Shree Anna: Elixir of Life

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ABSTRACT

Global population growth necessitates addressing food and health issues caused by an imbalanced diet of high-calorie fast foods. The so-called universal diseases of the modern day include issues with obesity, diabetes, cardiac arrests, porous bones, depression, and others. There are a tonne of cereal options that are tasty, affordable, but unhealthful. People today place a high value on their health. In the age of pandemics, millets are considered one of the richest sources of nutrients and have many health advantages. Sorghum (Jowar), Pearl (Bajra), Finger (Mandua or Ragi), Foxtail (Kangni or Kanguni), Porso (China or Barre), Kodo (Kodon or Kodara), Little (Kutki), and Barnyard (Sanwa or Shyama) millets are only a few of the many varieties of millet. Researchers are demonstrating that millet is a superior cereal choice over other grains. Protein, nutrients, minerals, vitamins, phytochemicals, and energy are all present. It may be possible 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 and health benefits.

Key words: Bajra, Jowar, Kangni, Mandua, Millets, Nutritional value

INTRODUCTION

Millet have been a cardinal food. Millets are a group of small-seeded cereals that are require very less amount of water for their cultivation and have been used as a staple food for thousands of years. Therefore, millets have nutritional benefits and versatility but they have not received recognition. Due to the ignorance of the people, some agricultural food items are not being used as human food, millet is one of them. With today's health consciousness and imperishable diets, millets are once again gaining recognition around the world. Millets are used as food and are widely used in rural areas. They have been cultivated for a thousand years and are used throughout the world. The quality of nutrition in food is of paramount importance to keep humans healthy. Today's Millets are referred to as "Shree Anna" in India because of their cultural and historical significance. The term "Shree Anna" translates to "the honored grain" or "the mother of all grains". In order to maintain human health holistically, the quality of diet should be taken into account so that complex problems like malnutrition can be easily diagnosed. Many types of nutritional and medicinal properties are available in millet, which helps cure many types of diseases. Millet contains many types of antioxidant elements, like phenol and flavonoids, which play an important role in controlling lifestyle...

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diseases, like heart disease, diabetes, gastrointestinal disease, cancer, inflammation etc. Antioxidants contribute to keeping the body healthy, which improves the immune system and reduces metabolic syndrome, which leads to a healthy human body. There are many types of millet\[^4\] like 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). Bajra and Shyama are high in fat, while Ragi has the lowest. Ayurveda, giving immense importance to the diet of both healthy and diseased people, has explained these millets in detail under Kshudra Dhanya (category of cereals). Millets have been given many synonyms, like Kudanya (Inferior among cereals), Kshudra Dhanya (small sized cereals) and Trina Dhanya (grass derived cereals). Here is an attempt made to understand the qualities and functions of millets along with their indications in both an Ayurvedic and Modern perspective.

**MATERIALS AND METHODS**

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) are important staples to millions of people worldwide. These are typically rain-fed crops grown in regions with little rainfall, which gives them more significance for sustaining agriculture and ensuring food security. Millets are a good source of proteins' improved digestibility. Non-proteins' improved digestibility. Non-protein nutrients (such as minerals, vitamins, and phytochemicals and are nutritionally equivalent to main cereals. On the other hand, millets have fewer prolamins that are cross-linked, which may be another role in the millet proteins' improved digestibility. Non-communicable diseases are on the rise due to vitiated Vata, they should be avoided or handled with caution. Before recommending millets, it is extremely important to evaluate a person’s Agni (digestive capacity). There are numerous Pathyha Ahar (food preparations) that may be made from millets therefore it is possible to select a preparation that is suitable for both the patient and the disease (to receive the full health advantages from millets).

