



IMPORTANCE OF MILLETS AND KSHUDRADHANYA IN TODAY'S LIFESTYLE - A REVIEW

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ABSTRACT

A key component of health and development is Nutrition. Stronger immune systems, safer pregnancies, and births, a decreased risk of non-communicable diseases (including diabetes and cardiovascular disease), and longer lifespans are associated with better nutrition. Nonetheless, the way of living and eating habits of today contribute to poor nutrition and health problems like obesity and diabetes. In such conditions millets, which do not increase weight and also have abundant nutritional value, can be used. Millets are a diverse species of small-seeded grasses that are commonly cultivated as cereal grains for human and animal nourishment around the world. The majority of the species that are commonly referred to as millets belong to the Poaceae or Gramineae family i.e grass family. Millet is a nutrient powerhouse since it is rich in protein, fiber, magnesium, phosphorus, copper, potassium, and manganese. This article reviews millets and their importance in our day-to-day life. Some of the preparations of millet are also discussed so that they can be incorporated into our day-to-day life.

Keywords: Millets, *Ayurveda*, nutrition, *Kshudradhanya*.

INTRODUCTION

As numerous new diseases have emerged in recent years, humankind has begun to move in the direction

of being fit and healthy. Dietary modifications are one of many strategies used for this goal. By emphasizing

millets' nutritional diversity and health advantages, these modified dietary practices have made them a part of our life. One of the dietary modifications is including millet in the diet. Some examples of millets are *Sorghum (Jowar)*, *Sama* (little millet), *Ragi* (finger millet), *Bajra* (foxtail millet), *Variga* (proso millet), *Gavedhuka* (adlay millet), *Koradusha* or *Kodrava* (Kodo millet), *Shyamak* (barnyard millet), etc.

Ragi has the least amount of fat, while *Bajra* and *Sama* are both heavy in fat. In rural places, millet is frequently consumed as food. The majority of millets are grown in India, China, Greece, Egypt, and Africa. However, in rural areas, some millets, such as finger millets and *Sorghum* are consumed, while the remainder is used as animal feed. Millets have excellent nutritional value. Millets are also an important part of many traditional diets. Many Indian states use various millets. Millets have been farmed for thousands of years.[2] Even in Ayurvedic Samhitas, there is mention of millets in the form of *Trinadhanya* and *Kshudradhanya*. In *Charaksamhitam* millets are mentioned in *Dhanyavarga* like *Shyamak* and *Koradusha*. These are *Kashay* and *Madhura* in *Rasa* and their *Veerya* is *Sheeta*. They increase *Vata*, balance *Kapha*, and *Pitta*, *Ruksha*, and *Grahi*, and are light to digest.[3] Various other *Samhitas* also mention millets. In *Bhavprakash Nighantu* millets are also mentioned in *Dhanyavarga* like *Kshudradhanya* (*Kanguni*, *Cheenak*, *Shyamak*) *Kodo*, *Gavedhuka*, *Yavanala*. According to *Bhavprakash Kshudradhanya* is *Ushna*, has *Kashaya* and *Madhura Ras*, *Laghu*, *Lekhan*, *Vipaka* is *Katu*, *Ruksha*, *Vatakaraka* and *Grahi* and also decrease *Pitta* and *Kapha*. [4]

Importance of Millets

When it comes to nutritional factors, millets are far superior to wheat and rice. Millets have high fiber and less mineral content as compared to wheat and rice. Finger millet contains thirty times more calcium than rice, and all other millets contain at least twice as much calcium as rice.[5] Millets provide an abundance of micronutrients such as vitamins, beta carotene, and others. Millets are also a rich source of

essential fatty acids like linoleic, oleic, and palmitic acids as well as monogalactosyl, diacylglycerols, digalactosyl diacylglycerols, phosphatidylethanolamine, etc. Millets include phosphorus and vitamin B compounds like niacin, folacin, riboflavin, and thiamine which are essential for the body's generation of cellular energy.[7]

Millets have also been grown for centuries for a variety of reasons other than their nutritional value.

-According to conventional growing methods, millets do not need pesticides and the land where they are grown is completely pest free. In storage situations for pulses like green gram, millets like foxtail millet act as anti-pest agents because they are pest free. No fumigants are required for millets.[6]

-When it comes to feeding crops in Indian agriculture, millets are relatively less important than other crops, 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. Millets may thrive in low-water environments.

