help treat biliary and digestive issues (stomach ulcers), diseases of the heart and circulatory system (they reduce cholesterol and blood sugar levels and prevent hardening of the arteries). However, they are most effective in the treatment of prostate disease and prevention and treatment of inflammation of the bladder, kidneys, prostate and the entire urinary system. Lingonberries are best used to prevent recurrent urinary tract infections and urinary incontinence. They have been shown to inhibit uropathogenic strains of bacteria (Escherichia coli, Klebsiella, Enterobacter and Pseudomonas). Lingonberries remove the unpleasant smell of urine, which makes them suitable for people suffering from incontinence. Lingonberries have been shown to inhibit Helicobacter pylori - a bacterium associated with inflammatory diseases of the stomach. The active substances in lingonberries also reduce the risk of colorectal tumours.
- Proanthocyanidins are a group of flavonoids, plant metabolites that can be found in various parts of plants. They were first discovered in 1948. They are sometimes referred to as vitamin P even though they are not vitamins. Their greatest value lies in the fact that they are powerful antioxidants.
- They inhibit the growth of Escherichia coli bacteria in urinary tract infections. Their mechanism of action consists in their adhesion to bacteria (they 'stick' to them in layman's terms), thus preventing them from settling on the walls of the urinary tract mucosa and causing harm. When bacteria cannot attach, they are flushed out in the urine. This is why natural products with lingonberry extracts are recommended to prevent urinary tract infections.



Interesting facts

- Native Americans used cranberry poultices to speed up healing of open wounds.
- Lingonberries prevent tooth decay, but only in their natural form without added sugar.
- Lingonberries have no side effects or adverse effects, their only contraindication are serious liver disorders.
- Their high percentage of nutrients and huge amount of antioxidants make these small red berries a so-called superfood - these are foods with a high number of important nutrients that are rich in vitamins and minerals, have a beneficial effect on the immune system and are high in antioxidants.
- In the food industry, lingonberries are processed fresh, dried, used to make jams, etc. Lingonberries and other Vacciniums are used in industrial production and are most often imported. Examples include large cranberry (Oxycoccus macrocarpus), which grows in North America, and small cranberry (Oxycoccus palustris); these are botanically not even true Vacciniums. The term cranberries is generally used for all these types of berries, lingonberries, other sour Vacciniums and the above-mentioned berries.

A close-up photograph of a Guarana plant branch. The branch is covered with large, vibrant green leaves that have prominent veins. Two clusters of bright red, round fruits are visible, one near the top and one near the bottom of the branch. The background is a soft-focus green forest. A semi-transparent white box is overlaid on the bottom left corner, containing text.

Guarana

(*PAULLINIA CUPANA*)

Guarana, also known as Brazilian cocoa, grows in Brazilian rainforests. It is added to various energy drinks thanks to the high caffeine content of the seeds of the red fruit. It is also added to weight loss products.

Guarana

(PAULLINIA CUPANA)

Paullinia cupana is a climbing plant in the family Sapindaceae. The plant has a markedly grooved stem and large, pinnate, oval leaves composed of five leaflets, with white, yellow or greenish tiny flowers growing in clusters. The fruits are red capsules containing a single dark black seed covered with a red fleshy skin. It grows in South America, especially in Brazil, Uruguay and Venezuela, in the Amazon River basin in a tropical environment with plenty of moisture. The seeds of Paullinia cupana are collected when fully ripe; they are roasted, hulled and mixed with water to form a paste called guarana. This mixture is high in caffeine and has a very bitter and astringent taste. Guarana has a stimulating effect and is used to treat asthenia and in weight loss diets.



Active substances

The following active substances were extracted from guarana:

biologically active substances:

- Vitamin C
- B vitamins
- Guaranine
- Contains 2x more caffeine than coffee
- Theophylline
- Theobromine
- Alkaloids
- Reddish vegetable fibre
- Oils
- Catechins



Clinical studies

A study of the effectiveness of herbal weight loss supplement Zotrim (TM) was conducted in 2007 due to the growing number of untested herbal weight loss supplements. This over-the-counter herbal supplement, the main ingredients of which are yerba mate, guarana and damiana (YGD), was tested by 73 nutrition specialists for six weeks. The individuals participating in the test were not required to change their lifestyle in any way. 22% of subjects participating in this clinical trial experienced a significant reduction in weight, waist circumference, and hip circumference. Their feelings of satiety increased and the subjects reported having more control over food and portion sizes. In the tenth week, when 82% of subjects stopped taking YGD, there was no further reduction in weight or hip circumference. No adverse effects related to the administration of YGD were reported. These studies prove that a dietary supplement containing guarana may be helpful in weight loss, most likely due to an increased feeling of satiety among patients. Studies have shown that guarana can be helpful in the fight against obesity by reducing the feeling of hunger and slowing down gastric emptying.



Health benefits

- A number of positive effects are attributed to guarana, and these can be divided into several categories.
- In the category of effects concerning the brain and the nervous system in general, it is said to increase concentration, improve learning abilities and mental functions, reduce stress, improve sleep problems and alleviate general restlessness and headaches.
- In terms of digestion, it is known to have a positive effects on stomach issues.
- Concerning the cardiovascular system, guarana affects heart activity - especially in tachycardia of various causes and increased blood pressure.
- It improves the overall flexibility and elasticity of the vascular system and prevents hardening of the arteries.
- Regular use of guarana helps eliminate mental and physical fatigue and improves detoxification, thereby improving the overall metabolism and elimination of toxic substances from the body.
- In countries where this herb grows naturally, it is also used in traditional medicine to increase potency, relieve pain and stimulate gastric juice production, as well as in convalescence after a long and difficult illness.
- Regular consumption of guarana prevents cholesterol from accumulating on the vessel wall.
- Paullinia fruit extracts are most commonly used as psychoactive ingredients in foods and beverages.



Interesting facts

- It is a vine-like plant that grows in the Amazon rainforest of Brazil and Venezuela.
- Guarana has been an essential plant for the Guaraní and Tupí indigenous tribes since ancient times. The natives trust this plant and believe it to be of magical origin.
- Native Indians used guarana to suppress hunger.
- Guarana has even been compared to cocaine due to its stimulating effect.
- The name 'guaraná' is derived from the word wara'ná. These tribes believe that the plant is magical, cures intestinal problems and boosts strength.
- They also tell the story of this plant being born from the eyes of a divine child killed by a snake.
- Guarana extracts are most commonly used as psychoactive ingredients in foods and beverages.
- Guarana has a similar effect to coffee, but its active substances are absorbed gradually.
- This medicinal plant was brought to Europe in 1817. In 1826, Karl von Martius and his brother Theodore from Germany examined it - isolating a bitter substance from it that they called guaranine.



Heart-leaved moonseed Guduchi

(TINOSPORA CORDIFOLIA)

Heart-leaved moonseed is a perennial vine-like plant with alternate leaves, yellowish flowers and a fleshy root system. It grows all over South Asia. It is used to treat type 2 diabetes due to its antidiabetic effects.

Heart-leaved moonseed

(*TINOSPORA CORDIFOLIA*)

Heart-leaved moonseed is a perennial climbing vine. It comes from India, where it is known under the names amrita or guduchi. It is most commonly grown in tropical locations up to 1,200 metres above sea level – from Kumaon to Assam and northwards to West Bengal, Bihar, Deccan, Konkan, Karnataka and Kerala. Plants that grow in high mountain areas, like Nepal, are especially valued. The root and shoot of guduchi are an herbal drug with a therapeutic effect. Scientific literature states that it combats stress and has a hypolipidemic, antidiabetic, hepatoprotective, immunostimulating and anti-inflammatory effect. Studies also report antioxidant, antimicrobial, antipyretic and regenerative effects.

The annual consumption of this herb for the preparation of natural medicines in the Indian medical system is over 10,000 tonnes.



Active substances

Diterpenic lactones, alkaloids, beta-sitosterol, polyphenols, glycosides, steroids, sesquiterpenes, phenols, disaccharides, alpha-D-glucan, arabinogalactan and other polysaccharides were isolated from the root of heart-leaved moonseed. High concentrations of protein, calcium and phosphorus were found in the leaves of the plant. Other important substances include tinosporin, tinosporol and tinosporic acid. Two other substances were recently isolated for the first time, namely N-methyl-2-pyrrolidone and 11-hydroxymustakone, which play a significant role in the immunostimulating effect of this herb.

Clinical studies

A preclinical study conducted in India tested 100 people in two groups. One group used a dietary supplement with a high amount of heart-leaved moonseed, and the other group took a placebo. Testing lasted 20 weeks (4 weeks = startup stage + 16 weeks of testing). Glycated haemoglobin levels dropped from 95.6 ± 11.5 to 75.8 ± 09.9 , which was considered a highly significant decrease. In comparison, the decline in glycated haemoglobin levels reported in the placebo group during the 16-week monitoring period was significantly lower. After two years on the Indian market, the product has gained the trust of over two million diabetes patients.



