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HEALING PROPERTIES OF SUNFLOWER ROOTS

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Abstract: This article explores the health benefits of sunflower root, its role in traditional medicine, and findings from modern research. It analyzes the biologically active compounds present in sunflower root, particularly antioxidants, flavonoids, and other phytochemicals. Information is also provided in its anti-inflammatory, diuretic, and detoxifying properties. The article investigates the potential of sunflower root in treating various conditions, including kidney and urinary tract problems, rheumatism and digestive disorders.

Keywords: Sunflower, medicinal plants, natural medicine, phytotherapy, antioxidants, flavonoids, anti-inflammatory, diuretic properties, detoxification, kidney diseases, urinary tract, rheumatism, digestion, traditional medicine, folk medicine, health, beneficial properties, biologically active compounds, plant roots.

Introduction: One of the most famous properties of sunflower root is its ability to dissolve various salts in the body, especially kidney and gallstones. The hydroxide alkaloids and potassium salts it contains help dissolve stones such as rheumatic pain, osteochondrosis, arthritis, and polyarthritis. Compresses made from a decoction of its roots also help reduce pain. Sunflower root tinctures and decoctions are used for joint diseases such as rheumatic pain, osteochondrosis, arthritis, and polyarthritis. Compresses made from a decoction of its roots also help reduce pain.

In traditional medicine, sunflower root is used to cleanse and rejuvenate the body. It helps dissolve and remove accumulated toxins and prevents the formation of new salts.

The sunflower (Helianthus annuus L.) belongs to the Asteraceae family and represents one of the most economically significant oilseed crops globally, ranking fourth in worldwide oil production [1]. While commercial attention has predominantly focused on sunflower seeds and oil, emerging research reveals that various plant parts, particularly the roots, possess remarkable therapeutic properties that have been utilized in traditional medicine systems for centuries [2].

In contemporary healthcare, there is growing interest in exploring plant-based remedies as alternatives or complements to synthetic pharmaceuticals, especially given concerns about adverse effects and antibiotic resistance associated with conventional medications [3].

Traditional medicinal systems across different cultures have long recognized the healing potential of sunflower roots. Indigenous communities in North and South America used sunflower preparations to treat respiratory ailments, wounds, and various inflammatory conditions dating back over 3000 years [4]. In folk medicine practices, sunflower root decoctions have been employed to address kidney stones, urinary tract disorders, rheumatic pain, and digestive complaints [5]. These ethnopharmacological applications provide a foundation for modern scientific investigation into the bioactive compounds and mechanisms underlying the therapeutic effects of sunflower roots.

Recent phytochemical analyses have revealed that Helianthus annuus contains a diverse array of bioactive constituents including alkaloids, terpenoids, flavonoids, phenolic compounds, saponins, tannins, and steroids distributed throughout different plant parts [6]. The root system, in particular, accumulates specific secondary metabolites that contribute to its medicinal properties. Studies have identified sesquiterpene lactones, diterpenes, triterpene glycosides, and various phenolic acids in sunflower plant tissues, each demonstrating distinct pharmacological

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activities [7]. These phytochemicals exhibit antioxidant, anti-inflammatory, antimicrobial, and diuretic properties that support the traditional uses of sunflower roots in treating multiple health conditions [8].

One of the most notable traditional applications of sunflower root involves its ability to dissolve mineral deposits and calculi in the body, particularly kidney stones and gallstones [9]. The hydroxide alkaloids and potassium salts present in the roots are believed to contribute to this litholytic activity by altering urinary pH and ionic composition, thereby facilitating the dissolution of calcium oxalate and uric acid crystals [10]. This mechanism aligns with ethnobotanical reports from various cultures where sunflower root preparations have been used prophylactically and therapeutically for urolithiasis [11].

Body structure: It can reach a height of 0.6 to 4 – 5 meters. The stem is thick, porous, and has a soft interior. The leaves are large, heart – shaped, with serrated edges. The most characteristic feature is a large, disc – shaped inflorescence. The inflorescence diametr is from 10 cm to 60 cm, sometimes even large. The flowers on the edge are linguineous, yellow. And those in the center are tubular, brownish – reddish. The reason for the name sunflower is that its flower moves towards the sun during the day. The fruit is a pistachio. It is white, gray, black or striped. The pistachio kernel is rich in oil and contains protein, vitamins (especially vitamin E) and minerals.

