

Millets (Shree Anna): The Miracle Grains for Sustainable Agriculture and Therapeutic Health Management - A Comprehensive Review

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Abstract

Millets, officially recognized as 'Shree Anna' in India, are among the oldest cultivated crops in human history. Despite their ecological resilience and profound nutritional benefits, these 'miracle grains' experienced a severe decline in cultivation and consumption during the Green Revolution, which heavily favored high-yielding varieties of rice and wheat. However, the exponential rise in lifestyle-related chronic diseases—such as diabetes, obesity, and celiac disease—has prompted a global rediscovery of millets, culminating in the United Nations declaring 2023 as the International Year of Millets. This review synthesizes the classification, global production, and profound therapeutic properties of millets. Drawing on the pioneering research of Dr. Khadar Vali, millets are categorized into positive, neutral, and negative grains based on their dietary fiber-to-carbohydrate ratios. The paper comprehensively outlines the structural wellness benefits of the five 'Siridhanya' (positive millets) and presents detailed dietary and herbal decoction protocols for the management of various chronic ailments. By integrating these grains into modern diets, particularly through traditional probiotic preparations like 'Amali' (gruel), societies can combat metabolic syndromes while promoting sustainable agriculture.

Keywords: Millets, Shree Anna, Siridhanya, Dietary Fiber, Chronic Disease Management, Sustainable Agriculture, Dr. Khadar Vali, Kashayam.

1. Introduction

Millets are small-seeded grasses that have served as staple foods for millennia. In India, their cultivation dates back to the Indus Valley Civilization (circa 3000 BC). Commonly referred to as 'Mota Anaj' or 'Kadann', they are remarkably eco-friendly, possessing climate-resilient traits that allow them to thrive in harsh weather conditions, poor soils, and with minimal water requirements. India currently stands as the largest producer and consumer of millets globally. Recognizing their exceptional nutritional profile and medicinal properties, the Government of India has designated them as 'Shree Anna,' while prominent researchers like Dr. Khadar Vali have coined the term 'Siridhanya' (wealth of grains).

Historically, millets were pushed to the periphery of the global food system during the mid-20th century. The Green Revolution prioritized high-yielding varieties of rice and wheat, backed by heavy government incentives and irrigation infrastructure. Furthermore, rapid urbanization shifted consumer preferences toward refined flours, leading to the near disappearance of these coarse grains from daily diets. However, a modern revival is underway. Depleting groundwater levels have exposed the unsustainability of water-intensive crops, and the global surge in metabolic disorders has forced a paradigm shift toward health-conscious alternatives. The rise of diabetes, obesity, and celiac disease triggered a search for health alternatives. Acknowledging this urgency, the United Nations declared 2023 as the International Year of Millets to promote their production, consumption, and global awareness.

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2. Findings and Discussion

2.1 Classification of Millets

Millets can be broadly classified based on seed size and nutritional quality. Physically, they are divided into Major Millets (Sorghum/Jowar, Pearl Millet/Bajra, Finger Millet/Madua) and Minor Millets (Kodo, Little/Gundli, Barnyard/Sanwa, Foxtail/Kangni, Proso/Cheena, and Browntop/Hari Kangni).

From a therapeutic standpoint, grains are classified into three distinct categories based on their fiber-to-carbohydrate ratio:

- Negative Grains: Highly refined cereals (like white rice, maize, and processed wheat) contain negligible fiber (0.2% to 2.7%). They can contribute to metabolic issues and poor blood sugar control.
- Neutral Millets (Neutral Grains): Include Sorghum, Pearl millet, Finger millet, and Proso millet. They contain moderate fiber (1% to 3.6%) and help maintain good health, providing energy without actively causing or curing diseases.
- Positive Millets (Siridhanya): Include Kodo, Little, Barnyard, Foxtail, and Browntop millets. They contain high dietary fiber (8% to 12.5%) and possess potent medicinal properties capable of reversing chronic diseases.

