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THERAPEUTIC ROLE OF MILLETS IN AYURVEDA AND THEIR SIGNIFICANCE IN MODERN NUTRITION - A CRITICAL REVIEW

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ABSTRACT

The purpose of the work- The first food that humans consumed was millets, one of the first traditional food crops to be farmed. Millets were consumed by Indus Valley residents as early as 3,000 BC, and India gave rise to many of the varieties that are now cultivated all over the world. Due to the expanding world population, it is imperative to address the food and health issues that are brought on by a diet that is imbalanced and heavy in calories from fast food. There are numerous delectable, affordable, yet unhealthy cereal substitutes available. The general public today places a high value on health. In the age of pandemics, millets are recognized as one of the best sources of nutrients and provide a variety of health advantages. Sorghum (Jowar), Pearl (Bajra), Finger (Manduaor Ragi), Foxtail (Kangnior Kanguni), Porso (China or Barre), Kodo (Kodonor Kodara), Little (Kutki), and Barnyard (Sanwaor Shyama) are only a few of the countless millet varieties. **Methodology-** In view of the above, the present review endeavors to highlight the

nutritional and functional potential of millet crops and their therapeutic and significant uses of Millets in Ayurveda. Ancient Ayurvedic literatures were referred for the same. **Key findings-** Researchers are demonstrating that millet is a superior grain than other ones for cereal. There is a wide range of nutrients, including protein, vitamins, minerals, and phytochemicals. It could be able to mitigate the negative effects of agriculture and food security by implementing value-added millets. **Major Conclusion-** Millets have been consumed throughout history and in a number of countries, with their origins being in China. Millets are mentioned as desirable crops in the Bible. This study aims to raise awareness of the importance of food, promote millets as a filling meal that can feed the whole world's population, and identify healthy ways to prepare and consume millets. **Drawn from the work-** There are various health advantages to including millets, an ancient, prized grain-like seed, in our everyday diet. Most well-educated individuals have never heard of millet and are much less familiar with its nutritious benefits. However, millet was one of the best-kept secrets of our ancient ancestors.

Keywords: Millets, Bajra, Jowar, Kangni, Nutritional Value

INTRODUCTION:

Millets are widely used as food in rural areas. They have been raised for a thousand years and are used everywhere. The nutritional content of food is crucial for maintaining human health. Indians refer to contemporary millets as "" because of its significance in both culture and history. "The mother of all grains" or "the honored grain" is what the term "" signifies. To maintain human health holistically and enable prompt detection of complex problems like malnutrition, food quality should be taken into account. A wide variety of ailments may be treated with millet due to its many health-promoting and therapeutic properties [1]. The prevention and treatment of lifestyle diseases

including cancer, inflammation, heart disease, and diabetes depend on a variety of antioxidant substances present in millet, such as phenol and flavonoids. Antioxidants aid in keeping the body healthy by improving the immune system and reducing metabolic syndrome, all of which contribute to a healthy human body. Sorghum (Jowar), Pearl millet (Bajra), Finger millet (Mandua or Ragi), Foxtail millet (Kangni or Kanguni), Porso millet (China or Barre), Kodo millet (Kodon or Kodara), Little millet (Kutki), and Barnyard millet (Sanwa or Shyama), among others, are some of the several types of millet. The least fattening foods include Ragi, Bajra, and Shyama [2].

Millets go by a number of names, including Trina Dhanya (derived from grass cereals), Kshudra Dhanya (small-sized cereals), and Kudhanya (lesser among cereals). Here is an attempt to understand millets' traits, applications, and side effects from an Ayurvedic perspective [3].

RESEARCH QUESTION:

Is the Millets played an effective role for Modern Nutrition?

OBJECTIVE OF THE PRESENT WORK:

- To evaluate the therapeutic role of Millets in present era
- Concept of Millets in Modern Nutrition

METHODOLOGY:

In view of the above, the present review endeavors to highlight the nutritional and functional potential of millet crops and their therapeutic and significant uses of Millets in Ayurveda. Ancient Ayurvedic literatures were referred for the same.

MILLETS FOR HEALTH:

A comprehensive description of millet may be found in the Dhanya Varga (group of grains) of Ayurveda, which places a lot of emphasis on the diets of both healthy and diseased individuals. There are other names for millets, including Trina Dhanya (grains made from grass), Kshudra Dhanya (tiny grains), and Kudhanya (the worst of the grains). Millets have been utilized as food and

as a component of an Ayurvedic diet for medicinal purposes ever since Samhita Kala. In healthy people, millet can be taken as a preventive and therapeutic diet.

