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Ayurveda & Modern Review on Health and Dietetics Significance of Millets

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Abstract

The objective of the current study is to analyse the nutritional and therapeutic potential of millets from Ayurvedic viewpoints supported by contemporary scientific research. Global population growth necessitates addressing food and health issues caused by an imbalanced diet of high-calorie fast foods. The so-called general diseases of the present day include issues with obesity, diabetes, cardiac arrests, porous bones, depression, etc. There are a tonne of cereal options that are yummy, affordable, but unhealthful. People today place a high value on their health. In the age of pandemics, millets are one of the richest sources of nutrients and health advantages. Studies are demonstrating that millet is a superior cereal choice over other grains. Protein, vitamins, minerals, phytochemicals, and energy are all present. It may be able to address the detrimental effects of agriculture and food security by using value-added millets. In order to improve consumption of health, the review concentrated on millet's nutritional content, health advantages, and processing methods with their value-added goods.

Introduction

One of the most significant cereal grains is millets. More than one-third of people on the planet eat millets. In terms of agricultural output around the world, it is the sixth cereal crop. It has been grown for the past 50 years and is used as both animal feed and human food. A poor man's food is another name for it. The Latin word "Milium," which means little seed, is the source of the English term "millet." The Poaceae family includes a particular group of plants known as millets [1]. They stand out from other food grains because they are smaller but more nutrient.

Rigveda introduced them initially, followed by Yajurveda and Atharvaveda. Millets have been alluded to in Ayurveda texts as Kudhanya and Trin Dhanya [2]. The following are listed in alphabetical order: 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) (Pennisetum typhoides Burm.f.Stapf. & Habbard). From Samhita Kala, millets have been employed in Ayurveda as a food and a component of therapeutic diets. The use of these grains as Pathya in various ailments is one of their best medicinal applications.

The majority of the millet used for human use is grown in China, India, Greece, Egypt, and Africa. Yet, even in rural regions, some millets, such as finger millet and sorghum, are consumed while the remainder are utilised as animal feed. Amazing nutritional qualities may be found in millets. In many regions, millets are an important part of traditional meals. Millets come in a variety of kinds, each used in various Indian states. When compared to the nutritional content of frequently used grains like rice and wheat, the nutritional content of all millets is three to five times higher. Millets provide nutritional and physiological advantages, and they aid in the management of conditions including diabetes mellitus, hyperlipidemia, and others [3].

Aim of the study

The goal of the current study is to examine millets' nutritional and medicinal benefits and to promote their usage as future staple grains in underdeveloped nations.

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Methodology

The methodology of the study consists of a field survey, a literary survey that comprises Ayurveda literature, and topic-related research publications.

Millets

According to conventional growing methods, millets don't need pesticides, and the land where they are grown is completely pest-free. In storage situations for pulses like green gramme, millets like foxtail millet operate as anti-pest agents because they are pest-free. No fumigants are required for the millets. Millets are one of the less important feed crops in India's agriculture, yet they are crucial for regional and farm-level food security. Millets can survive higher heat regimes and can flourish in drought-prone environments. Millets may flourish even without irrigation and in very low rainfall regimes of 200 to 500 millimetres. Millets may thrive in low water environments [4].

Nutritive Value of Millets as per Ayurveda & Modern

When it comes to nutritional factors, millets are far superior to wheat and rice. When compared to rice and wheat, millets have higher fibre and less mineral content. Each of the millets contains more fibre than wheat and rice together. Some millets contain more fibre than rice by a factor of more than fifty.

Table 1: Therapeutic indication of millets in Ayurveda [5].

Millet	Botanical Name	Synonyms	Guna	Therapeutic uses
Sama (Barnyard Millet)	Echinochlofrumentace Linn.	Shayamak, Shyam,Tribeej, Rajdhanya, Trinbeej, Uttam	Sheet, Snigdh, Laghu	Obesity, Raktapitta, Pittaj kasa, Urustambha,Stanyadosa, Jalodara
Kodo Millet	Paspalum scrobiculatum	Kodrav, Kordush, Kudyal,Uddalak	Guru, Ruksha	Obesity, Raktapitta, Pittaj kasa,Visha, Urustambha,
Gavedhuk	Coix lacryma jobi Linn.	Vaijyanti,	Ruksha	Obesity, Kapaj Chardi
Kanguni(foxtail Millet)	Setaria italica Linn. Beauv	Kanguni, Pitatandula, Vatal, Sukumar, Priyangu	Guru, Ruksha	Kustha Vatakarak, Pitta-daha nashak, Bhagna-asthi Sandhan
Cheena (CommonMillet)	Panicum miliaceum Linn.	Varak, Sthulkangu, Sthul priyangu, Kangubhed,Marha	Ruksha	Brihana
Jwar	Sorghum vulgare pers.	Jurnahwa,Yavnal, Raktika Krostupuccha,	Guru, Sheet	Brihana Malrodhak,Ruchikarak, Viryavardhak
Ragi (Finger Millet)	Eleusine coracana Linn.	Madhuli, Ragika, Nartak,Madua	Laghu sheet	Brihana Triptikarak Balakarak, Raktapitta Shamak
Bajra	Pennisetum typhoides	Bajranna, Sajak, Nalika, Neelkaran	Ruksh, Ushna	Balya, Agnideepak, Strikamodpadaka,
Neewar	Hygroryza aristata Nees.	Tini, Aranyadhanya, Munidhanya, Trinodbhav	Laghu, Snigdh, Sheet	Raktapitta,Vatarakta, Pathya, Kaphkarak,Malamutra rodhak

Table 2: Nutrient value of millets & Indian Foods [6].