2.2 Global Production and Consumption Dynamics

Global millet production stands at approximately 30 Million Tonnes (Mt) for the 2023-24 period. India leads the world, contributing 11.0 Mt (36.7%), followed by Niger (11.7%), China (10.0%), Nigeria (6.7%), and Mali (6.0%). Global consumption patterns closely mirror production, with India consuming 41% (10.6 Mt) of the global total (26.0 Mt).

When isolating the production of Positive Millets (Siridhanya), the global output is approximately 1.50 Mt. India overwhelmingly dominates this specialized niche, producing 83.3% (1.25 Mt) of the world's positive millets, with minor contributions from Nepal (5.3%), China (3.3%), and Sri Lanka (2.0%).

2.3 Nutritional Superiority and Fiber Dynamics

Millets are 100% naturally gluten-free and are hailed as 'Superfoods' rich in dietary fiber, proteins, vitamins, minerals (iron, calcium, magnesium, zinc), and antioxidants. The absence of gluten is critical, as gluten can trigger autoimmune reactions damaging the small intestine, leading to symptoms such as diarrhea, bloating, weight loss, fatigue, anemia, and severe nutrient deficiencies.

The health importance of fiber cannot be overstated. It manages Type 2 Diabetes by retarding glucose absorption, reduces cardiovascular disease risks, promotes a healthy gut microbiome, improves digestion while preventing constipation, and supports weight management by inducing satiety. The sugar-to-fiber ratio is a defining metric for evaluating grain healthfulness. While wheat and rice have alarmingly high ratios (63.5 and 395.0, respectively), positive millets maintain exceptionally low ratios (ranging from 5.58 to 7.58), ensuring slow and sustained energy release.

Table 1: Nutrient and Fiber Content in 100g of Various Grains

Grain Type	Minerals (g)	Protein (g)	Sugar (g)	Fiber (g)	Sugar/Fiber Ratio
Browntop (Positive)	4.2	11.5	69.7	12.5	5.58
Barnyard (Positive)	4.4	11.2	65.5	9.8	6.68
Little (Positive)	1.5	9.7	65.5	9.8	6.68
Kodo (Positive)	2.6	9.8	65.6	9.0	7.29
Foxtail (Positive)	3.3	12.3	60.6	8.0	7.58
Finger Millet (Neutral)	2.7	7.1	72.7	3.6	20.19
Maize (Negative)	1.3	10.0	66.2	2.7	24.52
Wheat (Negative)	1.5	11.8	76.2	1.2	63.50
Rice (Negative)	0.6	6.9	79.0	0.2	395.00

2.4 In-Depth Therapeutic Benefits of Positive Millets (Siridhanya)

Dr. Khadar Vali, known as the 'Millet Man of India' and awarded the Padma Shree for his pioneering work on indigenous grains, established that 'food is medicine.' His research demonstrates that structural wellness begins with chronic disease management through correct grain choices. The five positive millets exhibit specific, targeted therapeutic properties:

1. Kodo Millet (Kodo): Rich in polyphenols, essential amino acids like lecithin, and powerful antioxidants. It acts as an excellent blood purifier, boosts haemoglobin levels, and combats chronic anemia. It improves bone marrow function, strengthens nervous system pathways, and accelerates wound healing in diabetics. It aids recovery from dengue, typhoid, and viral fevers, and fights cancers of the prostate, blood, intestines, thyroid, throat, and liver.
2. Barnyard Millet (Sanwa/Sama): Possesses the lowest caloric density and highest amount of digestible fiber. It acts as a natural laxative, completely cleansing the digestive tract. It is an excellent option for

weight loss diets and improving liver health. It is widely consumed during fasts for instant, clean energy.

3. Little Millet (Kutki/Sami): Features a high concentration of Magnesium, Phosphorus, healthy fats, and dietary fiber. It is instrumental in curing hormonal imbalances such as thyroid issues and PCOD, as well as anemia. It increases sperm count in men, cleanses the lymphatic system, and helps control cancers of the brain, throat, thyroid, and pancreas.