Health benefits

- Heart-leaved moonseed is traditionally used in Ayurvedic medicine for elevated blood sugar levels, digestive problems (dyspepsia, chronic constipation, diarrhoea), inflammation, to boost fertility and for allergies.
- It combats stress and has a hypolipidemic (reduces lipid levels), anti-inflammatory and antidiabetic (reduces blood sugar levels) effect, while also protecting liver cells (hepatoprotective effect), supporting the body's immunomodulatory abilities, boosting the immune system and the body's natural defences, and providing a spasmolytic effect (relieves smooth muscle spasms). Studies also report antioxidant effects, so it protects the body against free radicals, and it also regenerates and strengthens the digestive and urinary systems. Heart-leaved moonseed increases vitality and strengthens the body overall.
- A concentrate of guduchi root active substances reduced plasma glucose in animals with alloxan-induced type 2 diabetes. This effect was compared with glibenclamide and insulin, and although it did not achieve the same result as the drugs, there was a significant drop in plasma glucose levels. In a similar experiment on animals, guduchi extracts resulted in a decline in serum cholesterol, phospholipids and free fatty acids. It can therefore be concluded that its effect on liver function and metabolism also improves the processing and breakdown of fats in the liver parenchyma.
- Heart-leaved moonseed acts as a non-irritating diuretic and increases the excretion of uric acid, making it useful for people suffering from gout and gouty arthritis. Because it supports the excretion of metabolic products and has anti-inflammatory properties, it is useful for the treatment of osteoarthritis and rheumatoid arthritis.

Interesting facts

- Some old texts mention heart-leaved moonseed under the name amrit, which means nectar of immortality.
- Heart-leaved moonseed has been used in European pharmacies since the 16th century.
- Heart-leaved moonseed is sometimes combined with lemongrass in teas; this is a grass that grows in the tropics, smells like lemon balm and improves concentration and memory. It is also combined with cinnamon and ginger.
- In Ayurvedic medicine, a heart-leaved moonseed tincture is used. Europeans living in India were impressed by its tonic and diuretic effects, which is why the tincture spread to the Western world so quickly.
- Heart-leaved moonseed has been used in Asia as a sweat-inducing agent, also called 'Indian quinine'.
- The plant was named heart-leaved moonseed due to the shape of its leaves, which resemble a heart.





Yerva mate

(ILEX PARAGUARIENSIS)

Yerva mate is a prominent tree of the holly genus. It comes from South America and has gained popularity all over the world thanks to the yerba mate tea, which is used for fat loss and weight control.

Yerba mate

(*ILEX PARAGUARIENSIS*)

Yerba mate is of the holly genus (Aquifoliaceae) of Eudicots. Holly plants grow in wet habitats and are widespread, growing in both lowlands and mountainous areas. In the Andes, they grow up to an altitude of 4,000 metres. A number of these are endemic species growing on the peaks of the Venezuelan table-top mountains. Holly plants are evergreen or deciduous shrubs and trees that grow on all continents. *Ilex paraguariensis* is a subtropical evergreen tree that grows to a height of up to 18 metres. The leaves are entire, serrate or spiny. The flowers are unisexual, regular and small, usually 4- to 8-merous. The flowers are pollinated by insects. The fruit is a spherical fleshy drupe, usually containing 4 to 6 seeds. Ripe fruits are usually red, brown or black, and sometimes also green. The seeds contain an abundant oily endosperm. The leaves of over 60 species are used to make invigorating drinks. The dried leaves are called yerba maté, and they are used to make tea.



Active substances

The leaves of yerba mate contain polyphenols (chlorogenic acid) and xanthines (caffeine and theobromine), followed by purine alkaloids (caffeic acid, 3,4-dicaphenoylquinic acid, 3,5-dicaphenoylquinic acid), flavonoids (quercetin, kaempferol and rutin), amino acids, minerals (P, Fe and Ca) and vitamins (C, B1 and B2).

Clinical studies

Yerba mate is getting a lot of attention for its possible cholesterol-lowering effect. A study commissioned by an American heart association shows that three cups of yerba mate a day for about forty days helped lower 'bad' cholesterol levels quite significantly. According to one clinical study, yerba mate helps prevent cancer, and it is also beneficial in the treatment of colon cancer. This is quite topical for countries of Central Europe. Available studies show very clearly that this drink made from the leaves of yerba mate suppresses inflammation in the affected tissues while also destroying cells affected by the cancerous growth.

Health benefits

- Yerba mate has a hypocholesterolemic (lowers LDL cholesterol) and hepatoprotective effect. The active substances (caffeine, mateine, heobromine, theophylline, etc.) have a stimulating effect, delay the onset of fatigue, support digestion and help break down fat cells (this is why yerba mate extract is contained in many weight loss products), and they also act as appetite suppressants. It gently regulates the function of the kidneys, preventing the retention of excess fluids in the body. It boosts the immune and nervous systems.
- It helps purify the blood, accelerates thought processes, improves memory, boosts energy, alleviates allergic reactions, acts as a diuretic, supports the digestive system, increases the body's resistance to extreme conditions such as cold, heat or stress, reduces cholesterol, etc.
- Yerba mate is also a great antioxidant, i.e. it counteracts the harmful effects of free radicals.
- This traditional Native American drink also contains a large number of vitamins and minerals, so it's no wonder that yerba mate is the most popular traditional drink in Argentina. Yerba mate contains many vitamins, including vitamin A, vitamin B, vitamin C and minerals such as calcium, zinc and iron.



Interesting facts

- Yerba mate was first used by the indigenous Guaraní people. It was later brought to Europe by Spanish conquistadors, but it only experienced a boom in the second half of the 20th century.
- Yerba mate (Mate), an herbal tea drink widely consumed in South America (Brazil, Argentina, Paraguay and Uruguay), is rapidly gaining popularity worldwide.
- In South America, it is traditionally served in a hollowed-out gourd called a calabash and drunk with a special straw called a bombilla.
- Today, yerba mate is mostly grown in Paraguay, Uruguay, Argentina and Brazil.
- The plant is found at an altitude from 500 to a maximum of 1,000 metres. It requires a constant temperature between 16 and 28 °C and abundant humidity - namely abundant rains. These very specific conditions make it a distinctive ecotype that does not adapt well to other conditions.
- Holly is widely used as a Christmas decoration in various arrangements, especially in English-speaking countries. It doesn't lose its colour or fruit when dried. You can hang it on the wall, use it in an Advent wreath or put in a vase instead of flowers to help get you into the Christmas spirit.



Maidenhair tree

(GINGKO BILOBA)

Ginkgo biloba is the only species of the monotypic ginseng family and is easily recognized by its fan-shaped leaves. It's a living fossil, because it is known to have occurred on Earth 160 million years ago.

Maidenhair tree

(*GINGKO BILOBA*)

The Ginkgo biloba tree belongs to the Ginkgoaceae family. It is a dioecious tree with a conical crown that can reach a height of 30-40 metres, and it tends to be more slender in male trees than in females. The fan-shaped leaves are divided into two lobes at the top in the middle. They are flat, leathery and light green in colour, turning golden yellow in autumn before falling from the tree. Flowers only grow on spurs. Male flowers are catkin-like pollen cones, and the female flowers bear drupe-like fruits 18-25 mm in diameter that are initially green and turn yellow once ripe. The central part of the seed coat is pulpy and foul smelling, with a woody inner part. The 'nut' is oval, double-sided, whitish. Ginkgo trees only flower and produce seeds every 20-35 years. In the production area in China, they start bearing fruit after only 3 to 5 years under intensive cultivation thanks to a combination of appropriate cutting, girdling of shoots, pinching and intensive watering and fertilisation. Ginkgo is one of the oldest types of plants in the world and is related to both ferns and conifers. Because the ginkgo tree

The oldest documented ginkgo tree is in China and is estimated to be around 4,700 years old.



Active substances

Ginkgo biloba seeds contain minerals, ginkgol-ic acid and ginnol, which inhibits the growth of bacteria and fungi. These substances have astringent effects. The leaves contain flavonoid glycosides (quercetin, kaempferol and isorhamnetin), terpenes (ginkgolides A, B, C, J, M) and bilobalides. Flavonoids act as antioxidants (they scavenge free radicals). They also improve blood circulation by dilating even tiny capillaries, ensuring sufficient oxygenation of the brain. Ginkgolides are used to treat cardiovascular, kidney, respiratory and brain diseases. The substances contained in the raw seed have a stronger effect than those isolated from the leaves, and fresh seeds primarily have anti-cancer effects.

does not suffer from diseases or pests, the trees live for thousands of years and reach heights up to 50 metres. The ginkgo tree spread from China to Japan, Korea and the USA. Today it is a popular ornamental tree.