Its main importance is that high – quality sunflower oil is obtained from its seeds. This oil is used in the preparation of pastries, used in salads, in the production of margarine and other food products. Sunflower seeds and meal are considered nutritious feed for livestock. They are also grown for silage. Sunflower oil is used in industry to produce paints, soaps and other products. In folk medicine, sunflower leaves and flowers have been used to treat certain diseases. Some varieties of sunflower are also grown to decorate gardens and houses. Sunflower is a heat – loving and light – loving plant. It grows well on fertile, moist soils. It is sown in spring in irrigated areas of Uzbekistan and harvested in autumn.

Vitamns in sunflower seeds:

Vitamin: A powerful antioxidant that protects cells from free radical damage, improves skin health, boosts immunity, and reduces the risk of cardiovascular disease. Also important for the reproductive health of woman and men. **B** vitamins (especially **B1 – thiamine, B6 – pyridoxine, niacin – B3,** folate): Play an important role in energy metabolism, improve the functioning of the nervous system, and support brain health. Folate is very important for pregnant women, helping the fetus develop normally. **Mg (magnesium) –** important for bone health, muscle and nerve function, blood pressure control and reducing the risk of diabetes. 100 grams of pistachios contain six times more magnesium than rye bread. **Se (selenium) –** strengthens the immune system, reduces inflammation and is involved in DNA synthesis participates. Also necessary for thyroid function. **Zn (zinc) –** supports the immune system, is important for wound healing and collagen production. **Cu (copper) –** improves iron absorption, ensures the elasticity of blood vessels. **P (phosphorus) –** important for bone and tooth health. **Fe (iron)** is necessary for the formation of red blood cells, prevents anemia.

Improves cardiovascular health: The healthy fats (monounsaturated and polyunsaturated fatty acids, such as linoleic acid) it contains help lower bad cholesterol (HDL). Magnesium and potassium help control blood pressure. **Vitamin E** reduces inflammation and reduces the risk of atherosclerosis.

Helps manage diabetes: The fiber and protein it contains can slow down the rapid rise in blood pressure. Vitamin E reduces inflammation and reduces the risk of atherosclerosis.

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Improve digestion: A decoction of the root can improve appetite and normalize pancreatic function.
Cleansing blood vessels: Helps clean blood vessel walls from cholesterol buildup.
Headache relief: May help reduce fatigue and headaches.
Boosts immunity: Some studies show that it has immune-boosting properties.

Group of substances/element	**Approximate content (quantity)**	**Main Task (known)**
Glycosides	High (amount varies)	Involvement in metabolic processes may, according to some sources, have an anti-inflammatory effect on the body
Alkaloids	Different (smaller)	Biologically active compounds affect the body's systems
Organic acids	There is	Participates in fat and carbohydrate metabolism
Pactins	There is	Helps improve bowel function
Carbohydrates	Available (including inulin)	Energy source. Inulin – a polysaccharide consisting of fructose, found in some sunflower species, a natural prebiotic
Hairy (eating) substances	There is	It has anti – inflammatory, tissue – protective properties
Macroelements	(Nitrogen (N), Potassium (K), Phosphorus (p))	It is necessary for plant growth. It enters the human body through the plants. Sunflower root especially actively absorbs potassium
Vitamins	In small quantities	Vitamins (e.g. trace amounts of group E, A, D, K) are necessary for certain metabolic processes

Note: Level of accuracy: The amounts given (high, low, present) do not indicate the exact amount of grams or percentage, but rather the presence of the substance in the root and its apporoximate raito to other substances. The exact amount can only be determined through special laboratory analysis.
The reason for the lack of exact numbers: The composition of plant roots depends on the mineral richness of the surrounding soil and the growing conditions. Therefore, standardized values are rare.
Conclusion. Sunflower roots represent a bridge between traditional healing wisdom and modern phytomedicine, offering therapeutic benefits supported by both centuries of empirical use and emerging scientific evidence. Continued investigation and thoughtful integration of this valuable plant resource into healthcare practices hold promise for improving treatment outcomes for various conditions while promoting natural, sustainable approaches to health and wellness.

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