One of these grains' most potent therapeutic uses for a variety of ailments is pathya. A number of Pathya Kalpanas (wholesome meal preparations) may be made with millets, including. To completely benefit from millets' health benefits, one may choose a preparation that is suitable for both Rogi (the patient) and Roga (the disease/syndrome) [4].

According to Ayurvedic literature, millets have been used medically in addition to being a dietary component. One of these grains' most potent medical uses for a variety of ailments is pathya [5].

THERAPEUTIC & SIGNIFICANT USES OF MILLETS IN AYURVEDA:

- **Shyamaka (Barnyard millet, Echinochloa frumentacea)- Sangrahi** (absorbs excessive fluids, aids in regular fecal production, and improves digestion) [6].
- **Param Graahi (absorbs excess fluids, aids in the natural development of stools, and improves digestion)- Pathya** in Vrana (optimal diet in wounds and ulcers); Koradusha/Kodrava (*Paspalum scrobiculatum* - Kodo millet) [7].

- **Gavedhuka (Coixlachryma-jobi - Adlay millet)-** which is reported to have Shyamaka-like characteristics [8].
- **Kangu/Priyangu (Setariaitalica)-** Sangrahi (absorbes excess fluids, promotes digestion), Brinhana (nourishes body tissues), Shoshana (dries up excess moisture), Bhagna-sandhanakrit (heals fractures), Durjara (hard to digest), and Vrishya (aphrodisiac) [9].
- **Cheenaka (also known as proso millet or Panicummiliaceum)-** Brihana (nourishes the bodily tissues) Bhagna-sandhanakara (fosters the healing of fractures) [10].
- **Yavanaala (Sorghum vulgare - Sorghum)-** Trishnaghna (quenches excessive thirst), Ruchya (improves taste perception). (Calms high moisture content) Kledaghna [11].
- **Nartaki (Finger millet, Eleusine coracana)-** Balya (increases strength) (Aphrodisiac) Vrishy [12].

NUTITIONAL VALUE OF MILLETS:

Because millets are such a great source of nutrients, they can enhance the food and nutrition security in India by lowering malnutrition and a deficiency in several micronutrients. According to the FSSAI, millets contain a high dietary fiber content, 7–12% protein, 2-5% fat, 6-75% carbohydrates, and 15-20% dietary fiber. Millet proteins include all the essential amino acids, micronutrients, phyto-chemicals, antioxidants, and minerals. Given that they contain all required components, millets are potential dietary supplements. Researchers have found that these "smart foods" can boost growth in children and teens by 26-39% when compared to rice in conventional meals. Making use of millets' nutritional advantages might be a practical, affordable strategy to improve the nutrient intake of the underprivileged people [13].

Table 1: Millets In Ayurveda

Millet	Botanical Name
Sama (Barnyard Millet)	<i>Echinochloa frumentace L.</i>
Kodo Millet	<i>Paspalum scrobiculatum L.</i>
Gavedhuk (Job's Tear)	<i>Coix lacryma-Jobi L.</i>
Kanguni (foxtail Millet)	<i>Setaria italica L. Beauv</i>
Cheena (Common Millet)	<i>Panicum miliaceum L.</i>
Jowar (Great Millet)	<i>Sorghum vulgarepers.</i>
Ragi (Finger Millet)	<i>Eleusine coracana L.</i>
Bajra (pearlmillet)	<i>Pennisetum typhoides Burm. f. Stapf. & Hubbard</i>
Neewar	<i>Hygroryza aristata Nees.</i>

[References - Londhe D, Gundeti MS. Perspective on- 'Millet for Health' initiatives by Ayush Institutes across India based on the Hon'ble Prime Minister's Millet-promotion call through Mann ki Baat. J Res Ayurvedic Sci 2023;7:S41-4]

Table 2: Nutritional Values of Different Millet (Per 100G)

Crop	Sorghum / Jwar	Pearl millet / Bajra	Finger millet / Mandua/ Ragi	Foxtail millet / Kanguni	Proso millet / China	Kodo millet / Kodara	Little millet / Kutki	Barnyard Millet/ Sanwa / Shya
Nutrition								
Protein (gm)	10.4	11.6	7.3	12.3	12.5	8.3	7.7	6.2
Fat (gm)	1.9	5.0	1.3	4.3	1.1	1.4	4.7	2.2
Fibre (gm)	1.6	1.2	3.6	8.0	2.2	9.0	7.6	9.8
Minerals (gm)	1.6	2.3	2.7	3.3	1.9	2.6	1.5	4.4
Iron (mg)	4.1	8.0	3.9	2.8	0.8	0.5	9.3	5.0
Calcium (mg)	25	42	344	31	14	27	17	20
Phosphorus (mg)	306	296	283	290	206	188	220	280