Clinical studies

The GINDEM-NP study investigated the effect of ginkgo extract on cognition, behavioural and psychological symptoms of dementia and daily activities. 400 people suffering from Alzheimer's disease in the mild to moderate stage and people suffering from vascular dementia took part in the study. The active substance was administered in a dose of 120 mg twice a day alongside a placebo for 22 weeks. The results showed that ginkgo has a statistically significant positive effect on cognition; there were also significant improvements in behavioural and psychological symptoms of dementia as well as daily activities.

Health benefits

- Ginkgo is one of the most effective adaptogens, but it also has a number of medicinal effects. Both the seeds and the leaves contain active substances. Extracts from the leaves have been used by healers to treat numerous ailments such as asthma, bronchitis, stomach aches, skin diseases, angina pectoris and high blood pressure. Ginkgo extracts are also used successfully by mountaineers, as they reduce the symptoms of altitude sickness (they intensify blood flow), and have also been shown to be effective in patients with cerebrovascular insufficiency. Ginkgo reduces the PAF (platelet-activating factor) and is used as an adjunctive medicine in the treatment of Alzheimer's disease, as well as to reduce the symptoms of tinnitus (ringing in the ears) and asthma. It has also been successfully used as an antidepressant.
- Western medicine discovered the effects of ginkgo in the 1950s, when German doctor and botanist Willmar Schwabe isolated the active substances.
- 11 million people in the US are estimated to be regularly using food supplements containing ginkgo extracts to boost their brain activity.
- No side effects have been reported with normal doses of ginkgo. It is recommended to consult a doctor on the use of ginkgo for pregnant and breastfeeding women and children under 5.
- Ginkgo also contains an antioxidant enzyme with iron atoms and substances that relax and expand peripheral blood vessels. Vasodilators can keep blood vessels, especially in the brain, in excellent condition, thus indirectly contributing to increased oxygenation of the blood and stabilisation of glucose levels.

Interesting facts

- Ginkgo has been on our planet since 250-270 million years ago, both on the Asian and North American continents. It's strange to think that dinosaurs once roamed among this surviving tree species.
- Chinese monks secretly cultivated it in monasteries as a sacred tree and spread it to monasteries in other provinces.
- The oldest ginkgo tree grows in northern China in the Hebei province and is around 2,800 years old.
- Ginkgo spread from China to the rest of the world. The first European who brought ginkgo seeds to Europe in 1691 was German doctor Engelbert Kaempfer.
- The book Chinese Materia Medica tells us that ginkgo roots and seeds have been used for thousands of years to enhance mental strength. The leaves only started to be used later.
- In 1988, Dr. Corey from Harvard University won the Nobel Prize for the synthesis of ginkgolide B, which is used to prevent transplant organ rejection and treat asthma.
- Extracts from its leaves are added to cosmetics products and shampoos.
- Ginkgo leaves from trees grown on artificial plantations are used to make extracts. The largest ginkgo plantations are in Sumter, South Carolina, and near Bordeaux, France. The plantation in Sumter has an area of 400 hectares, with 25,000 trees per hectare.
- The leaves are harvested by cotton harvesters in the morning and late afternoon, when the leaves have a certain elasticity.
- Ginkgo seeds are peeled, roasted and served as a delicacy at weddings and other festive occasions, also because they suppress the effects of alcohol.

A close-up photograph of the Tribulus terrestris plant. The image shows several bright yellow flowers with five petals and a central cluster of stamens. The leaves are small, green, and pinnate, with many small leaflets. The background is a soft-focus green, suggesting a natural outdoor setting.

Tribulus terrestris

(TRIBULUS TERRESTRIS L.)

Tribulus terrestris is originally a subtropical plant distantly related to thistles; it is widely used for sexual dysfunctions and various urinary disorders.

Tribulus terrestris

(TRIBULUS TERRESTRIS L.)

It is an annual herb that grows to 10 to 50 cm height from the Zygophyllaceae (caltrop) family. The stem is procumbent, branched and hairy, and the leaves are opposite, hairy and pinnately compound, with 5 to 9 leaflets that are shortly petiolate, oblong or lanceolate. The flowers are bisexual, solitary, arising from the axil, pediculate with 5 sepals and a yellow colour. They bloom from June to July. The fruit is triangular with sharply pointed edges, after which the plant was named. Tribulus terrestris grows on steppes, sandbars and rubble sites. It is a bothersome weed on pastures, growing on roadsides and in gardens and fields. It originally only grew in India, Indonesia, the Mediterranean and the Middle East (Mesopotamia), but it was also introduced to many other corners of the world in ancient times. Tribulus terrestris was brought to the US along with cattle



Active substances

Tribulus terrestris contains the following active substances:

- Saponins
- Glycosides
- Tannins
- Resin
- Alkaloids
- Flavonoids
- Oil
- Tannic acid
- Carbohydrates
- Steroids

exported from the Mediterranean. In Slovakia, it grows in Záhorie and in the Danubian Lowland. It is rarely found in our country, it most often growing by railway stations and reclaimed landfills.

It has also been used by menopausal women with excellent results, completely replacing hormone therapy.



Clinical studies

A total of 363 people participated in clinical trials led by four Bulgarian research teams. They found that TLSE had a stimulating effect on sexual function. Treatment with 750 mg for 60 days significantly increased sperm motility in 38 men with idiopathic oligospermia. In some cases, repeated treatment with a dosage of 1,500 mg/day resulted in normalisation of sperm accompanied by increased LH and testosterone levels and decreased estradiol levels. Two groups of people with oligospermia were treated after varicocele surgery, each with 750 mg for 60 days, or 1,500 mg for 90 days. A significant improvement in sperm motility was observed in both groups, and the group taking 1,500 mg also experienced increased sperm production. Treatment (750 mg/day TLSE for three months) of 51 infertile men significantly increased sperm volume, sperm concentration, motility and velocity. The sperm morphology was normalised. LDL cholesterol, triglycerides and VLDL cholesterol were all lowered, while HDL cholesterol levels increased. Libido normalised or increased in people with low libido. 31 out of 100 infertile couples conceived during 12-month treatment with TLSE. The average time to conception was 5.2 months. Before treatment, the men experienced fluctuations in sperm quality and count. The dosage was 750 mg/day for men and 750 mg/day for women from days 21 to 27 of their menstrual cycle.



Health benefits

- In traditional medicine, the plant was used to treat urinary tract infections and sexual problems (for women in menopause and to increase potency of men).
- The drug has a diuretic effect (it is used in diseases of the kidneys and urinary tract, it helps dissolve bladder stones), it increases the secretion of gastric juices and improves intestinal peristalsis, dilates blood vessels and lowers blood pressure.
- Tribulus terrestris has recently become particularly popular as 'nature's viagra', as it allegedly increases the level of the male sex hormone testosterone by up to 30% in men, while similarly increasing oestrogen levels in women, which should increase libido in both sexes.
- This could also reduce feelings of inner restlessness and increase muscle mass in men, while alleviating menopause symptoms and reducing the amount of body fat in women.
- In addition to its effect on sex hormones, it also helps treat cardiovascular diseases, including angina pectoris, and it lowers cholesterol levels.
- Clinical tests have not shown this drug to be toxic, and these phytohormones did not have the side effects of standard hormone treatment.
- In the Czech Republic, this product is being tested on post-menopausal women who were forced to use hormone replacement therapy by supplemental administration of synthetic oestrogen. The administration of these hormones was completely discontinued and they were replaced by a tribulus terrestris extract.



Interesting facts

- Tribulus terrestris fruits are dangerous in gardens and vineyards, because they are so sharp that they can easily puncture a bicycle tire or the sole of a shoe.
- On pastures, tribulus terrestris fruits can injure cattle when stepped on and, if accidentally consumed, can cause dangerous injuries to their digestive tract.
- The rejuvenating effects of this plant were first discovered in ancient Greece.
- In Chinese medicine, tribulus terrestris was used as a remedy for sexual problems in men.
- In some countries, the seeds of tribulus terrestris were ground into flour to bake bread in times of famine.
- Research has shown that it is a completely safe herb. No side effects were reported in healthy individuals.
- Tribulus terrestris has diuretic effects, which can be intensified when combined with diuretics.
- This product is not therapeutically effective in people under 30 years of age.
- Tribulus terrestris is among the 12 best-selling food supplements.



Turmeric

(CURCUMA LONGA)

Turmeric is a perennial, rhizomatous plant that grows to about half a metre in height, with leaves and roots growing from the rhizome. It supports bile formation and excretion and improves digestion. In traditional medicine, it is used in chronic diseases of the liver and gallbladder.

