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"The Nutritious Shift: Embracing Millets for Optimal Health and India's Economic Wealth"

Dr. Nikita Sharma[1], Prof. (Dr.) Mahesh Vyas[2]

1. PhD Scholar, Department Samhita & Siddhanta, All India Institute of Ayurveda, New Delhi
2. Guided & Dean (PhD) and HOD, Department Samhita & Siddhanta, All India Institute of Ayurveda, New Delhi.

Corresponding Author- Dr. Nikita Sharma, PhD Scholar, Department Samhita & Siddhanta, All India Institute of Ayurveda, New Delhi

ABSTRACT:

Millets are now gaining popularity due to their nutritional value and diverse culinary applications. they are unique among cereals due to their high levels of dietary fiber, protein, calcium, iron, potassium, zinc, magnesium, and vitamins. They are gluten-free, making them the least allergenic and most digestible grain. Ayurveda has classified Millets as *Pathya* in various maladies and has classified them in a separate class or Varga. Their pharmacological profile is explained in Ayurveda, with various types such as *Sama, Kodo, Neewar, Gavedhuk, Kanguni, Cheena, Jowar, Ragi,* and *Bajra*. It is already proven on modern parameters that Millets are a high-nutrient, gluten- free grain rich in vitamins and minerals, including 60-70% carbohydrates, 7-11% protein, 1.5-5% fat, and 2-7% crude fiber. They are rich in Vitamin B, Magnesium, manganese, phosphorous, and iron. Millets also contain important fatty acids, such as linoleic, oleic, and palmitic acids, as well as monogalactosul, diacylglycerols, Digalactosyl Diacylglycerols, Phosphatidylethanolamine, Phosphatdyl Serine, and Phosphatdyl Choline. Millets have been shown to reduce various lifestyle disorders, including Diabetes, Cancer, Celiac disease, cardiovascular disease, and Anti- inflammatory activity. They can help control blood glucose levels, slow wound healing, and reduce the risk of diabetes. This article discusses the medicinal use of millets in major lifestyle conditions as millets have the potential to address these lifestyle problems and contribute to overall health.

Key Words: Lifestyle Disorder, Millets, *Pathya, Shreedhanya*

Introduction:

Following the United Nations General Assembly's designation of 2023 as the International Year of Millets, millets—once adored by long-gone civilizations—are now enjoying a comeback in popularity, thanks to their remarkable nutritional value and wide range of culinary applications. This comeback in popularity is due to its enormous potential to address different lifestyle problems such as obesity, diabetes, CVD, cancer, and respiratory ailment, which pose a significant danger to the global health care system. Nutritional value is the important feature of dietary quality and potential aspect of food grains, as nutrition is responsible for

the entire physical well-being of thesociety. Millets are distinctive among cereals due to their high levels of dietary fiber, protein, calcium, iron, potassium, zinc, magnesium, and vitamins, thus Millet has many nutritious and medical functions reported. (1)Millets are also gluten-free, making them the least allergenic and most digestible grain.

Though modern science has acknowledged the potential of millets in recent years, Ayurveda has already provided the best therapeutic recommendations for these grains as *Pathya* in a variety of maladies and has classified them in a separate class or *Varga* and detailed it very lucidly. Millets can be investigated for their potential in the prevention and management of lifestyle disorders and associated complications due to their vast nutritional and therapeutic potential. Thisarticle discusses the medicinal use of millets in major lifestyle conditions such as diabetes, obesity, COPD, cardiovascular disease, and cancer. To cover the information gap and support the registered claim, references listed in *Ayurvedic* classics as well as contemporary developments in therapies and research in conventional medicine were exhaustively searched.

Data Source:

To extract the related advances of research done on Millets, the available literatures pertaining to the therapeutic and pharmacological aspects of Millets according to Ayurveda and contemporary medical sciences were searched. Online medical literature libraries such as PubMed Online, Google Scholar, and AYUSH Portal were searched for the research on Millets.

Millets in Ayurveda

In Ayurvedic text millets have been referred by the name as *Kudhanya* (Shastri, 2011) and *Trin Dhanya* (Gupta, 2011). These are *Sama* (Echinochloa frumentace Linn.), *Kodo* (Paspalum scrobiculatum Linn.), *Neewar* (Hygroryza aristata Retz.), *Gavedhuk* (Coix lacryma jobi Linn), *Kanguni* (Setaria italica Linn. Beauv.), *Cheena* (Panicum miliaecum Linn.), *Jowar* (Sorghum vulgare Pers.), *Ragi* (Eleusine coracana Linn.), *Bajra* (Pennisetum typhoides Burm.f.Stapf. & Habbard). Millets have been used as food as well as therapeutic diet in Ayurveda since *Samhita Kala* and have been recommended as *Pathya* in various illnesses.