-Millets have a short growing season. Millets reach maturity in 60 to 100 days.

-Millets are grains that form alkali. They help to maintain the pH balance in the body.

-Millets do not contain gluten. One of the most common gastrointestinal problems today is gluten sensitivity. So, millets can be given in such conditions.[1]

Types of Millets:[8]

(a) Major Millets-

1] Pearl Millet - Pearl millet or *Bajra* is the most commonly used kind of millet. *Bajra* has been a staple of Indian cuisine for countless years either prepared as *Khichadi* or used to make rotis. Given that it needs a high temperature to develop, Rajasthan is India's top producer of this nutrient-rich crop. This unusual crop is cultivated in the summertime when temperatures rise and are tolerant of extreme conditions such as dryness, low salinity, low soil fertility, and high pH. Magnesium present in pearl

millet, aids in easing asthmatic patients' breathing issues and lessens the effects of migraine. The fiber in pearl millets contributes to a decrease in the occurrence of gallstones.[9],[10]

2] Finger Millet - Finger millet or *Ragi* is most abundantly grown in India, Sri Lanka, and Ethiopia. The nutrients in this superfood improve digestion, decrease aging, and lower the risk of heart disease. *Ragi*, which dominated Indian cuisine for many years, lost popularity as the consumption of wheat and rice rose throughout time. But it made a comeback as UN FAO emphasized the importance of millet consumption for preventing malnutrition and other ailments. Finger millet is a good source of natural calcium that strengthens bones and lowers the incidence of bone fractures. It also has naturally occurring iron, which helps in anemia. Because it contains lots of calcium, finger millet is beneficial for young children, the elderly, and pregnant women. It helps lactating mothers produce sufficient breast milk.[10],[11]

(b) Minor Millets-

1] Foxtail Millet - Commonly known as *Kangu*, *Foxtail millet* originated in India and northern China, where it is widely grown. Its name refers to the way it resembles a tapering cluster of flowers. This dry crop takes up to 70 days to mature after being sown around the last week of May. Without altering the body's metabolism, foxtail millet aids in the continuous release of glucose. Due to its high magnesium content, foxtail millet is known as a heart-healthy diet and helps to lower the prevalence of diabetes in society.[10],[11]

2] Proso Millet - It is commonly known as *Cheenak*. A deficiency of Niacin (a form of vitamin B3) causes Pellagra, which Proso millet is helpful in treating. Proso millet is rich in Niacin. It is traditionally used as a restorative dish, particularly after childbirth or illness.[10],[12]

3] Little Millet - Little millet often referred to as *Sama*, *Shavan*, or *Kutki*, is fortified with minerals like zinc, iron, potassium, and calcium. This grain is rich in vit B3, which lowers cholesterol, promotes quick metabolism, heals tissue, and produces energy. It is

also a good source of minerals like calcium, iron, potassium, and zinc. Moreover, it gives the body the necessary lipids that aid in weight loss. Another benefit is that it has a high fiber content.[10],[11]

4] Kodo Millet - Also known as *Kodrava* or *Koradusha*, Kodo Millet is a traditional food that aids in weight loss and has a taste that is similar to rice. It is quickly absorbed and rich in phytochemicals and antioxidants, which aid in preventing many diseases related to a sedentary lifestyle. Moreover, kodo millet relieves hip and knee pain and also regularizes menstruation in women.[10],[13]

5] Barnyard Millet - Known as *Shyamaka*, a Barnyard millet is a tiny white seed that is regarded to be more nutritious than any other cereal grain. It is used for weight loss as it is rich in fiber, carbohydrates, and protein. Moreover, it is a good source of calcium and phosphorus which is essential for bone growth.[10] Millets according to *Ayurveda*:-[1],[4]

As mentioned before *Kshudradhanya* is *Ushna*, has *Kashaya* and *Madhura Ras*, *Laghu*, *Lekhan*, *Vipaka* is *Katu*, *Ruksha*, *Vatakaraka*, and *Grahi*, and also decreases *Pitta* and *Kapha*. In addition, every millet has additional qualities mentioned below.