Turmeric

(*CURCUMA LONGA*)

Turmeric is a perennial plant from the ginger family (Zingiberaceae) that comes from South Asia. It has a thickened branched rhizome. The leaves are long-petiolate, broadly lanceolate and cone-shaped before unfolding, between which a stem of pale yellow flowers grows. The fruit is a many-seeded capsule. A dense stem with pale yellow flowers grows between the leaves. The main producer of turmeric is India, and it is also produced by China, Haiti, Indonesia, Jamaica, Malaysia, Pakistan, Peru, Vietnam and Sri Lanka. Curcumin, abbreviated as CRC, is the most important substance obtained from turmeric.



Active substances

It mostly contains pigment and essential oils. The pigment consists of yellow phenolic curcumin (difluoromethane), desmethoxycurcumin and bisdesmethoxycurcumin. Essential oils (1.5 to 6%) mostly consist of sesquiterpenes, with 50 to 80% of turmerones and dehydroturmerone. It also contains alpha- and beta-pinene, camphene, limonene, eugenol and cineole, which protect against influenza viruses.



Clinical studies

Several clinical studies of CRC aimed at determining the dosage, safety and kinetics of turmeric have been conducted. These studies show that when administered per os, curcumin reaches the intestinal wall in an amount that can have a biological effect, and it is detectable there even 40 hours after its last administration. The safety and tolerance of curcumin up to a dose of 3.6 g per day was also reported, but treatment was accompanied by mild gastrointestinal complaints in some patients.

More than 40 million people living in West Bengal, India, are at increased risk of developing cancer because the groundwater here is contaminated with arsenic, a known carcinogen that causes skin, lung, bladder, kidney, and liver cancer. This cancer can develop more than 20 years after exposure. The carcinogenicity of arsenic lies in the production of oxygen free radicals that damage DNA, proteins and lipids. 286 volunteers were selected from people living in this area that are chronically exposed to arsenic. Half of these people were given curcumin with piperine in a dose of 500 mg twice a day, and the other half were given a placebo. After three months, the group taking curcumin had lower levels of DNA damage in peripheral blood lymphocytes, slowed production of free oxygen radicals, and higher activity of antioxidant systems compared to the placebo group and the baseline values measured at the beginning of the experiment. The potential oncopreventive effect of curcumin is also evidenced by a study conducted on 13 chronic smokers who used it daily in a dose of 1.5 g for one month. After the treatment was discontinued, there was a significant decline in the urinary excretion of mutagens. The control group of six non-smokers who took the same amount of curcumin did not experience lowered urinary excretion of mutagens. These studies show that the preventive use of curcumin can benefit the health of people who are exposed to carcinogens.



Health benefits

- It has excellent anti-inflammatory effects. It is used for problems with the digestive system, liver, hepatitis, abdominal pain, flatulence and against parasites, as well as a sore throat, shoulder pain, toothache and menstrual disorders. It helps dissolve blood clots and is used externally for purulent conjunctivitis, non-healing ulcers and various injuries. The latest studies show that curcumin, the spicy yellow component in curry powder isolated from the rhizomes of this ginger-like plant, is an important aid in the prevention of melanoma and other cancerous diseases. Curcumin inhibits EGFR (Epidermal Growth Factor Receptor), which enables the proliferation of cancer cells, as well as VEGF (Vascular Endothelial Growth Factor) - the source of new blood vessel formation, an important process in tumour growth. Simply put, it blocks the formation of blood vessels that feed the tumour. It is a natural and very effective brain stimulant and improves cognitive functions, especially in the elderly.
- The effects of curcumin make it beneficial for cancer patients, as well as those with an increased risk of cancer. Curcumin research is now at a stage where we are getting the first results from clinical trials, with dozens of more studies underway. The results of large randomised studies researching the benefit of adding curcumin to standard oncology treatment are not yet available. At the moment, research should be aimed at detailed assessments of its potential interactions with oncological treatment and to determine the indications for its administration. It is also necessary to define the best medicinal form of curcumin administration that would provide the best systemic availability.



Interesting facts

- Turmeric, or Indian saffron, was already widely used back in the early days of Ayurveda, the oldest holistic medicine in the world (around 2,000 BC).
- Stores today offer dried turmeric (root powder), it is part of various types of curry powders, and sometimes we can also find fresh turmeric.
- Its sharp and somewhat spicy flavour made it a popular part of Asian and Indian cuisine.
- Turmeric powder can be used topically in powder form or in an ointment. Roughly cut rhizomes can also be used to make tea.
- Curcumin (difluoylmethane) is part of the ancient herbal medicine Jia-wei Xiaoyao San, which was used for digestive problems, stress and mood disorders.
- Turmeric is also used as a food dye, e.g. in eggless pasta, soups, rice, etc. to give them a yellow colour. It also increases the shelf life of food.
- In Ayurveda, each herb has many names that describe its various aspects, including its appearance, mythology, and its healing powers.
- One translation of turmeric means the Golden Goddess. It is often found in the Vedas, the oldest books of wisdom that are at least 10,000 years old.



Maral root

(LEUZZEA CARTHAMOIDES)

This mountain herb stimulates mental function, invigorates the body, increases the body's resistance to stressful situations and keeps our cardiovascular system functioning normally.

Maral root

(*LEUZEA CARTHAMOIDES*)

Maral root is a perennial plant from the Asteraceae family with a dense rosette of leaves up to 50-70 cm in diameter and peduncles reaching 0.5-2 m. The leaves are alternate on the stem with petiolate lower leaves that are pinnately divided; the top leaves are sessile and pinnately lobed. The peduncles are strong, upright, finely grooved and slightly fely. The compound inflorescence is 4-6 cm in diameter and consists of a receptacle and densely crowded tubular purple florets, which are bisexual with five stamens and a bilobed anther; they are separate, 4-6 cm in diameter and covered with a brown perianth. It blooms in May. The brown-grey seeds are 7 mm long, elongated ribbed achenes covered with fluff. The seed ripens in June and July. A large number of thin, horizontally branched, dense dark brown roots form the root system. The main root is woody. The roots have an interesting distinct smell. It grows in subalpine and alpine meadows, sometimes retreating to forest zones from an altitude of 1,200-2,000 metres above sea level. It is found in the Altai Mountains, in the east of Kazakhstan and the Semi-palatinsk region, in the mountains of western and eastern Sayan, and in northern Mongolia.



Active substances

- *The main active substance in maral root is 20-hydroxyecdysone, which is found in higher concentrations in the roots (0.12-0.20%) than in the leaves (0.006-0.10%).*
- *Flavonoids (mostly kaempferol, patuletin, isohamnetin glycoside)*
- *Tannic acid*
- *Glycosides*
- *Alkaloids*
- *Vitamins*
- *Organic acids*
- *Polyacetylenes*
- *Triterpenes*
- *Lignans with strong antioxidant activity*

*The folk name maral root is derived from the Caspian red deer (*Cervus elaphus maral*), which digs out the roots of this plant from the snow in the winter to help it survive the harsh Siberian winter and boot its reproduction.*



Clinical studies

Ongoing and previous studies mostly focus on active substances with the aim of proving their effectiveness. The results show that the active substances in maral root increase the body's resistance to stress, stimulate the central nervous system, positively affect metabolism, and have a hepato- and cardioprotective effect. It is used as an adaptogen, it significantly increases the body's adaptability and helps combat asthenia (physical weakness), physical exhaustion, sleep disorders and reduced performance, and is helpful during recovery after surgery. Its greatest proven benefit is in combating impotence.



Health benefits

- It is an adaptogenic plant that supports the nervous, hormonal and immune systems. Ecdysterone boosts sexual activity, benefitting male sexual function. It effectively alleviates fatigue, physical weakness, loss of appetite, headaches and insomnia. It helps improve concentration and acts as an aphrodisiac. The ecdysterone contained in maral root can boost testosterone levels and adapts the body to increased physical and psychological stress. It is used in the form of infusions as an antidepressant and immunostimulant, and to relieve pain and stress. It has a beneficial effect on memory and learning.
- Dried roots contain around 16% protein, 2.5% fat, 16% fibre and 11% minerals. Dried shoots contain 12-25% protein, 3-9% carbohydrates, 13 and 26% fibre, 89-17% minerals, 35-45 mg/100 g dry matter of provitamin A, 25-40 mg/100 g dry matter of vitamin C, 18% crude protein, 45% nitrogen-free extract, 3.3% fat, 1.5% calcium, 0.7% phosphorus, 4.4% potassium and 2.8% magnesium. The roots also contain ecdysterone and inocosterone, a small amount of alkaloids and 0.9% essential oil, 5-10% tannins, 12-13% inulin, resins, coumarins and flavonoids.