4. Foxtail Millet (Kangni): Exceptionally rich in protein, niacin, copper, iron, and glycemic carbohydrates. It regulates blood glucose levels and balances cholesterol efficiency. It is a powerful tonic for the nervous system, managing conditions like epilepsy, Parkinson's disease, and arthritis. It clears respiratory tract congestion, strengthens lungs (beneficial for Asthma), and helps manage mouth, lung, and stomach cancers. It is highly recommended for pregnant women and those suffering from constipation.

5. Browntop Millet (Hari Kangni): Contains the highest fiber content (around 12.5%) among all positive millets. It facilitates an excellent internal body cleanse, efficiently scrubbing the digestive tract and relieving severe constipation. It helps detoxify the entire body by binding with and eliminating harmful metabolic wastes.

2.5 Comprehensive Millet Protocol for Disease Management

A specialized therapeutic regimen involving the continuous rotation of Siridhanya millets and the consumption of specific herbal decoctions (Kashayam or Kadha) has been formalized to target various severe ailments. Patients consume the decoction (200 ml) every morning on an empty stomach and adhere to a strict rotation of the five positive millets for all meals. The protocol emphasizes avoiding mixed millet consumption, ensuring proper soaking times, and maintaining the regimen for a minimum of 3 to 4 months for measurable results.

Table 2: Comprehensive Millet and Herbal Decoction Protocol

Disease	Decoction (200ml) - Siridhanya Rotation (Days)	Morning Empty Stomach
Kidney Stone	Mint leaves (5g), Coriander leaves (5g), Banana stem juice (10ml), Sour spinach (3g)	Foxtail: 2, Little: 2, Kodo: 2, Barnyard: 2, Browntop: 2
Gastric Acidity	Mint (5g), Curry leaves (1g), Cassia auriculata leaves (2g), Allspice leaves (2g)	Foxtail: 3, Browntop: 3, Little: 1, Kodo: 1, Barnyard: 1
Arthritis & Joint Pain	Nyctanthes leaves (2g), Peepal leaves (2g), Bael leaves (2g), Sour spinach	Browntop: 3, Little: 1, Kodo: 1, Barnyard: 1, Foxtail: 3

	(3g), Guava leaves (2g)	
Eye Problems	Carrot leaves (3g), Mint leaves (5g), Dill leaves (3g), Drumstick leaves (5g)	Foxtail: 3, Browntop: 3, Little: 1, Kodo: 1, Barnyard: 1
Nerve Problem	Allspice leaves (2g), Doob grass (3g), Guava leaves (2g), Parijat leaves (2g)	Little: 3, Kodo: 3, Foxtail: 1, Barnyard: 1, Browntop: 1
Liver/Kidney Cleanse/Gout	Common Rue leaves (1g), Fenugreek leaves (3g), Bryophyllum (3g), Boerhavia diffusa (3g)	Barnyard: 3, Little: 1, Kodo: 1, Foxtail: 1, Browntop: 1
Cardiac Issues	Ash gourd juice (250ml), Cucumber juice (250ml), Bottle gourd juice (250ml), Betel leaf (1), Holy basil (5-7 leaves)	Little: 2, Kodo: 2, Barnyard: 3, Foxtail: 1, Browntop: 1
Diabetes	Giloy stem (3g), Mint/Methi (2g), Drumstick leaves (5g), Jamun leaves (2g), Ivy gourd leaves (3g)	Foxtail: 2, Little: 2, Kodo: 2, Barnyard: 2, Browntop: 2
Thyroid/PCOD/Fibroids	Bael leaves (2g), Tamarind leaves (2g), Drumstick leaves (5g), Pepper leaves (1g), Neem leaves (1g)	Little: 3, Foxtail: 1, Kodo: 1, Barnyard: 1, Browntop: 1
Blood Pressure (BP)	Peepal (2g), Bael (2g), Basil (3g), Coriander (5g), Edible cactus (3g)	Foxtail: 2, Little: 2, Kodo: 2, Barnyard: 2, Browntop: 2
Varicose Veins	Tomato juice (200ml), Papaya leaves (2g), Parijat leaves (2g), Ivy gourd leaves (3g), Punarnava (3g)	Foxtail: 2, Little: 2, Kodo: 2, Barnyard: 2, Browntop: 2
Prostate Glands	Parijat leaves (2g), Coriander leaves (5g), Mint leaves (3g), Bryophyllum (3g)	Kodo: 2, Foxtail: 1, Barnyard: 1, Browntop: 2
Infertility	Peepal (2g), Neem (1g), Drumstick leaves (5g), Betel	Foxtail: 2, Little: 2, Kodo: 2, Barnyard: 2, Browntop: 2