**Ayurvedic perspective (Review on Ayurvedic literature)**

In millets, the typical Rasapanchaka\[^5,\]^3 are-

Generally Rasa is Kashaya-Madhura (Sweet and Astringent), Vikapa- Katu, Veerya- Sheet/Anushna, Guna- Laghu (Lightness), Ruksa (drying or absorbing the moisture), Karma- Lekhana, Virshya (aphrodisiac), Kledashoshana (pacifies excessive moisture content), malabaddhata (Fecal impaction) and Effect on Tridosha & Dhatu are Kapha-Pittahara, Vata, Rakta Shaamaka. Apart from general properties, the special and specific attributes of millets are-

1. **Yavanaala (Sorghum or Jowar (Sorghum bicolor (L.) Moench)**

Hima (cold in potency), Madhura-Kashaya Rasa (sweet-astringent in taste), Slesma-Pitajita, Laghu (Lightness), Ruksana (drying or absorbing the moisture), Avrisha (an aphrodisiac), Ruchya, (a flavour enhancer), Trishghna (a quencher of excessive thirst), and Kledaghna (pacifies excessive moisture content).\[^4\]

2. **Nartaki (Finger Millet or Mandua or Ragi (Eleusine coracana (L.) Gaertn)**

Tikta, Madhura, Kashaya Rasa (Bitter-sweet-astringent in taste), Sheeta (cold in potency), Pittanashak (Pacifying of Pitta), Kaphavardhak, Snigdha (unctuousness), Balya (encourages strength), Vrishya (aphrodisiac).\[^5\]

3. **Kangu / Priyangu (Foxtail millet or Kangni or Kanguni (Setaria italica (L.)P. Beauvois)**

Bhagna Sandhanakrit (fracture mending), Brimhana (nourishes the body tissues), Guru (heavy for digestion), Ruksana (dries up excess moisture), Kaphahar (pacify Kapha), Durjara (are among the foods...
that are difficult for digestion), Sangrahi (absorbs excess fluids and aids in regular production of faeces and increases Agni), and Vrishya (Aphrodisiac).[6]

4. Cheenaka [Porso millet or China or Barre (Panicum miliaceum (L.))]

Bhagna Sandhanakara (promotes fracture healing), Guru (heavy for digestion), Durjara (difficult for digestion), Slakshan (smooth), and Brimhana (nourishes the body tissues).[7]

5. Koradusha / Kodrava [Kodo millet or Kodon (Paspalum scrobiculatum (L.))]

Tikta Rasa, Madhura (sweet-bitter in taste), Vishahara (anti-poisonous), Avrishya (Antaphrodisiac), Pathya in Vrana (best diet in wounds and ulcers), Guru (heavy for digestion), Param Graahi (absorbs excessive fluids and aids in the natural formation of faeces and facilitates digestion), Pita-Kapham (Pacifying of Kapha & Pitta).[8]

6. Shyamaka [Barnyard millet or Sanwa (Echinochloa crusgalli (L.).P. Beauvois)]

Madhura, Kashaya Rasa, Kapha-Pittaghna, Vatal, Sheeta (cold in potency), Sangrahi (which absorbs excess fluids, promotes digestion, and aids in the regular formation of faeces), Dhatu Shoshaka (dries up the body tissues).[9]

Whenever millets, general properties and effects are taken into consideration, it is obvious why they are advised for usage in Raktu Dushii (Blood vitiation), Pittaja Roga (diseases caused by Pitta), and Kaphaja Roga (diseases caused by Kapha). When treating Vatala Roga (diseases caused by Vata), millets must always be avoided because they exacerbate the condition. In relation to this understanding, the primary indications for the consumption of millets are Sthoulya (obesity), Kushtha (diabetes), Atisara (diarrhoea), Medoroga (diseases caused by excessive lipids), Vrana (wounds and ulcers), and other Santapanajanya (diseases caused by over nutrition of single or multiple tissues), which are usually lifestyle disorders. Because millets contain more nutritional fibre, protein, and fewer carbohydrates than other cereals, they are Guru (heavy) and Ruksha (dry), which makes them tricky (Durjara) for simple digestion. As a consequence, it is crucial to provide suggestions based on each person's Agni Bala (Digestive Capacity). However, these characteristics both have the Lekhana (scraping) and Kleda Shoshana (drying off excess moisture) activities that are beneficial in treating Santapanajanya Vyadh (diseases due to over nourishment of single or multiple tissues). They also provide the added benefit of delayed satiety. Millets are known as Laghu (Lightness) in general attributes, which can be considered as evidence that when millets are correctly digested, they leave the body feeling light, despite the fact that they are tough to digest.