Interesting facts

- The first Russian settlers in the east of Russia noticed that Siberian red deer (*Cervus elaphus sibiricus*) dig up the roots of this plant with their hooves and eat them in autumn during rutting season. This is also where the name maral root comes from.
- The roots have been used in traditional medicine for centuries as a remedy for loss of strength.
- People in the Altai Territory believed that it cures 14 diseases and has a rejuvenating effect. The Tatars used it as an aphrodisiac.
- Scientific expeditions were sent to Siberia, where they also learned about the use of plants by local healers.
- During World War II, scientists in the Soviet Union isolated substances from maral root that quickly restore soldiers' health, accelerate wound healing, and alleviate stress.
- A tincture is prepared by pouring 500 ml of 40% vodka on 50 g of dried chopped roots. Maral root tincture is yellow-brown to pale yellow in colour; it has a characteristic pleasant taste that is similar to whiskey.
- Maral root extracts have also been tested for their anabolic effect in space programme tasks.
- The shoot system of maral root has a high feed value; it was tested as feed in experiments with cattle to increase the fat content of their milk.

A close-up photograph of lemon balm leaves, showing their characteristic serrated edges and textured surface. The leaves are a vibrant green color, and the background is softly blurred, creating a shallow depth of field.

Lemon balm


(MELISSA OFFICINALIS)

Lemon balm is a perennial plant that reaches a height of 70–150 cm. It's aromatic leaves have a mild lemon scent. It offers great benefits for human health, reducing stress, calming, relaxing, and improving sleep and digestion.

Lemon balm


(*MELISSA OFFICINALIS*)

This perennial plant reaches a height of 70-150 cm and is part of the mint family. Its aromatic leaves are opposite, petiolate, ovate and serrate, and they give off a pleasant lemon scent. The white flowers grow in clusters of 3-6 in the axils of the upper leaves. The calyx is 2-lipped, as is the white corolla growing to 12-15 mm. It blooms from June to August. Lemon balm grows naturally in the Eastern Mediterranean and Asia Minor. The Arabs brought it to Spain in the 7th century, and the Carmelites were primarily responsible for spreading it. Lemon balm slowly gained popularity all over the world, and today it is cultivated for its medicinal properties all around Europe.

Active substances

Lemon balm contains essential oils and water-soluble substances. The essential oil content is about 0.1%, including citral, citronella, citronellol, geraniol, linalool and other sesquiterpenes depending on the origin and climate. Water-soluble substances include flavonoid glycosides of the flavonoid aglycones of luteolin, quercetin, apigenin and kaempferol. It also contains significant amounts of rosmarinic, caffeic and chlorogenic acids, and small amounts of bitter substances, mucilage and minerals.



Clinical studies

The European Medicines Agency (EMA) has approved lemon balm for its calming effect and to treat insomnia. Some studies show that regular use of blends containing lemon balm, or just lemon balm itself, reduce symptoms in patients with mild anxiety. Other studies have reported reduced agitation or restlessness with regular use of lemon balm. Several other studies have described the positive effect of the active substances of lemon balm administered alone or in blends for insomnia. The administration of lemon balm has been shown to improve the quality and length of sleep in healthy people, but especially in patients suffering from insomnia or sleep disorders. About 600 mg of lemon balm extract improved 'calmness' and attention in adults undergoing a stress test in a clinical study. One interesting study reported a reduction in irritability and agitation in patients with stress-related anxiety after 4 weeks of lemon balm administration. Initial reports from clinical trials show that the active substances of lemon balm may reduce agitation and restlessness and improve symptoms of mild to moderate Alzheimer's disease after 4 months of regular use. One study described a calming effect in patients with various forms of dementia with local application of lemon balm on the face or hands. Professor Milbradt from the Department of Dermatology, Venereology and Allergology in Frankfurt am Main tested lemon balm extract processed into an ointment on 115 patients (70 women, 45 men) who were infected with Herpes labialis, H. nasalis, H. genitalis and H. progenitalis viruses, or their combinations. The results of the study showed that 60% of patients were cured on the fourth day, 87% on the sixth day, and 97% on the eighth day of treatment with the ointment. In the future, lemon balm could significantly help treat these viral diseases.



Health benefits

- The shoot is used in medicine as a hypnotic and sedative. It has a beneficial effect on nervous system disorders, migraines, painful menstruation and digestive problems such as nervous stomach syndrome. It is an excellent sleep aid (for children as well as the elderly). It relieves spasmodic contraction caused by nervous tension, reduces the heart rate and calms the respiratory organs. It alleviates cough in children, relieves stomach cramps and trapped wind, and helps with morning sickness in pregnancy. Its efficacy against viruses, especially herpes viruses that cause cold sores, is under discussion.
- Lemon balm is a very old medicinal plant, formerly included in the traditional Carmelite drops. These combined the effects of mint and chamomile for both a sedative effect and as a digestive aid. Famous physician and naturalist Paracelsus called lemon balm the elixir of life. He attributed calming, anti-stress and anti-depressant effects to it. In his time, he observed that the herb helps treat insomnia and a disturbed mind. He administered it in herbal mixtures to children and the elderly for agitation and difficulty falling asleep.
- Crushed leaves or a tincture can be massaged on the temples for headaches or migraines. Some herbals report the beneficial effect of lemon balm ointment for cold sores caused by the herpes virus. It is also used externally in poultices and baths for rheumatoid arthritis, contusions and swelling. It's an excellent choice for inflammatory skin conditions.




Interesting facts

- Mathioli spoke about the effects of 'Melissa' in a section of his herbal back in the 15th century.
- Famous physician and naturalist Paracelsus probably called it the elixir of life for its extraordinary calming effect on the whole body.
- Fresh leaves are added to mixed drinks, desserts and fruit salads for their citrus aroma.
- Lemon balm is used to make tea, syrup, liqueur, vinegar and to flavour honey.
- The plant is used to attract bees to make honey. In some cultures, lemon balm is used as an ornamental herb, or in the cosmetics industry as an ingredient in perfumes. Other major uses of lemon balm include the culinary industry (with meat, in salads, ice creams, liqueurs, chewing gum, honey and desserts) and drugstore products, especially toothpastes.
- The Ebers Papyrus and the Hippocratic Corpus also mention lemon balm. Theophrastus of Eresos, one of the disciples of the great Aristotle, mentions it in his extensive work under the term melisso-phylon. Gaius Plinius Secundus called the plant melittis or apiastrum. He valued it greatly for its treatment of ulcers, inflammation, and rheumatic disease. He also recommended the squeezed juice mixed with honey for 'cloudy eyes'.

A close-up photograph of a bearberry shrub. The image shows several clusters of small, rounded, green leaves with a slightly waxy texture. In the lower right quadrant, two bright red, round berries are visible, standing out against the green foliage. The background is a soft-focus field of more green leaves, creating a sense of depth. The lighting is natural, highlighting the vibrant colors of the plant.

Bearberry

(ARCTOSTAPHYLOS UVA-URSI)

Bearberry is an evergreen shrub that reaches up to 30 cm in height. It grows naturally throughout Europe and in the East, all the way to the Far East. It is most valued in medicine for its beneficial effect on the kidneys and urinary tract; it is primarily cleansing and disinfecting in nature.

Bearberry

(*ARCTOSTAPHYLOS UVA-URSI*)

Bearberry is a dwarf evergreen shrub in the heather family that is very rare in the Czech Republic. It is also called bear's grape, hog craneberry, kinnikinnick and sandberry. This shrub with prostrate branches grows to a height of 20–100 cm. Bearberry leaves are dark green, leathery, entire, reversed ovate and wedge-shaped, narrowing to the base. The lower part of the leaves is finely pubescent with small veins. The tiny bell-shaped flowers are arranged in drooping racemes. They are white, often with pinkish edges. The flowers bloom from March to July depending on the habitat. The fruits are scarlet red, round drupes. The flesh of the fruit is floury and sour in taste. It grows in Europe, Siberia, North America and Greenland. Bearberry thrives in sunny and moist bogs and heaths in slightly acidic, sandy loamy to stony soils. It is very resistant to dry soil, as its roots reach down to a depth of one metre. It is also found in mountainous areas up to an altitude of 2,500 metres, in rocky highland meadows and in light pine forests and shrubberies, often among blueberry shrubs. It can live to up to a hundred years. It is sometimes cultivated for medicinal purposes in our country, but it is mostly imported from the north. Bearberry is often added to food supplements along with other herbs, especially cranberries, coneflower (*Echinacea* genus), nettles (*Urtica dioica*, *Urtica urens*) and others.



Active substances

The most important substances in bearberry include phenolic glycosides arbutin and methylarbutin. The quality of the plant is determined by the amount of these substances contained in its parts. It also contains gallotannins and gallic acid, which have a mild therapeutic effect, and other substances in minor quantities (essential oils, flavonoids, formic and citric acids, saponins).

One of the most powerful chemical compounds found in bearberry is called hydroquinone, which has a similar effect to strong antibacterial agents.

By removing harmful substances, bearberry can protect our body, acting as a line of defence against harmful bacteria.

Due to evidence of hepatotoxicity and carcinogenicity in animal studies, it is contraindicated in children.



