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Corn Silk: A Natural Source of Phytochemicals and Therapeutic Agents

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Garima Dixit[1], Sadhna Singh[2], Priya Pandey[1] Sheetanu Singh[1]

Research Scholar, Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya

[2]Professor, Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya

Corn silk, also known as *Maydis stigma*, refers to the soft, thread-like yellowish fibers that serve as the stigmas of the female corn flower. Despite being produced in large quantities as a by-product during corn cultivation, corn silk is often discarded, even though it holds significant nutritional and medicinal value. As an indigenous herb, it remains vastly underutilized despite its considerable health potential. While its chemical composition is less documented compared to corn kernels, corn silk has been reported to contain a diverse range of essential nutrients and bioactive constituents, including carbohydrates, proteins, lipids, phenolic compounds, flavonoids, sterols, polysaccharides, organic acids, volatile oils, vitamins, and minerals such as potassium, calcium, and magnesium. It also exhibits noteworthy antioxidant properties, particularly in combating gamma radiation and oxidative stress.

India holds the fourth position globally in maize cultivation area and ranks seventh in terms of production, contributing nearly 4% of the world's maize area and about 2% of global production. Maize stands as the country's third most important food crop following rice and wheat. Notably, around 47% of the maize produced in India is utilized as poultry feed.

Health Benefits of Corn Silk (*Stigma maydis*)

1. Abundant in Phytochemicals: Corn silk contains a variety of bioactive compounds, making it a valuable traditional herbal remedy across cultures.
2. Antioxidant Activity: Its rich antioxidant profile helps protect the body from oxidative stress and related chronic disorders.

3. Anti-Diabetic: Properties Corn silk is traditionally employed in managing diabetes due to its blood sugar-lowering capabilities.
4. Blood Pressure: Regulation Corn silk extract can reduce hypertension by inhibiting angiotensin-converting enzyme (ACE).
5. Weight Management: It may assist in controlling body weight and has been used as a natural anti-obesity aid.
6. Lipid-Lowering Effect: Evidence suggests that it can lower blood lipid levels, thereby supporting cardiovascular health.
7. Widespread Ethnomedicinal: Use Corn silk has been used in traditional medicine systems in countries like China, France, Turkey, and the United States for treating various ailments.
8. Therapeutic Metabolites: It contains beneficial compounds such as maysin and polysaccharides that contribute to its medicinal properties.

Nutritional and Bioactive Composition of Corn Silk

Proximate Nutrients: Includes moisture, ash, crude fat, protein, fiber, and carbohydrates — providing a strong

nutritional foundation.

Polysaccharides: Demonstrated anti-diabetic, lipid-lowering, and antihypertensive effects.

Dietary Fiber: Both soluble and insoluble fibers aid in weight control and reduce cholesterol levels.

Minerals: Contains essential elements like potassium, calcium, magnesium, sodium, and iron. Potassium helps lower blood pressure and acts as a diuretic, beneficial for kidney and urinary tract health.

Vitamins: Rich in vitamins C, E, and K, contributing to its immune-boosting and antioxidant activities.

Phenolic Compounds: Provide antihypertensive and anti-fatigue benefits and enhance exercise tolerance.

Flavonoids: Includes maysin, luteolin, apigenin, and formononetin — offering antioxidant, anti-obesity, and anti-cancer (notably prostate cancer) effects.

Antioxidant Capacity: Evaluated using DPPH, ABTS, and FRAP methods, indicating strong free radical scavenging potential.

Carotenoids: Such as β-carotene and zeaxanthin, support vision, immunity, and increase serum vitamin A levels.

Phytosterols: Stigmasterol and β-sitosterol offer anti-inflammatory, antioxidant, anti-cancer, and cardiovascular protective effects.

Healthy Corn Silk Recipes

1. **Corn Silk Tea**: Boil 1–2 tablespoons of fresh or dried corn silk in 2 cups of water for 10–15 minutes. This tea is traditionally consumed for its diuretic, anti-inflammatory, and kidney-protective properties.
2. **Corn Silk Lemon Water**: Simmer 1 tablespoon of corn silk in 1 liter of water, then cool and mix with lemon juice and mint leaves. This refreshing drink helps with detoxification, hydration, and urinary system support.
3. **Corn Silk Soup**: Used in Asian traditional remedies, this soup involves tying fresh corn silk into bundles and simmering them with corn kernels, ginger, garlic, and vegetable broth. It provides

digestive support, relieves inflammation, and offers natural antioxidants.

4. **Corn Silk Tincture**: Prepare by soaking dried corn silk in alcohol (such as vodka) for 4–6 weeks. A small amount (diluted) may be used to help manage urinary tract infections, fluid retention, and mild hypertension under professional guidance.

Who Should Limit or Avoid Corn Silk

- Pregnant and Breastfeeding Women Due to its mild diuretic and potential uterine-stimulating properties, corn silk should be avoided during pregnancy. Its safety during breastfeeding is not well established and requires medical consultation.
- Individuals on Diuretics or Blood Pressure Medications Corn silk may enhance the effects of diuretic or antihypertensive drugs, potentially leading to electrolyte imbalance or hypotension.
- Patients with Kidney Disorders or Hypokalemia The increased excretion of potassium due to corn silk's diuretic action may worsen conditions like hypokalemia or adversely affect individuals with chronic kidney disease.
- People Taking Anticoagulants or with Bleeding Disorders Because corn silk contains vitamin K and certain flavonoids, it may interfere with blood clotting and should be used cautiously by those on anticoagulant therapy (e.g., warfarin) or those with bleeding disorders.

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