Modern perspective (Review on Research Article)[10-12]

1. Sorghum or Jowar [Sorghum bicolor (L.) Moench][13]

Sorghum is a versatile ancient cereal grain in India and Africa. Sorghum is gluten free grain to prefer for celiac person or who cannot tolerate wheat based products. Sorghum contains iron, calcium, and high soluble fibre, great amount of protein and wax policosanols which help to reduce cholesterol level and weight loss. It is packed with essential minerals, rich in antioxidants and may reduce the risk of diseases such as type 2 diabetes.

2. Pearl millet or Bajra [Penisetum glaucum (L.) R. Br.]

Pearl millet contains rich nutrients as more to the major cultivated cereal crops. Pearl millet has deep root system so it extract soil nutrient and holds higher nutritional value than the other cereal crops. Mineral-wise, this crop contain high amount of iron, zinc, magnesium, copper, manganese, potassium and phosphorous. It is good source of energy, with calorific value of 361 Kcal/100g and high in fibre content (1.2 g / 100 g). Protein content in pearl millet is higher and it is also a good source of vitamin-B, vitamin-A, folic acid and calcium. The pearl millets consist of golden yellow fatty oil (5.23 %), α-Linoleic acid (45.6%), Oleic acid (28.5%) and Palmitic acid (20.6%); Linolenic (2.1%) and Stearic acid (1.5%) as minor fatty acids. Linolenic acid is an essential fatty acid useful in conditions of rheumatoid arthritis, cardiac arrhythmias, depression and reduces the risk of ischemic and thrombotic stroke. It flour has poor keeping quality, off flavour and nutty
taste due to lipase enzyme but it helps in reducing respiratory disease, migraine and gall stones. Pearl millet is helpful to patients with diabetes as it has a relatively low glycemic index that helps to digest gradually and produce glucose at a slower rate than other foods, this can sustain long periods of stable blood sugar levels. Pearl millet grain contains phenolic compounds in pericarp and grain testa, in particular flavonoids, which inhibit tumor production. Its high iron and zinc concentration could be beneficial for boosting haemoglobin levels and protecting against anaemia. As a gluten-free grain, pearl millet is one of the options available to celiac disease sufferers who want to maintain a regular and nutritious way of life. Phosphorus is present in significant quantities in pearl millet. Phosphorus is crucial for the growth and development of bones as well as the production of ATP, the body's primary source of energy. The lignin and phytonutrients in pearl millet act as potent antioxidants and guard against ailments associated with the heart. Pearl millet is regarded as beneficial for cardiac health as a result. Therefore, the nutritional value and health advantages appealed to the current health-focused market.

3. **Finger Millet or Mandua or Ragi** [Eleusine coracana (L.) Gaertn][14]

In India and worldwide, finger millet is a staple basic nutritious food supplement. One of the most satiating grains, finger millet is rich in micronutrients such vitamins, minerals, iron, calcium, fibre, protein, and the amino acid methionine, which has been omitted from the diets of poor people who have relied on starchy staples for a hundred years. The best source of calcium is finger millet, which has 10 times as much as wheat, maize, and rice and 3 times as much as milk. It might be advantageous for people in rural regions who are emaciated insufficiently due to an energy protein shortage as a supplement to their diet. It helps to prevent constipation, anaemia, blood pressure, asthma and heart problems. It is packed with nutrition which helps to increase haemoglobin level, degenerative disease and fight against malnutrition. It is found that in comparison to other cereals, finger millet is enriched with several types of minerals, antioxidants, fatty acids and minerals which have a great importance and significance in a healthy nutrition rich diet and essential to maintain a healthy life.

4. **Foxtail millet or Kangni or Kanguni** [Setaria italica (L.) P. Beauvois]

Native names for foxtail millets, frequently referred to be enchanted millets or miracle grains, include Kangni, Kang, and Kakum. There are plenty of proteins, carbs, vitamins (including vitamins A, B12, and E), and minerals (including phosphorus, calcium, magnesium, sodium, etc.) in Foxtail Millets. Like other millets, foxtail millet is a nutritious dynamo. You may get the recommended daily amount of nutrients such as protein, beneficial fats, carbohydrates, and great dietary fibre from these small seeds. Furthermore, it has an enormous amount of lysine, thiamine, iron, and niacin. Due to its significant magnesium content, foxtail millet assists in avoiding the development of diabetes by regulating blood glucose levels, encouraging weight loss, boosting immunity, and safeguarding the heart. Antioxidant, glucose-lowering, gastro-protective (managing or reducing damage to the gastrointestinal tract), and anti-carcinogenic qualities are potential consequences.