	leaf (1)	
Cancer (Blood)	Morning/Eve: Parijat (5-10g), Peepal (5g), Guava (5-10g). Afternoon: Curry leaf, Betel leaf.	Browntop: 2, Little: 2, Kodo: 2, Foxtail: 1, Barnyard: 1
Cancer (Breast)	Morning/Eve: Parijat (5g), Peepal (5g), Guava (5-10g). Afternoon: Curry leaf (10- 15g), Neem leaf (2-5g)	Browntop: 2, Kodo: 2, Little: 1, Foxtail: 1, Barnyard: 1

2.6 Dietary Integration: Amali and Daily Cooking Guidelines

To maximize health benefits, millets are traditionally fermented into a probiotic gruel known as 'Amali'. It is prepared by boiling 1 cup of positive millets with 12 to 15 cups of water in an earthen or clay pot. The mixture is brought to a boil and then simmered on a low flame until the grains are fully cooked. Once cooked, the pot is covered with a breathable cotton or khadi cloth and allowed to ferment naturally for 6 to 8 hours. This probiotic-rich diet rebuilds gut flora and accelerates recovery. Once fermented, it can be consumed with sea salt, buttermilk, or curds.

For daily consumption as a staple replacement for rice or wheat, the following preparation steps are essential:

1. Soak: Millets must be washed thoroughly and soaked in water for 4 to 6 hours (overnight soaking is ideal).
2. Rinse: Drain the soaking water and rinse the millet with fresh water.
3. Cook: Use a 1:2.5 grain-to-water ratio. Bring water to a boil, add the soaked millet, cover, and cook on a low flame for 20 minutes (or pressure cook for 3-4 whistles).
4. Serve: Pair with traditional accompaniments like dal, vegetable curry, curd, sambhar, or rasam.

Table 3: Weekly Millet Diet Plan for Healthy Individuals

Day	Recommended Millet	Primary Health Focus
Monday	Foxtail Millet, Kodo Millet, Barnyard Millet	Thyroid, Diabetes management
Tuesday	Foxtail Millet, Kodo Millet, Barnyard Millet	Blood purification, Liver health
Wednesday	Foxtail Millet, Kodo Millet, Barnyard Millet	Kidney health, Bone strengthening
Thursday	Little Millet	Fat metabolism, Heart health
Friday	Browntop Millet	Digestion enhancement,

Weight loss

Saturday	Any positive millet as per need	General wellness
Sunday	Any positive millet as per need	General wellness

Key Tips for Starting a Millet Diet:

- Start the transition gradually rather than abruptly altering the entire diet.
- Always ensure the millets are properly soaked prior to cooking to neutralize antinutrients.
- Do not mix millets with traditional white rice.
- Utilize cold-pressed oils for cooking to maintain cardiovascular benefits.
- Commit to the dietary shift for a minimum of 3 months to observe tangible structural wellness improvements.

3. Conclusion

The transition back to millet-based agriculture and diets represents a necessary paradigm shift in addressing both global food security and the modern epidemic of non-communicable diseases. The extensive categorization of grains into positive, neutral, and negative tiers emphasizes that not all cereals are created equal. Positive millets, characterized by their exceptional fiber-to-carbohydrate ratios, offer genuine therapeutic properties capable of managing and reversing chronic conditions ranging from diabetes to reproductive disorders. By adhering to traditional preparation methods—such as overnight soaking and the fermentation of 'Amali'—and understanding the nuanced healing protocols formulated by researchers like Dr. Khadar Vali, modern society can harness the profound healing potential of 'Shree Anna'. As global awareness and agricultural infrastructure expand post-2023, choosing millets today is an indisputable and scientifically sound step toward building a healthier, more sustainable tomorrow.

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