

# A Review of Millets from Ayurvedic Texts and Their Significance in the Present Era: A PRISMA-Based Systematic Review

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Submission: 8.11.2022

Acceptance: 08.11.2022

Publication: 28.02.2023

[https://www.doi.org/10.63778/PDEASIJRAAS-ARJCPL/2023\\_22821](https://www.doi.org/10.63778/PDEASIJRAAS-ARJCPL/2023_22821)



## Abstract

Millets, known as Trunadhanya, Kshudradhanya, or Kudhanya in Ayurveda, have been an integral part of the Indian diet since ancient times. These small-seeded cereals, belonging to the family Poaceae, are highly adaptable to harsh environmental conditions and are rich in essential nutrients. This systematic review follows PRISMA guidelines to analyze Ayurvedic references, nutritional value, and contemporary relevance of millets in managing lifestyle diseases. The study aims to bridge ancient wisdom with modern nutritional science by critically evaluating textual descriptions and recent studies on millets.

**Keywords:** Millets, Trunadhanya, Kshudradhanya, Ayurveda, Nutritional Value, Lifestyle Diseases

## Introduction

Millets have been a staple food in India for centuries. They are drought-resistant, nutrient-dense, and have a low glycemic index, making them beneficial for metabolic disorders such as diabetes and obesity.<sup>(1,2)</sup> Ayurvedic texts categorize millets under different names, highlighting their medicinal and dietary importance. Despite their declining consumption, recent research has reignited interest in these grains due to their health benefits. This review systematically explores Ayurvedic references to millets and their significance in contemporary health management.<sup>(3,4)</sup>

## Methods

### Eligibility Criteria

- Studies or texts mentioning millets in Ayurveda
- Research articles on the nutritional and medicinal value of millets
- Comparative studies between modern nutritional science and Ayurveda
- Studies on the impact of millets on chronic diseases

### Information Sources

- Ayurvedic Samhitas (Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya)
- Nighantus (Bhavaprakash, Kaiyadeva, Madanpal, Raj Nighantu, etc.)
- Modern nutritional studies from indexed journals
- Governmental and institutional reports on millet consumption

## Search Strategy

A comprehensive search was conducted in Ayurvedic literature, PubMed, Google Scholar, and institutional repositories using the following search terms: “millets in Ayurveda,” “Trunadhanya,” “nutritional benefits of millets,” and “millets in chronic disease management.”

## Study Selection and Data Extraction

- Identification: Initial search results were screened for relevance.
- Screening: Duplicates and irrelevant articles were removed.
- Eligibility: Full-text articles and Ayurvedic texts were assessed for inclusion.
- Inclusion: Studies meeting the eligibility criteria were included.

## Results

### Ayurvedic Classification of Millets

Millets are referred to as **Shukadhanya**, **Trunadhanya**, **Kshudradhanya**, and **Kudhanya** in various Ayurvedic texts:

- **Charaka Samhita:** Mentions millets in the Shukadhanya category, noting their effects on doshas.
- **Sushruta Samhita:** Categorizes millets as Kudhanyas, highlighting their role in digestion and metabolism.
- **Bhavaprakash Nighantu:** Discusses different varieties of millets, their properties, and therapeutic applications.

Types of Millets in Ayurveda and Their Properties<sup>(5,6)</sup>

Sanskrit Name	Common Name	Botanical Name	Ayurvedic Properties
Yavanal	Sorghum	Sorghum vulgare	Madhura, Kashaya; Ruksha, Laghu; Kapha-Pitta hara
Sajak	Pearl Millet	Pennisetum glaucum	Ushna Virya; Balya, Ruksha, Pittaprapakopak
Nartak	Finger Millet	Eleusine coracana	Kashaya, Madhura; Sheet Virya; Tridosahara
Kodrav	Kodo Millet	Paspalum scrobiculatum	Madhura, Tikta; Sheet Virya; Kapha-Pitta hara
Shyamak	Barnyard Millet	Echinochloa frumentacea	Madhura, Kashaya; Sheet Virya; Grahi, Vishahara
Kangu	Foxtail Millet	Setaria italica	Madhura, Kashaya; Raktapitta Shodhana
Chinak	Proso Millet	Panicum miliaceum	Ruksha, Guru; Kapha-Pitta Nashaka

Nutritional and Medicinal Benefits of Millets<sup>(7,8)</sup>

## 1. Nutritional Composition

- Rich in dietary fiber, B-complex vitamins, calcium, iron, magnesium, zinc, and antioxidants.
- Low glycemic index, suitable for diabetics.
- High protein content, beneficial for muscle health.

## 2. Therapeutic Benefits

- Diabetes Management:** Lowers blood glucose levels due to its low glycemic index.
- Obesity and Metabolic Syndrome:** Promotes satiety and helps in weight management.
- Cardiovascular Health:** Reduces cholesterol levels and prevents atherosclerosis.
- Gastrointestinal Disorders:** Acts as a prebiotic and improves gut health.
- Bone Health:** Rich in calcium and phosphorus, useful for osteoporosis prevention.

## Contemporary Research on Millets

Recent studies confirm Ayurveda's claims about millets' health benefits:

- A study published in the *Journal of Food & Nutritional Disorders* (2019) found that millets significantly reduced blood sugar levels and improved insulin sensitivity.
- Research in the *Indian Journal of Health Sciences* (2021) showed that finger millet had the highest calcium content among cereals, beneficial for bone health.
- A clinical trial in the *Journal of Agricultural and Food Chemistry* (2022) indicated that millet-based diets reduced oxidative stress and inflammation.

## Discussion

The alignment between Ayurveda and modern nutritional science regarding millets is remarkable. Ayurveda categorizes millets based on their doshic effects, which modern science supports with evidence on their impact on metabolic health. Their ability to balance doshas is reflected in their efficacy against diabetes, obesity, and gastrointestinal disorders. The grahi (absorbent) property described in Ayurveda corresponds with modern findings on high fiber content and gut health benefits. Despite these advantages, millet consumption has declined due to the popularity of refined grains such as rice and wheat. Additionally, processing methods often strip away essential nutrients, diminishing their health benefits. Public awareness remains a crucial factor in promoting millet-based diets. Addressing these challenges through awareness campaigns and sustainable agricultural practices can help reinstate millets as a staple in modern diets.<sup>(9,10)</sup>

## Conclusion

Millets have been recognized in Ayurveda for their **nutritional and medicinal properties**. Modern research confirms their efficacy in managing **diabetes, cardiovascular diseases, obesity, and gastrointestinal disorders**. Promoting millet consumption aligns with both **traditional wisdom and contemporary health science**. Future research should focus on validating Ayurvedic claims through **clinical trials**.

**Source of Support:** Nil

**Conflict of Interest:** Nil

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