Health benefits

- It is used in traditional medicine to treat problems with urination and urinary tract stones. Bearberry products have a diuretic and antiseptic effect on the urinary tract, which is why they are especially used for inflammation of the kidneys and bladder, for kidney or gallstones and gout. The arbutin contained in bearberry soothe the mucous membranes and suppress inflammation. The substances it contains also affect the pH of urine, prevent the formation of urinary stones and help break them down. In traditional medicine, bearberry leaves are also recommended for haematuria, oedema, diabetes and renal tuberculosis. Its high content of tannins also gives it astringent properties. Bearberry cannot be used long-term and in large quantities, as there is a risk of liver damage. It is not harmful if the recommended daily dose is followed.
- Bearberry is most valued for its ability to reduce the amount of bacteria in recurrent uncomplicated diseases of the urinary tract, when the total amount of bacteria in the urine would otherwise increase excessively. Arbutin is responsible for the antimicrobial effect; it is broken down by bacterial glycosidases into a sugar component and its own active substance hydroquinone, which is active in the urine, especially if the urine is alkaline (which is why it was previously recommended to drink it with a baking soda/bicarbonate solution).
- In diseases of the bladder (especially in women, where uropathogenic *E. coli* originating from the intestinal tract spreads when the immune system is weakened), the effect begins 3 to 4 hours after ingestion; it also has a diuretic effect and should be administered continuously for a maximum period of 2 weeks.



Interesting facts

- Bearberry is very rare in the Czech Republic and is protected by law.
- Products containing bearberry must not be administered along with drugs that reduce the pH of urine (increase its acidity).
- Bearberry is effective for a number of diseases, but it cannot be used for a long time and in large quantities, as there is a risk of liver damage.
- Traditional use of bearberry in traditional medicine to treat urinary problems is based on the empirical experience of Nordic peoples such as the Sámi. It was recorded in English herbals as early as the 13th century, but it was only in the 17th century that it entered Spanish and Roman phytotherapy, and it only reached the field of medicine in the 18th century.
- Native Americans also used bearberry for ceremonial purposes and as a prophetic herb. They named it kinnikinnick and smoked it mixed with tobacco or used it alone as an incense to induce uplifting mental states, as a stimulant for divination and visionary dreams.
- Bearberry is not recommended for pregnant women.





Grape vine

(VITIS VINIFERA)

The grape vine is a plant from the Vitaceae family. Its fruits (berries) are consumed fresh, dried and candied, and they are mostly used to produce wine, other drinks and oil. Grape seed extract is very beneficial for the blood and blood vessels.

Grape vine


(VITIS VINIFERA)

Grape vine is a woody vine from the Vitaceae family. The branches are tendrils, the leaves are alternate and palmately lobed with three to five segments. The bisexual flowers grow in abundant racemes with 200-400 flowers. The fruit is a juicy berry whose shape, size and colour varies in each variety. Each berry usually contains two seeds. The origin of this species is unknown, as it grows in the wild in many areas of the world. 60-70 species are cultivated and used around the world. The grape vine is grown in various places around the world in different climates and soil conditions.



Clinical studies

Clinical studies have confirmed the effectiveness of products made from grape leaves in the treatment of venous insufficiency. A daily dose of 360 to 720 mg of leaf extract has been shown to be both effective and safe in the treatment of mild chronic venous insufficiency, and it also reduces other chronic symptoms such as oedema. Higher dosages were also tolerated well by patients, but the overall results and effects of the treatment in a complex context were best with the above-mentioned dosage in this particular range. Subjective symptoms, such as fatigue, heavy legs, a feeling of tension or pain in the legs, were statistically significantly improved with the administration of the mentioned treatment. Vine leaf extract and teas, which have a similar flavonoid content as red wine, effectively reduce the risk of atherosclerosis and can significantly eliminate mortality due to cardiovascular diseases. Quercetin, found in large quantities in grape leaves, is known for its anticarcinogenic and antitumor effects, but it also has further therapeutic potential with the notable advantage of low toxicity.

Active substances

Fresh grapes mostly contain carbohydrates, minerals, pectins and other substances. They also contain provitamin A, vitamins B1, B2 and B12, and vitamin C, organic citric, malic, salicylic, tartaric, succinic and glucuronic acids, tannins, flavonoids (e.g. quercetin, kaempferol) and phenols (e.g. catechin), waxes and amino acids (e.g. arginine, methionine, glycine, asparagine), as well as many minerals, especially potassium. Wine contains carbohydrates, namely monosaccharides, glucose, fructose, arabinose, xylose, rhamnose and the disaccharide sucrose, as well as fats, organic and fatty acids, anthocyanins, etc. 1 litre of wine also contains about 10-150 mg of vitamin B1, 10-200 mg of vitamin B2, 0.2-0.8 mg of vitamin B6 and 5-30 mg of vitamin C, as well as biotin and folic acid. The main minerals in wine include magnesium, potassium, calcium, sodium, manganese, iron and copper. Red wines contain more tannins and less acid than white wines. A valuable polyphenolic compound – resveratrol – is released from the skins and seeds into the liquid in the production of red wine.




Health benefits

- The fruits of the grape vine have an overall strengthening effect on the body; they have a beneficial effect on the intestinal microflora, improve nerve function, lower blood cholesterol levels and increase the production of red blood cells. They have a positive effect on digestion, neutralise gastric acid, speed up metabolism and increase appetite. Their benefits in the treatment of diseases of the gallbladder, liver and intestines have also been proven; they have a diuretic and slightly laxative effect.
- Resveratrol is a valuable compound, as it has a significant anti-cancer and antioxidant effect. A large-scale scientific study was conducted on several thousand elderly people. Research has clearly shown that wine has a protective effect against Alzheimer's disease and reduces the incidence of senility and dementia by 80%. Wine improves heart health, lowers body temperature and regulates digestion. It is also helpful in the treatment of chronic bronchitis and emphysema. Wine has a phytoestrogenic effect on women, reduces their cardiovascular risk and alleviates the symptoms of menopause and osteoporosis.
- The proanthocyanidins contained in the seeds and peels are strong antioxidants, increasing the body's defence systems, suppressing inflammation, preventing damage to and premature aging of cells, and preventing cancer growth. Salicylates have blood-thinning properties. The oil extracted from grape seeds lowers blood cholesterol and fat.
- Grape seed extract protects blood vessels, treats blood vessel disorders, prevents cancer and reduces damage to collagen in the skin.



Interesting facts

- The grape vine is one of the oldest cultivated plants, with its cultivation dating back to 10,000 years ago.
- The Egyptian pyramids contain a number of drawings depicting the cultivation of grapes and the preparation and consumption of wine.
- Roman legionnaires received rations of wine to prevent intestinal diseases.
- Wine was used in ancient Rome for feverish diseases of the digestive tract and externally to heal wounds.
- In traditional Chinese medicine, wine is used to prepare medicinal products.
- The Slavic peoples learned about the cultivation of the vine through Greek colonies around the Black Sea and also in the Danube Region through contact with the Romans and the Celts.
- The Roman legion, which was permanently encamped near today's Vienna, established a fortified outpost in Moravia, which is how the history of grape cultivation began here in Bohemia and Moravia.
- Roman soldiers stood on the top of Hradisko by the flooded village of Mušov near Pasohlávky around the 3rd century AD.



Roseroot

(RHODIOLA ROSEA)

Roseroot is a tonic that improves overall physical and mental health, increases sexual vitality, directly treats liver diseases, burns and cancer, improves memory and generally boosts immunity.

Roseroot

(*RHODIOLA ROSEA*)

Roseroot belongs to the family Crassulaceae. The *Rhodiola* genus is not uniform and is divided into four subgenera, containing over 200 species. Several of these species contain active substances, but they are used medicinally to a lesser extent (*R. sachaliensis*). *Rhodiola rosea*, which is cultivated, contains the most active substances. Roseroot is a dioecious, stout, glaucous, perennial herb. The dioecious nature of the plants does not affect the content of active substances. The plant grows to a height of 25–30 cm. The above-ground shoots of the plant die off every year, and it has a branched, fleshy, thick root under the ground. The root is greyish yellow and pinkish on the inside; it gives off an aroma similar to rose oil. The leaves are 0.7–3.5 cm long and 0.5–1.5 cm wide, elliptical, entire and pointed at the tip with several teeth. The inflorescence is a cluster composed of flowers with four petals. The plants usually bloom in May and June, and the seeds ripen from July to September. The fruit is a follicle. Roseroot can be found in nature up to an altitude of 2,500 metres above sea level, mostly in the Northern Hemisphere. The abundance of this plant has declined due to intensive collection. In the Krkonoše Mountains, it was nearly eradicated in the past due to intensive collection in its original locations. The plants are found in moist rock crevices, screes, stony slopes, embankments and moist soils along river banks; they are mesophilic in nature.