Millets' Pharmacological Profile as explained in Ayurveda (2)

Millets	**Botanical name**	**Guna**	**Pharmacological Action**	**Therapeutic use**
Sama (Barnyard Millets	Echinochloa frumentace Linn	*Sheet, Snigdha, Laghu*	*Kaphapittahara* (pacify *Kapha* & *Pitta Dosha*), *Sangrahi* (absorbs excessive fluids from intestine and helps for natural compactness of stool and enhances digestion), *Dhatu Shoshan* (dries up excessive moisture in tissues), *lekhaniya* (scraping) ,*Sthoulya* (obesity), *Medoroga* (diseases due to excessive lipids), *Prameha* (Diabetes Mellitus	Obesity, *Raktapitta, Pittaj Kasa, Urustambha ,Stanyadosa ,Jalodara*

Kodo Millet	Paspalum scrobiculatum Linn.	*Guru, Ruksha*	*Vatakara* (aggravates *Vata Dosha*), *Grahi* (absorbs excessive fluids from intestine and helps for natural compactness of stool and enhances digestion), *Shoshaka* (dries up excessive moisture), *Lekhaniya* (scraping), *Sthoulya* (obesity), *Medoroga* (diseases due to excessive lipids), *Prameha* (diabetes mellitus), *Raktapitta* (bleeding disorders), *Vishahara* (anti-poisonous)	Obesity, *Raktapitta, Pittaja Kasa, Visha, Urustambha*
Gavedhuk	Coix lacryma jobi Linn.	*Ruksha*	*Kaphahara* (pacify *Kapha dosha), Karshyakara,* (Promotes emaciation), *Sangrahi* (Absorbs Excessive Fluids from intestine and helps for natural compactness of stool and enhances digestion, *dhatu shosak*(dries up excessive moisture in tissues), *Lekhaniya*(scraping),*sthoulya*(obesity), *Medoroga* (diseases due to excessive lipids), *Prameha*(diabetes mellitus)	Obesity, *Kaphaja Chhardi*
Kanguni (foxtail Millet)	Setaria italica Linn. Beauv	*Guru, Ruksha*	*Sangrahi* (absorbs excessive fluids from intestine and helps for natural compactness of stool and enhances digestion),*Dhatu Shosan* (dries up excessive moisture in tissues), *Brimhan*(nourishes the boy tissues),*Bhagnasandhankar*(fracture healing), *Sthoulya* (obesity), *Prameha* (Diabetes Mellitus), *Twakvikar* (skin disorders),*Amavata*(rheumatoid arthritis), *Asthi Bhagna*(fracture of bone)	*Kustha Vatakarak, Pitta- daha nashak, Bhagnaasthi Sandhan*
Cheena (Common Millet)	Panicum miliaceum Linn.	*Ruksha*	*Kaphahara* (pacify *Kapha Dosha*), *Brimhana* (nourishes the body tissues),*Bhagnasandhankar* (promotes fracture healing),*Sthoulya* (Obesity) ,*Medoroga*(diseases due to excessive lipids ,*Prameha*(diabetes mellitus)	*Brihmana*
Jwar (Great Millet)	Sorghum vulgare pers.	*Guru, Sheet*	*Kaphapittahara*(pacify *Kapha* and *Pitta Dosha*), *Trishnaghna* (pacify excessive thirst),*Mutrala*(diuretic),*Vrishya*(aphrodisiac),*Sthoulya*(obesity),*Prameha*(DiabetesMellitus),*Raktapitta*(bleeding disorders).	*Brihana Malrodhak, Ruchikarak, Viryavardhak, Raktavikar*

Ragi (Finger Millet)	Eleusine coracana Linn.	*Laghu, Sheet*	*Balya* (promotes Strength,) *Vrishya* (Aphrodisiac),*Raktapitta* (bleeding disorders),*Sthoulya*(obesity),*Prameha* (Diabetes Mellitus),*Twakvikar* (skin disorders)	*Brihana Triptikarak, Balakarak, Raktapitta shamak*
Bajra (pearl Millet)	Pennisetum typhoides Burm.f.Stapf. & Habbard	*Ruksha, Ushna*	*Balya* (Promotes Strength), *Agnimandya* (Loss of Appetite), *Streekamodpadaka* (Aphrodisiac)	*Balya, Agnideepak, Strikamodpadaka, Punsatvahar, Durjara (nighantu ratnakar)*