S.No.	Millets	Protein (gm)	Fiber (gm)	Minerals (gm)	Iron (gm)	Calcium (gm)
1	Sorghum	11	6.7	2.7	3.4	13
2	Finger millet	7.3	3.6	2.7	3.9	344
3	Foxtail millet	12.3	8	3.3	2.8	31
4	Kodo millet	8.3	9	2.6	0.5	27
5	Little millet	7.7	7.6	1.5	9.3	17
6	Pearl millet	10.6	1.3	2.3	16.9	38
7	Proso millet	12.5	2.2	1.9	0.8	14
8	Barnyard millet	11.2	10.1	4.4	15.2	11

Health Benefits of Millets

People today are very concerned about their health. Millets are a secret source of antioxidants, phytochemicals that promote health, and nutraceuticals, in addition to being a useful food.

Millets-Diabetes [7]: By enzymatically hydrolyzing complex carbohydrates in hyperglycemia, millets have the capacity to lower blood glucose levels. The aldose reductase enzyme aids in reducing sorbitol buildup and lowers the chance of developing diabetes. Millets also aid in regulating blood sugar levels and slow the healing process after wounds. Whole grain meals are consumed to help prevent and treat diabetes mellitus, and studies have shown that populations who consume millet have reduced rates of diabetes. Various research investigate the impact of millet grains on diabetes in humans (male and female). Findings indicated that people who consumed millet as part of their diet experienced lower blood sugar levels.

Millets-Cancer [8]: Millets are full in antinutrients such phenolic, tannins, and phytates that lower the risk of developing cancer. It contains phenolics, which are useful for halting the development and spread of cancer. Linolic acid, which is present in millets, helps to prevent tumours. Due to the tannins and polyphenoals found in sorgam, it has both anticancer and antimutagenic characteristics. The "antinutrients" phenolic acids, tannins, and phytate are abundant in millet grains. In vitro cancer development and progression may be prevented by millets' phenolics, according to a recent study.

Millets-Celiac disease [9]: Gluten, a component of cereal grains found primarily in wheat, is one of the genetic problems known as celiac disease. Millets lack gluten, which reduces sensitivity to other cereal grains. Foods and beverages made from millets are devoid of gluten and can be consumed by those with celiac disease.

Millets-Heart Disease [10]: Magnesium, which is found in millets, helps to lower the risk of heart attack. Millets are abundant in phytochemicals that decrease cholesterol and assist to avoid heart disease. A good amount of protein, essential amino acids, micronutrients, and phytochemicals can be found in millets. It plays a key function in promoting health and aids in the prevention of diabetes, hyperlipidemia, and other conditions.

The purpose of the study is to raise awareness of the value of millets as a nutrient-dense food, meet the population's nutritional needs, and boost demand for and consumption of millets in daily meals. Millets are nutrient-rich and can help with other health issues, including the problem of malnutrition.

Discussion

The greatest food for those with gluten sensitivity is millets because they are the least allergenic and readily digesting meals. Millets are a great source of dietary fibre, vital fatty acids, and amino acids.

1. The body needs a variety of healthful nutrients for optimum operation, and millets are rich in these nutrients. Iron and copper are two minerals found in that are necessary for producing blood cells and enhancing blood oxygenation. Moreover, they contain phosphorus, which aids in blood pressure regulation. Helping the body's defence mechanisms against sickness.

2. Consuming millets regularly helps lower triglyceride levels in the body, which prevents blood platelets from clumping and lowers the risk of coronary artery disease.

3. Millets provide vitamins like vitamin B, which facilitates the simple digestion of fats and carbohydrates. They aid in lowering the blood homocystine level, preventing cholesterol from bonding and generating deposits. By blocking cholesterol from entering the bloodstream, niacin aids in raising HDL levels. They defend the blood arteries from atherosclerosis and blood clots.

4. The sole difference between millets and wheat in terms of protein structure is that millets are non-glutenous cereals. Millets are primarily consumed by vegans and vegetarians since they are a fantastic source of protein. Millets are a fantastic source of plant protein that is superior than animal protein and contains no saturated fat.

5. Tryptophan, an amino acid found in millets, reduces appetite and aids in maintaining a healthy body weight. Millets are beneficial to weight control programmes because of their high fibre content, which helps to swiftly satisfy hunger and prevent overeating.

6. Millets lower the risk of colon cancer since they include phytonutrients and fibre. The lignans found in millets, which are transformed into mammalian lignans, protect against breast cancer.

7. The magnesium in millets helps to relax the muscles that line the arteries, lowering blood pressure. Also reduces the intensity of asthma attacks and migraine occurrence.

8. Since celiac disease patients are unable to digest and tolerate gluten, millets are the ideal food for them. Millets have numerous health advantages, including lowering the risk of heart disease, preventing diabetes, enhancing the digestive system, enhancing the respiratory system, preventing cancer, addressing a number of degenerative diseases like metabolic syndrome, enhancing the neurological and muscular systems, enhancing the respiratory system, etc.

Conclusion

It is now well acknowledged that fiber-free foods pose significant health risks for the entire world. The fact that all lifestyle diseases can be cured by simply eating millets for breakfast, lunch, and dinner and avoiding refined foods like rice, wheat, refined flours, processed meats, refined oils, packaged & ready-to-eat foods, and milk is also obvious to thousands of patients. The purpose of this study is to raise awareness of the value of food, promote millets as a nutrient-dense food that satisfies the needs of the world's population, and identify methods for consuming millets that are nutritionally beneficial and lessen the incidence of malnutrition and other health issues. With their high nutrient content, including fibre, which helps with metabolic disorders like Diabetes, obesity, cardiovascular diseases, etc., their high protein content, which supports child growth and development, their high calcium content, which supports bone development in both children and geriatric people, their high iron content, which supports the treatment of anaemia, and their gluten-free properties, which support the treatment of celiac disease, all millet foods have significant health benefits.

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