[References - Parul Rani, Dinesh Kumar Maurya, Mandeep Jaiswal, Anil Kumar Varshney: Elixir of Life. J Ayu Int Med Sci. 2023;8(4):182-188. Available From <https://jaims.in/jaims/article/view/2415>]

Table 3: Health Benefits of Millets

Types of Millets	Health Benefits
Finger millet	Inhibit cataract eye lens, Lower plasma glucose level, Antimicrobial activity against <i>Bacillus cereus</i> and <i>Aspergillus flavus</i>
Foxtail millet	Anti-hyperglycemic activity Proso millet Improved HDL, Lower triglycerides, Prevent cardiovascular disease
Kodo millet	Inhibit glycation and cross linking of collagen leads to inhibition of aging
Pearl millets	Inhibiting the growth of the phyto-pathogenic fungi
Barnyard millets	Improved the levels of HDL Little millet Inhibitory effects on lipid per oxidation

Source: Verma *et al.*, (2012); Fereidoon Shahidi *et al.*, (2013)

DISCUSSION:

It is now well accepted that the absence of fiber in modern diets has contributed to a number of health issues all around the world. Patients should be informed that all lifestyle ailments may be treated by consuming millets for breakfast, lunch, and dinner instead of refined grains like rice, wheat, processed meats, refined oils, packed & ready-to-eat meals, and milk [14].

THE INDIAN GOVERNMENT'S ONGOING EFFORTS TO MAKE A WORLDWIDE MOVEMENT:

- ✓ The designation of millets as nutri-cereals in 2018 informed farmers about their benefits and sparked interest in the market.

- ✓ Millets have been selected as the "One District, One Product" in 19 districts across the country.
- ✓ The NFSM-Coarse Cereals version of the National Food Security Mission (NFSM) was implemented in 14 States.
- ✓ To enhance the nutritional outcome, millet was approved for inclusion in the PM POSHAN (formerly known as the mid-day meal program) in 2021.
- ✓ India plans to launch the Millet International Initiative for Research and Awareness (MIIRA) to encourage the use and production of millets.

EFFECT OF THESE ACTIONS:

- Currently, each individual consumes 3 to 14 kg per month.
- Sales of millet-based food items increased by almost 30%.

POSHANA ABHIYANA FOR CHILDREN:

The Hon'ble PM initiated the POSHAN Abhiyaan initiative to improve the nutritional status of young children under the age of six, teenage girls, pregnant women, and nursing mothers in a timely way. By setting the foundation for a significant movement, the Jana Andolan, sometimes referred to as the Abhiyan, seeks to improve relationships between communities and health and welfare. Poshan Maah and Poshan Pakhwada have been instrumental in changing dietary habits as part of the Abhiyaan. The Ministry of Ayush has been a knowledge partner and actively participates in many activities for the promotion of millet under the POSHAN Abhiyaan program, with help from National Institutes/Research Councils under the Ministry and State Ayush Departments [15].

In addition to this, Ayush institutes are coordinating a variety of efforts to promote the use of millets, including the distribution of millet calendars and cookbooks, awareness lectures, and quizzes for OPD patients [16].

LACUNA IN THE AREA:

In this study only one Lacuna is there that is this study was not clinical study. It is a conceptual study.

FURTHER RECOMMENDATION OF STUDY:

- In future study will be evidence-based research
- Sample Size will large

CONCLUSION FROM THE PRESENT STUDY:

There are various health advantages to including millets, an ancient, prized grain-like seed, in our everyday diet. Most well-educated individuals have never heard of millet and are much less familiar with its nutritious benefits. However, millet was one of the best-kept secrets of our ancient ancestors. Millets have been consumed throughout history and in a number of countries, with their origins being in China. Millets are mentioned as desirable crops in the Bible. This study aims to raise awareness of the importance of food, promote millets as a filling meal that can feed the whole world's population, and identify healthy ways to prepare and consume millets. Nutrition is a critical component of both an individual's and a community's health since it is seen as an economic asset and a major indicator of progress for the population. Since the Ministry of AYUSH is in charge of maintaining the

wellbeing of its citizens, these efforts will definitely help in the long term to promote health, prevent sickness, and reduce the occurrence of non-communicable illnesses and malnutrition.

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CONFLICT OF INTEREST: NIL

SOURCE OF SUPPORT: NONE

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