Millet's Nutrient Profile:

Researches revealed that Millets are high in Vitamins and Minerals and include 60-70% Carbohydrate, 7-11% Protein, 1.5-5% Fat and 2-7% crude Fiber. They are high in Vitamin B, Magnesium, and manganese, phosphorous and iron. Except for Lysine and threonine, millet proteins are relatively high in the Sulphur containing amino acids methionine and cysteine. Apart from that, millets include important fatty acids such as linoleic, oleic, and palmitic acids in free form, as well as Monogalactosul, diacylglycerols, Digalactosyl Diacylglycerols, Phosphatidylethanolamine, Phosphatdyl Serine, and Phosphatdyl Choline in bound form [3]. Other fatty acids found in trace levels include arachidic acid, behenic acid, and erucic acid. Millet oil may be high in linoleic acid and tocopherols [4]. Millet is a gluten-free, alkaline-forming grain [5]. Millets contain vitamins B, folacin, riboflavin, thiamine, and phosphorus, which are essential for energy generation in the body.

Millet's Health Advantages on various lifestyle disorder: A Comprehensive Review

Recent studies have demonstrated millets' amazing ability for reducing many LSD. A modest attempt has been made to compile the research results and justification.

1. Diabetes: Millets can reduce blood glucose levels in hyperglycemia by enzymatically hydrolyzing complex carbs. The aldose reductase enzyme helps to prevent the accumulation of sorbitol and lowers the risk of diabetes.(6) Millets also assist in controlling blood sugar levels and slow wound healing. (7)Populations that consume millet have lower incidences of diabetes, according to studies, and whole grain meals are consumed to help prevent and treat diabetes mellitus.
2. Cancer: Millets are rich in antioxidants that reduce the chance of getting cancer, such as phenolic, tannins, and phytates. The presence of phenolics in it helps to prevent the growth and spread of cancer. Millets contain linolic acid, which aids in tumor prevention. Sorgam

possesses anticancer and antimutagenic properties as a result of the tannins and polyphenoals that are present in it. Millet grains contain large amounts of the "antinutrients" phenolic acids, tannins, and phytate. The phenolic content of millets may inhibit the growth and progression of in vitro cancer. (7)

3. Celiac disease: One of the hereditary disorders known as celiac disease is caused by gluten, a component of cereal grains that is largely present in wheat. The absence of gluten in millets lessens sensitivity to other cereal grains. Celiac disease sufferers can consume millets-based foods and beverages because they are gluten-free. (8)
4. Cardiovascular Disease [10]: Millets include magnesium, which lowers the risk of a heart attack. Millets are rich in phytic acid, a phytochemical that lowers cholesterol and helps prevent heart disease.(9). Millets include a good amount of protein, vital amino acids, minerals, and phytochemicals. It is essential for boosting health and helps to prevent illnesses like diabetes, hyperlipidemia, and others..
5. Anti-Inflammatory Activity Ferulic acid has powerful anti-inflammatory, free radical scavenging, and antioxidant properties. Antioxidants dramatically reduce tissue deterioration and promote wound healing. With oxidative stress-mediated control ofinflammation, finger millet has been shown to have positive antioxidant effects on the dermal wound healing process in diabetes-induced rats (7).
6. Aging: One of the main causes of diabetes problems and aging is non-enzymatic glycosylation, a chemical interaction between the amino group of proteins and the aldehyde group of reducing sugars. Millets are high in Phytates, phenols, and tannins, which can contribute to antioxidant activity vital to health, aging, and metabolic syndrome (10)

Conclusion:

It is now widely accepted that fiber-free foods offer serious health concerns to an individual and now the population had also understood the fact that majority of the lifestyle diseases may be treated very effectively by eliminating refined foods like rice, wheat, refined flours, processed meats, refined oils, packaged & ready-to-eat foods, This study aims to increase people's understanding of the importance of food, promote millets as a nutrient-dense food that can meet the needs of the entire world's population, and pinpoint ways to eat millets that are nutritionally advantageous and reduce the prevalence of malnutrition and other health problems. With their highnutrient content, including fiber, which aids in the treatment of metabolic disorders such as Diabetes, obesity, and cardiovascular disease, their high protein content, which aids in child growth and development, their high calcium content, which aids in bone development in both children and geriatric people, their high iron content, which aids in the treatment of Anaemia, andtheir gluten-free properties, which aid in the treatment of celiac disease, with so many of the benefits listed above making them an outstanding choice for health promotion and prevention.

Millets therefore have a great potential to live up to the adage

"India's Wealth, Millets for Health"

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