



The Prickly Presence: Exploring the “Stinging Nettle's” Intriguing Nature

(*Rhythm Gupta and Monica Reshi)

Division of Post Harvest Management, Sher-e-Kashmir University of Agricultural Sciences
and Technology of Jammu, 180009, Jammu and Kashmir

*Corresponding Author's email: rhythmmahajan94@gmail.com

The Stinging Nettle (*Urtica dioica* L.), is a perennial herbaceous crop that belongs to the nettle family: Urticaceae. This crop became popular scientifically and commercially because of the wide range of value-added products that can be made by using all the parts of the plant including stem, leaves, roots, and seeds. It has been used as a wild vegetable for centuries. It is a perennial herbaceous plant with spiny leaves. It is a monoecious plant with flowering and fruiting in summer.



While stinging nettle can be found almost anywhere, it is most common in Europe, North America, North Africa, and parts of Asia. It can be found in the wild in the hills and mountains. The plant is widely cooked in areas where vegetables are scarce. The use of stinging nettle slurry as a fertilizer in organic farming for horticultural crops is becoming more common. It has been used as a natural remedy for its healing properties for over 2000 years.

Its stems and leaves are covered by stinging trichomes containing a fluid that causes blistering when entering the skin. This species is considered a weed in intensive agriculture as its fast vegetative growth and high densities enable increased spread and soil coverage. Still, it is potentially able to act as a biomass source for several value-added products. There are economic and ecological reasons to cultivate stinging nettle. It yields for 10–15 years, has low input requirements, can improve soils overfertilized with nitrogen and phosphate, can promote the biodiversity of local flora and fauna, and can be used to produce new high-quality agricultural raw materials for dyeing, textile, and energy sectors.

Nutritional Profile

With a history stretching back over 2000 years, nettle has been used as a natural remedy for ages. Protein accounts for about 30% of dry mass and contains numerous amino acids necessary by humans. Minerals account for about 20% of the dry mass. 100g of the stinging nettle provides up to 28 calories, which can be further divided into 7g carbohydrates (2% DV), 7g fiber (24% DV), and 4.5g protein (5% DV). Additionally, it is very rich in vitamins and minerals. Per 100g of the serving contains Vitamin B1 (1% DV), Vitamin B3 (2% DV), Vitamin B6 (8% DV), Choline (3% DV), Vitamin B2 (12% DV), Vitamin A, Vitamin K, zinc (2% DV), phosphorus (7% DV), copper (8% DV), potassium (9% DV), magnesium (14% DV), iron (9% DV), manganese (34% DV), calcium (37% DV), selenium (1% DV), etc.

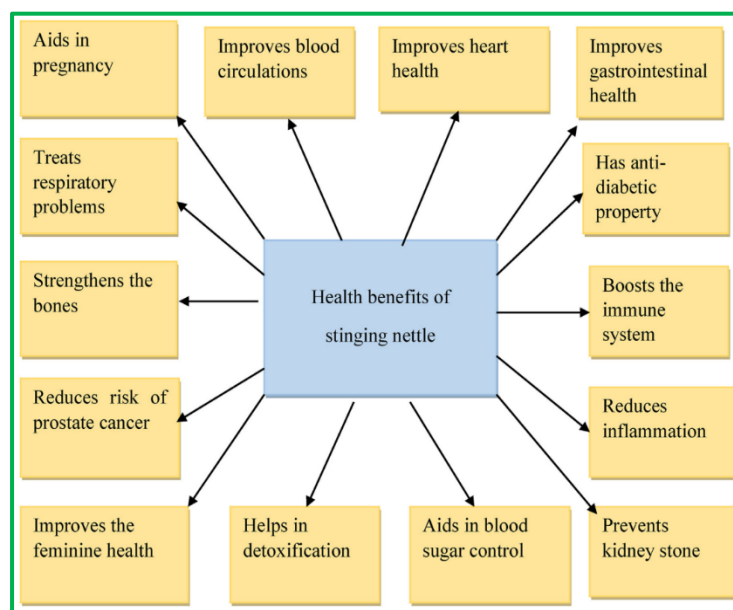
Fats including linolenic acid, palmitic acid, stearic acid, and oleic acid; amino acids, polyphenols including kaempferol, quercetin, caffeic acid, coumarins, and other flavonoids;

pigments including beta-carotene, lutein, luteoxanthin, and other carotenoids are found in the roots and leaves of the plant. Seeds contain vitamins, minerals, beta-carotene, folic acid, and essential fatty acids.

Health Benefits

The use of nettle for medicinal purposes goes back around 2000 years. They were used in traditional medicines. It has antiproliferative, anti-inflammatory, antioxidant, analgesic, anti-infectious, hypotensive, and antiulcer characteristics and can prevent cardiovascular diseases. The root of the stinging nettle is used to treat mictional difficulties associated with benign prostatic hyperplasia, while the leaves are used to treat arthritis, rheumatism, and allergic rhinitis.