5. **Porso millet or China or Barre** [Panicum miliaceum (L.)]

The fact that Proso millets have significantly greater nutritional contents than wheat and rice, it is not unexpected that they have been deemed one of the miracle grains. An incredible addition to their diet may be someone who is an athlete, a vegan, pregnant, or merely passionate about eating healthily. Niacin, which a vitamin B3 found in high concentration in Porso millet, aids in the prevention of pellagra, a skin ailment. Additionally, calcium is included to support the health of the teeth and bones. It has a healthy amount of minerals and vitamins. Proso millet consumption on a daily basis can help lower the risk of type 2 diabetes. Magnesium, a mineral that's plentiful in Proso millet and assists in maintaining optimal insulin levels, additionally assists in regular blood glucose concentrations. Another benefit is that Proso millet...
possesses antioxidants which help in flushing the human being from harmful free radicals.

6. *Kodo* millet or *Kodon* or *Kodara* [*Paspalum scrobiculatum* (L.)]

*Kodo* millets are appropriate for individuals who are considered sensitive to gluten because they don’t contain gluten. Because it has a higher level of lecithin, which is important for the health of the neurological system, *Kodo* millet is extremely easy to digest. Postmenopausal women with signs of cardiovascular illness, such as high blood pressure and excessive cholesterol, may benefit significantly from regular use of *Kodo* millet. It possesses more antioxidants, which protect against oxidative stress while maintaining type 2 diabetes patient’s glucose levels stable. Asthma, migraine headaches, high cholesterol levels, coronary artery disease, and diabetic cardiovascular disorders can all be treated with *Kodo* millet. Millets distinguish themselves from other cereals due to their abundance in minerals like calcium, potassium, magnesium, phosphorus, and zinc, as well as vitamins B3, B6, folic acid, dietary fibre, phytochemicals with sulphur (polyphenols), and protein. Thus, it is referred to as "nutria-cereals. While phosphorus is an essential component of adenosine triphosphate (ATP), the body’s precursor to energy, magnesium has the power to help reduce the impacts of migraines and heart attacks. It also entails a lot of vital amino acids. It has been demonstrated that dietary fortification with foods high in phenolic acids imparts antimutagenic, anti-hyperglycemic, and antioxidant properties that can be utilized in the manufacturing nutritious products. Millets are also devoid of gluten, simple to digest, an excellent resource of antioxidants, and some studies suggest they might be considered anti-carcinogenic.

7. Little millet or *Kutki* (*Panicum sumatrense*)

Little millet is an indigenous crop in India that has become popular among those who are health-conscious due to the high concentration of nutrients that these tiny grains contain. In Hindi, small millet is known as *Kutki*, in Tamil as *Samai*, while in Telugu as *sum Aloo*. Little Millet seeds are so small that they are eaten in the same manner of rice. Little Millet is better for your nutritional needs and more adaptable than cereals in terms of nutrition. Little millet is high in antioxidant attributes, which assist in avoiding the development of metabolic disorders as well as lifestyle diseases like obesity, diabetes, etc. In addition to providing protein, fibre, magnesium, phosphorus, fat, minerals, polyphenols, and vitamins, including niacin, millets are a rich source of energy. High quality and quantity of essential amino acids (methionine and cystein) are present in millet’s protein. Little millets are a great complement to the nutritional regimen of those who practise yoga, work out, do aerobics, etc. because they are devoid of gluten and do not produce acids. It is crucial to include millets in your diet because of their high quality and therapeutic properties.