Active substances

- Roseroot contains at least six basic groups of active substances.
- The most important substances are alcoholic glycosides of phenylpropanoids (rosavin, rosin and rosarin) and salidroside (rhodioloside). The quality of roseroot extracts is assessed according to the content of these substances.
- Salidrosides were first isolated in 1926 from the almond willow (*Salix triandra* L.).
- Rosavin is only contained in *Rhodiola rosea*, and the authenticity of cultivated plants can be determined by its content.
- Other important substances include flavonoids (rhodionin and triclin), phenylpropanoids, derivatives of phenylethanol, monoterpenes, triterpenes and phenolic acids (daucosterol).
- Roseroot also contains a large amount of organic acids (citric, tartaric, malic, succinic, fumaric, gallic).
- It has a high manganese (up to 0.8%).
- Essential oils and tannins (up to 20%).
- A broad spectrum of microelements.

The young leaves and stems of roseroot are considered a tasty vegetable.




Health benefits

- Experiments have shown that roseroot has both stimulating and sedative effects, depending on the amount of the administered drug. It has a stimulating effect in small amounts and works as a sedative in larger amounts. Active substances from the plant boost the activity of the thyroid gland and thymus, protect the nervous system, heart and liver, and help with general fatigue. Thirty years ago, Russian scientists discovered the benefits of extracts from this plant for people affected by radiation. They have also been successfully used to treat senility and speed up blood oxygenation.
- Roseroot has been proven to have an adaptogenic and tonic effect; it also improves perception and memory and alleviates irritability and fatigue. Mountain climbers use extracts from the plant to overcome altitude sickness. Root extracts have a significant anti-inflammatory effect. A few weeks of roseroot extract administration improved endurance in physical exercise and regeneration after sports performances of young volunteers (triathletes, skiers, runners, athletes). The main reason for the faster regeneration was an increase in the intensity of blood oxygenation caused by the roseroot extract.
- One of the active substances in roseroot (rosavin) aids weight loss by activating the enzyme lipase, which breaks down fat in the body of obese people. These extracts have been administered safely for periods ranging from one day to four months. Because it affects mood, it is not recommended for patients suffering from manic depression.
- No side effects were reported in the administration of roseroot.



Interesting facts

- Roseroot is a manganophilous plant, which means that it preferentially inhabits soils rich in manganese.
- The tonic effects of this plant have been known in the Altai Territory for more than 400 years.
- Siberian traders took roseroot to the Caucasus and traded it in Georgia for local products such as wine, garlic, fruit and honey.
- Its nickname is 'golden root' because it has so many benefits for our body that its value may even exceed that of gold. The fact that it grows up to an altitude of 5,000 m above sea level also makes it unique. It was once collected so intensively in our country that it is rarely found today. Hrubý Jeseník is its only natural habitat in the Czech Republic; it was artificially reintroduced to the Krkonoše Mountains.
- Russian pharmacopoeia lists the drug 'Rodozin' produced by the pharmaceutical industry. The root extract is also used in Russia and Bulgaria to make tonic soft drinks.
- *Rhodiola rosea* got its name from the typical rose-like scent that the rhizome emits when crushed.
- They have a saying in Siberia: 'Those who drink roseroot tea will live to be 100 years old.'



Ceylon cinnamon tree Chinese cinnamon tree

(CINNAMOMUM ZEYLANICUM / AROMATICUM)

Cinnamon is a very popular spice with a characteristic and unmistakable flavour and aroma, for which it is mostly used in the food industry and gastronomy. Cinnamon is also used in traditional medicine due to its high content of biologically active substances.

Ceylon cinnamon tree

(*CINNAMOMUM ZEYLANICUM*)

The genus *Cinnamomum* belongs to the laurel family and includes 200 species, mostly originating from the tropics and subtropics of Southeast Asia. They are evergreen trees or shrubs with smooth or bumpy bark. The Ceylon cinnamon tree is cultivated the most. This type of cinnamon tree grows in the wild in Sri Lanka, reaching a height of 6–18 m; in plantations it reaches a maximum height of 4 m as a shrub. Cinnamon trees are evergreen tropical trees that can reach up to 10 metres in height. In plantations, however, the trees are trimmed and kept to a maximum height of two metres. Cinnamon as we know it is obtained by scraping off the bark (stems) of the cinnamon tree. The inner layer is extracted from the bark and the residual woody parts are removed; then the bark is left to dry. As it dries, it rolls into the typical cinnamon stick.



Active substances

The bark of the Ceylon cinnamon tree contains 1-3% of essential oils, dominated by cinnamaldehyde (65-75%) and eugenol (10%); it also contains benzaldehyde, the polysaccharide cinnaman AX, flavonoids, tannins, mucilage, starch and more. Chinese cinnamon contains 1-1.5% of essential oils and some cinnamaldehyde, but no eugenol; it also contains carbohydrates, mucilage, tannins, calcium oxalate, beta-sitosterol and diterpenoid cinnacassiol.



Clinical studies

According to a 2003 clinical study conducted by Pakistani researchers, cinnamon can lower glucose and cholesterol levels in people with type 2 diabetes (the non-insulin dependent type). The study was conducted on a group of 60 people (30 men and 30 women) with type 2 diabetes. The participants were divided into 6 groups of 10. Three groups were given capsules with a placebo (no active substance), and the other three groups received 1 g, 3 g or 6 g of cinnamon in capsules per day. The participants didn't know if they were receiving capsules with or without cinnamon. They took the capsules 3 times a day after meals for 40 days. The results at the end of the trial and the persistence of the effect 20 days after the end of the trial were evaluated. Results: all three groups taking different doses of cinnamon had significantly reduced blood glucose levels (18-29%), even at the lowest dose of 1g per day. In addition to reduced blood glucose levels, there was also a reduction in triglycerides (23–30%), LDL cholesterol (7–27%), and total cholesterol (12–26%). HDL cholesterol levels were not significantly affected. No changes were observed in the placebo groups (capsules without the active substance).



Health benefits

- In medicine, it is used as a stomachic and as flavouring, it promotes appetite, improves digestion and alleviates flatulence. It has strong antiseptic effects, combating the jaundice virus as well as yeast infections. Cinnamon is also used externally to treat rheumatism.
- Chinese cinnamon is used to treat impotence, enuresis, urinary disorders, toothache, fatigue, menopausal problems and painful menstruation. It is used to boost appetite, it alleviates stomach and intestinal spasms and flatulence, and it helps with diarrhoea. It also has bactericidal effects, especially effective in tuberculosis, and it improves vision.
- It has been shown that the active substances in cinnamon are found in the aqueous phase (aqueous extract) and not in the oil phase (cinnamon oil). A more suitable alternative to direct consumption of cinnamon powder is cinnamon tea, where the solid components settle on the bottom of the container and create a pure aqueous extract. Cinnamon can be added to orange juice, oatmeal, coffee or salads. The active substances are not destroyed by heat.
- General effects of cinnamon: antibacterial and disinfectant, helps treat and prevent infections, colds and the flu, antioxidant and antimicrobial effect, helps reduce cellulite, aids digestion - boosts appetite, eliminates nausea, bloating and diarrhoea, helps prevent cancer growth, stabilises or lowers blood sugar levels (glycaemia).



Interesting facts

- It is used in infusions and decoctions, as well as to prepare oils, tinctures and syrups.
- Cinnamon is mentioned in the Old Testament.
- The soldiers of Alexander the Great (356-323 BC) brought cinnamon to Europe.
- Cinnamon essential oil obtained from the bark as well as the leaves and roots is used in cosmetics for its strong disinfecting and deodorising effect. It is also added to toothpaste and mouthwash.
- Cinnamon has many uses in the food industry (confectionery, pastry, liquor industry).
- Cinnamon is one of the oldest known spices on Earth. The first mentions of cinnamon trees date back to around 4,000 BC in China.
- Cinnamon was very popular and was frequently used in ancient Greece, but nothing was known about its origin at the time; nobody knew where cinnamon came from. Even Aristotle himself believed that huge birds are responsible for bringing cinnamon from unknown lands, hiding it in their nests, from which courageous Arabs stole it. It wasn't until Aristotle's student Alexander of Macedon recognized the cinnamon tree during his travels to India.



Ginger

(ZINGIBER OFFICINALE)

Ginger is a perennial plant that grows to a height of about 90 cm and looks like a reed. Current research shows that ginger helps combat arthritis, thrombosis, respiratory problems, flatulence and nausea, it improves blood circulation and increases the production of digestive acids.

Ginger

(ZINGIBER OFFICINALE)

It is a perennial herb from the ginger family that grows to a height of 1.0–1.5 m. It has a highly branched rhizome that is grey on the surface and pale yellow on the inside. It only blooms rarely and it grows directly from the rhizome on a 10–20 cm tall stem. Its whitish flowers grow in a spike-like inflorescences. Its fruit is a berry. It is cultivated for its fleshy, tuberous, thickened rhizomes that are up to 10 cm long. In India, ginger is known as Adrak or Sunthi; it comes from Southeast Asia. It was cultivated back in ancient India and China for its sweet and spicy taste, and it became one of the first commonly used spices in ancient Greece and Rome when it reached these areas. Today, ginger is only cultivated artificially and is no longer found in the wild. Its root, or rhizome, is the part of the plant that is used.