The chemical compounds in stinging nettle have a variety of health benefits, especially for women. Because of its astringent characteristics, it can relieve unpleasant premenstrual symptoms including cramping and bloating, as well as reduce blood flow



during menstruation. Stinging nettle can ease the transition and act as a restorative for women going through menopause, lowering the intensity of the hormonal shift in the body. Acting as a coagulant, it can help prevent excessive bleeding.

Studies have shown that nettle helps to prevent and cure prostate cancer and prostate enlargement due to its anti-proliferative properties. It helps inhibit cells' growth and dispersion, especially the malignant cells. It also has anti-diabetic properties. It stimulates insulin production

resulting in decreased blood sugar levels. Nettles are useful for a variety of inflammatory conditions such as arthritis and chronic myalgia. Studies have been shown to effectively treat gout, relieve muscle aches, and minimize the symptoms of arthritis. Nettle's ability to reduce inflammatory responses has been highlighted in scientific studies where several pathways lead to reduced lipid mediators and inflammatory cytokines production. Regularly drinking stinging nettle tea can help lower systolic blood pressure as well as relieve tension and stress in the cardiovascular system. It is also said that toxins in the body's system cause chronic inflammations, such as dermal and arthritic disorders, and that nettle, with its alkalinity, neutralizes the acids and excretes toxins through the urine.

Uses

Stinging nettle has been used in medicine and the cosmetic industry for ages. Its fiber was previously used mainly for ropes and fishing nets. Currently, stinging nettle is commonly used in farms for feeding livestock, mainly poultry and pigs. It is a valuable source of vitamins, minerals, phytosterols, glycosides, and protein. Young leaves can be used to make curries, herb soups, and sour soups. Its leaves are abundant in fiber, minerals, vitamins, and antioxidant compounds like polyphenols and carotenoids. It is also used as a source of bast fibers for textiles and is occasionally used in cosmetics. Commercially, the plants are used to extract chlorophyll, a green coloring ingredient (E140) that is utilized in foods and pharmaceuticals. Cosmetic industries use nettle to manufacture soaps, shampoos, etc.

Products Made Stinging Nettle

The added value of stinging nettle cultivation is related to several products and applications obtainable from its biomass. Nettle tea has several health benefits, including reducing skin irritation and alleviating allergy symptoms. In Nepal, stinging nettle is used in IPM (Integrated Pest Management) to keep pests including cabbage butterfly larvae, hairy caterpillars, cutworms, red ants, termites, and aphids at bay. Soaps, shampoo, and skin lotions are made from the nettle. Ropes and fishing nets, tissues and fabrics, silky fabric, cloth and paper, biocomposites, paper, natural dye, etc. are also made from the nettle plant using fiber tissues of the root. Dyes are made from the leaf and root extracts. Nettles are rich in nitrogen and other nutrients, making them a good option in making fertilizers for plant and soil health. Stinging nettle has a long history of use in traditional medicine for various purposes, including treating arthritis, allergies, and urinary tract issues. Extracts and supplements made from nettle are available in various forms, such as capsules, tinctures, and creams. Stinging nettle leaves are edible and can be cooked and consumed as a nutritious vegetable. They are rich in vitamins, minerals, and antioxidants. Additionally, nettle leaves can be dried and used to make herbal teas or powdered into supplements. Nettle fibers can be pulped and processed into paper. Nettle paper is known for its strength and durability and has been used for various applications, including writing paper and specialty papers.

Conclusion

In conclusion, stinging nettle (*Urtica dioica*) is a remarkably versatile plant with a rich history of use spanning centuries. Despite its notorious sting upon contact, its benefits far outweigh its drawbacks. From traditional medicine to textile production, from nutritional value to ecological significance, stinging nettle has proven itself to be a valuable resource in numerous domains.

Its medicinal properties have made it a staple in herbal remedies for various ailments, ranging from arthritis to allergies. Rich in nutrients and antioxidants, its edible leaves offer a nutritious addition to diets and can be prepared in various culinary ways. Its fibers have been used to produce durable textiles, while its ability to enrich soil as a fertilizer contributes to sustainable agriculture practices. Moreover, stinging nettle serves as a crucial component of ecosystems, providing habitat and sustenance for diverse wildlife. Its potential in bioremediation highlights its capacity to contribute to environmental cleanup efforts.

Despite its humble appearance, stinging nettle continues to captivate researchers, environmentalists, and enthusiasts alike, showcasing its remarkable adaptability and resilience. As we continue to explore and harness its potential, stinging nettle stands as a testament to the hidden treasures waiting to be discovered within the natural world.