8. *Barnyard* millet or *Sanwa* or *Shyama* (*Echinochloa crusgalli* (L.) P. Beauvois)

The crop *Barnyard* millet has significance as a source of nutrition. It is a superb source of highly digested protein and a fantastic source of dietary fibre with healthy proportions of soluble and insoluble parts. Because its carbohydrate content is low and only slowly absorbed, *Barnyard* millet is an ideal meal for people who spend their days sitting quietly. A fatty acid Linolic acid called as the most ubiquitous type of unsaturated fatty acid in *Barnyard* millet, subsequently followed by palmitic and oleic acid. Additionally, it reveals a strong retro gradation of amylase, which promotes the creation of more resistant starches. Additionally, they’re effective best to lower cholesterol and blood glucose levels. For those suffering from diabetes mellitus and heart disease, it may therefore be suggested. The most beneficial outcomes obtained from *Barnyard* millet are achieved by lowering cholesterol and glucose in the blood concentrations. The *Barnyard* millet is the best millet for patients with a condition called celiac disease or sensitivity to gluten. It contains vitamins, minerals, and vital fatty acids for the health of the body, and it is known as little but not less than its nutritional worth.
Table 1: Comparative Nutritive Value of Shree Anna (Millets)(Per 100g)

<table>
<thead>
<tr>
<th>Crop</th>
<th>Sorghum / Jwar</th>
<th>Pearl millet / Bajra</th>
<th>Finger millet / Mandua / Ragi</th>
<th>Foxtail millet / Kanguni</th>
<th>Proso millet / China</th>
<th>Kodo millet / Kodara</th>
<th>Little millet / Kutki</th>
<th>Barnyard Millet / Sanwa / Shyama</th>
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<tr>
<td>Nutrition</td>
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<td></td>
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<tr>
<td>Protein (gm)</td>
<td>10.4</td>
<td>11.6</td>
<td>7.3</td>
<td>12.3</td>
<td>12.5</td>
<td>8.3</td>
<td>7.7</td>
<td>6.2</td>
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<tr>
<td>Fat (gm)</td>
<td>1.9</td>
<td>5.0</td>
<td>1.3</td>
<td>4.3</td>
<td>1.1</td>
<td>1.4</td>
<td>4.7</td>
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<tr>
<td>Fibre (gm)</td>
<td>1.6</td>
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<td>3.6</td>
<td>8.0</td>
<td>2.2</td>
<td>9.0</td>
<td>7.6</td>
<td>9.8</td>
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<td>Minerals (gm)</td>
<td>1.6</td>
<td>2.3</td>
<td>2.7</td>
<td>3.3</td>
<td>1.9</td>
<td>2.6</td>
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<tr>
<td>Iron (mg)</td>
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<td>3.9</td>
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<td>0.5</td>
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<td>20</td>
</tr>
<tr>
<td>Phosphorus (mg)</td>
<td>306</td>
<td>296</td>
<td>283</td>
<td>290</td>
<td>206</td>
<td>188</td>
<td>220</td>
<td>280</td>
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</table>

CONCLUSION

Now it is an established fact that the whole world is facing many health challenges because of fibre less foods. It is also clear, patients that all the lifestyle diseases can be made to disappear just by eating millets for breakfast, lunch and dinner and removing refined foods like rice, wheat, refined flours, processed meats, refined oils, packed & ready to consume -kind of foods and milk.

Millets have multiple health benefits to include these ancient prized grains-like seed in our regular diet. Most of the civilized people have not even heard about millets and much less understand the benefits of millet nutrition. And yet, millet is one of the best-kept secrets of our ancient ancestors. Traced back to its origin in China, millets have been used throughout the ages and across many countries. Millets are even mentioned as treasured crops in the Bible. The aim of this study is to help the people to recognize the importance of food and to introduce the millets as a nutritious food, fulfilling the nutritional need of global population and to find ways to consume the millets nutritionally, effectively and to reduce the problems of malnutrition and other health problems. All the millet foods are having significant health benefits, with their rich content of fibre which helps in metabolic disorders like Diabetes, Obesity, Cardiovascular diseases etc, their good protein content which helps in child growth and development, with calcium content which helps in the bone development in both children and geriatric people, with good iron content helps in ailing of anaemia and with gluten free characteristics helps in gluten insensitivity and the celiac disease patients.
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