Active substances

Fresh ginger rhizomes contain 1.5–3% essential oils, which consist of various terpenes, especially ginger essential oils, sesquiterpene zingiberene, bisabolyl ar-curcumene and monoterpenes cineol, citral, borneol and others. The burning taste is also caused by terpenes, namely gingerols and phenylpropane shogaol. It also contains the alkaloid capsaicin, usually found in the fruits of hot peppers.



Clinical studies

One clinical study that investigated the effect of ginger included 120 women that underwent gynaecological surgery. These women were given either 1 g of ginger powder or 100 mg of metoclopramide orally and assessed for postoperative nausea and vomiting. 10% of patients in the ginger group, 17.5% of patients in the metoclopramide group and 22.5% in the placebo group had one or more vomiting episodes. It was found that the administration of ginger resulted in a statistically significantly lower incidence of nausea and vomiting when compared to placebo. The effect of ginger was comparable to that of metoclopramide. In other clinical studies, the effect of 500 g of ginger powder administered orally 2 hours before sailing was tested as a preventive treatment for seasickness. The result of one study showed that 4 hours after administration, ginger had statistically better results than placebo in reducing episodes of vomiting and cold sweats. It was also compared with several over-the-counter and prescription drugs in the prevention of seasickness (scopolamine, dimenhydrinate with caffeine, cyclizine, cinnarizine, cinnarizine with domperidone, and meclizine with caffeine) in 1,489 volunteers during a sea voyage. This study showed that ginger was as effective as other antiemetic drugs tested.



Health benefits

- It improves digestive processes in the intestines and emptying by activating peristalsis, and increases the concentration of the enzyme amylase in saliva.
- Ginger in various forms adds flavour to food while aiding our digestion and breaking down fat.
- It activates the cardiovascular system - promotes clear blood vessels.
- It combats stomach and digestive issues.
- The hot taste of ginger warms the body and has antibacterial effects.
- It combats nausea and flatulence.
- It dissolves phlegm and has an anti-inflammatory effect.
- It lowers blood and liver cholesterol levels and increases bile production.
- It is successfully used for motion sickness and morning sickness in pregnancy (only in small amounts).
- Ginger baths, ginger steam inhalation and tea help with the flu and colds.
- Ginger essential oil is slightly irritating, disinfecting and perfusing the skin.
- It helps with headaches and stress.
- It is used to treat impotence and prostate problems.
- It is used externally for back and joint pain, often in the form of hot compresses, as well as in massages, e.g. for facial paralysis. It is also used as an ingredient in ionic and blood flow-enhancing baths.
- Fresh ginger in honey is an excellent remedy for colds and the flu, and it can also be given to children.
- It should not be used during pregnancy and breastfeeding, or in the event of ulcers in the digestive tract.



Interesting facts

- Mentions of ginger can be found in Chinese pharmacopoeias and in Sanskrit.
- The Arabs brought ginger from China and India to the Mediterranean and the Orient, where it was already known before the current era.
- In Rome, Pliny the Elder mentioned ginger as a strange spice growing in Arabia that supports digestion and is added to dishes like pepper.
- Ginger reached Central Europe in the 9th century.
- On his way to Asia, Marco Polo saw it with his own eyes in the 13th century.
- It became one of the first commonly used spices in ancient Greece and Rome when it reached these areas.
- Ginger is most widely cultivated in China, India and West Africa.
- Today, ginger is only cultivated artificially and is no longer found in the wild.
- In traditional Chinese medicine, ginger is warm to hot in nature and has a burning taste.
- Different essential oils and a total of 640 different chemical substances are responsible for the typical ginger taste.
- Ginger's sharp, distinctive taste is caused by gingerol, a substance with a chemical composition similar to capsaicin (found in hot peppers and chili). When cooked, gingerol is transformed into zingerone, which is an aromatic substance used in the food industry and in the production of perfumes.



Goldenrod

(*SOLIDAGO VIRGAUREA*)

Goldenrod is a perennial herb used in kidney teas. It acts as a diuretic and disinfectant, it helps dissolve kidney stones and is beneficial in the treatment of an enlarged prostate.

Goldenrod

(*SOLIDAGO VIRGAUREA*)

Goldenrod belongs to the family Asteraceae; it is a perennial plant that reaches a height of up to 1 m with an upright, branched stem and a short, strong root. The bottom leaves are elliptical and saw-toothed, narrowing at the tip with a wedge-shaped petiole. The inflorescence consists of numerous small pseudanthia (7–8 mm long) in racemes or panicles. The golden yellow flowers bloom from July to autumn with. The fruit is an achene. European goldenrod has a distinctive smell and it can sometimes be found in our country on bushy slopes, sunny slopes, dry rocks, clearings and in light forests and scrublands. Either the whole shoot or the flowers are collected. The Germanic peoples used this herb for medicinal purposes and valued it highly.



Active substances

Saponins, tannins, bitter substances, diterpenes, flavonoids, essential oils, mucilage, glycosides and more. The shoot of goldenrod contains 0.5-1.5% flavonoids. The characteristic composition of the substance spectrum depends on the specific variety/chemotype of the plant and the region in which it was collected. The main aglycon components are the flavonols kaempferol, quercetin and isorhamnetin.

The name goldenrod probably describes its appearance best.



Clinical studies

Goldenrod is a medicinal plant with interesting biological effects that have been known since ancient times. Its active substances include flavonoids, phenolic acids and their glycosides, polysaccharides and other compounds. The flowers were once used to make yellow dye (Slavík, 2004). Current studies confirm that the plant has many benefits for human health. Diuretic, anti-inflammatory, analgesic, spasmolytic, antimicrobial and antitumour, sedative and hypotensive effects have been confirmed in experiments. Flavonoids and phenolic diglycosides - leiocarposide are among the primary studied substances that have a number of positive effects on the body; leiocarposide is known for its effect on diuresis. The aim of one of the studies was to determine whether the extract, decoction and infusion from goldenrod affects the properties of enzymes in cultures of human hepatocytes (liver cells). Various concentrations of the extract, decoction and infusion were studied. The results showed that goldenrod does not affect the metabolism of simultaneously administered drugs, and its use in the form of dietary supplements does not result in clinically significant drug interactions.



Health benefits

- The internal use of goldenrod has a broad application. It is generally considered to be the most beneficial medicine for all kinds of kidney diseases. The active substances in goldenrod have spasmolytic, antihypertensive and diuretic effects. It is the primary ingredient in kidney teas. It has a diuretic and disinfectant effect, and it also dissolves kidney and urinary tract stones. It helps treat an enlarged prostate. Goldenrod further reduces vascular fragility. It helps treat senile dementia and atherosclerosis. It is also used in gargles for infections of the oral cavity. It is used externally as a poultice for poorly healing wounds and eczema. Its application in the form of a tincture or ointment has also proven beneficial. The ointment is used to treat various skin diseases. Baths with an infusion of goldenrod are used to improve mobility after injuries. In gynaecology, it is used in vaginal douches. Ointments for external use are prepared from the root harvested in autumn. Goldenrod also improves kidney function by reducing the excretion of protein in the urine. It can also be used to prevent urinary tract diseases and the formation of urinary tract stones. Goldenrod should not be taken in large quantities and for a period longer than two months, as it can overstimulate the kidneys; it is best used in herbal blends. Goldenrod infusion is used for oily skin with large pores. Bathing in a goldenrod infusion is beneficial for flabby muscles and skin.
- Laboratory tests have shown that aqueous and alcoholic extracts fight against a number of fungal strains, such as *Bacillus subtilis*, *Bacillus pumilus*, *Proteus mirabilis*, *Proteus vulgaris*, *Micrococcus luteus*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Escherichia coli* and *Aspergillus niger*.



Interesting facts

- The content of active substances depends on the time of collection; the best time is when it just begins to bloom between 2 and 4 p.m. The content of essential oil decreases after flowering, and the content of saponins fluctuates depending on the habitat and time of day (increasing between morning and noon).
- Canada goldenrod and giant goldenrod, which are also cultivated in our country, are collected along with this species for medicinal purposes. They both come from North America.
- In the past, goldenrod extracts were also used to make dyes for linen and wool.
- It is not suitable for patients with oedema caused by poor kidney function or heart failure.
- Goldenrod was probably brought here from North America, where it grows on rocky slopes. It is characterised by its yellow flowers, which show their beauty in late summer and autumn. These flowers caught the eye of enthusiastic cultivators, so goldenrod soon spread as an ornamental plant to almost all the gardens of the world, becoming escaped plants in many areas.



**„EVERYTHING NATURAL
IS WORTHY OF RESPECT.“**

CICERO MARCUS TULLIUS