1) *Kangu/ Priyangu* (*Setaria italica* Beauv - Foxtail Millet)

Other *Guna* and *Prayogare Guru* (heavy for digestion), *Sangrahi* (absorbs excess fluids and aids in the natural development of feces and increases digestion), *Brumhana* (nourishes bodily tissues), *Shoshana* (dries up extra moisture), *Bhagnasandhanakrit* (heals fractures), *Durjara* (difficult for digestion), and *Vrishya* (aphrodisiac). It is used as a substitute for rice. *Kangu* also decreases labor pain and is used in conditions like *Amvata*.

2) *Cheenak/ cheena* (*Panicum miliaceum* - Indian millet or proso millet)

Other *Guna* and *Prayog* are *Guru* (heavy for digestion), *Durjara* (difficult for digestion), *Brumhana* (nourishes the body tissues) *Bhagnasandhanakara* (promotes fracture healing).

3) *Shyamak/ Sawa* (*Echinochloa frumentacea* - Barnyard millet)

Other *Guna* and *Prayog* are, *Shyamak Panchang* is used in *Pittaj Vikara* and *Vibandha*. It is also known as the cereal of the poor. It is also *Sangrahi* (absorbs excessive fluids and helps for normal formation of feces) and *Dhatu Shoshak* (dries the body tissues).

4) *Kodrava/ Koradusha* (*Paspalum scrobiculatum* - Kodo millet)

Other *Guna* and *Prayog* are *Madhura-Tikta rasa*, *Guru* (heavy for digestion), *Param Graahi* (absorbs excessive fluids and helps for normal formation of feces), *Vishahara* (anti-poisonous), *Avrishya* (anaphrodisiac) *Pathya* in *Vrana* (good food in wounds and ulcers). It can also be given as a substitute for rice to diabetic patients.

5) *Gavedhuka* (*Coix lacryma* - Adlay millets)

Other *Guna* and *Prayog* are *Katu - Madhura Rasa*, *Karshyakaari* (emaciating), and *Kapha Hara* (decreases *Kapha Dosh*). Other properties are said to be similar to *Shyamaka*. *Gavedhuka* also has properties like *Mutral* (diuretic) and is hence used in *Mutra Krich*. The roots of this plant are used in *Pidita Artava* (dysmenorrhea). Chapati made from this grain helps in weight loss.

6) *Yavanala* (*Sorghum vulgare* - Jowar/ *Sorghum*)

Other *Guna* and *Prayog* are *Ruchya* (enhances taste perception), *Trishnaghna* (decreases excessive thirst), and *Kledaghna* (decreases excessive moisture content).

It also has properties like *Mutrajanan* (urogenesis) and slightly *Vrishya* (aphrodisiac).

7) *Nartiki* (*Eleusine coracana* - Ragi/ Finger millet)

Other *Guna* and *Prayog* are *Tikta-kashay-madhura rasa*, *Sheeta* (cold in potency), *Snigdha*, *Balya* (promotes strength), and *Vrishya* (aphrodisiac).

DISCUSSION

Millets are considered one of the best foods for those with gluten sensitivity because they are the least allergenic and readily digesting meals. Due to their short growing seasons, tolerance to pests and diseases, and productivity in hot and dry climates when main cereals cannot be relied upon to produce yields that can be sustained, millets are crucial crops in semiarid and tropical regions of the world. The poorer portion

of the community traditionally consumes them as foods for health and vitality. Millets have nutritional potential similar to common cereals like rice, wheat, and barley in terms of protein, carbohydrate, and energy content. The majority of the millet's health advantages are typically brought on by the presence of phytochemicals such as dietary fiber, polyphenols, tocopherols, and phytosterols as well as by the abundance of certain minerals, vitamins, trace elements, essential fatty acids, and amino acids.

According to *Ayurvedic* texts, generally, millets have properties so that they can be given *Kaphaj*, *Pittaj*, and *Raktaj Vyadhi*. As it increases *Vata Dosh*, millets should not be given in *Vata jVyadhi*. The particular indications of each millet are not stated, but indications can be inferred by examining its *Guna* (properties) and *Karma* (Actions).[1]

1) *Kangu* (Foxtail millet): As mentioned before *Kangu millet* is *Sangrahi* so it can be indicated in *Atisara* (diarrhea) and *Grahani* (sprue). The fact that *Kangu* is both *Brumhana* (nutrition) and *Shoshana* means that it can be utilized for *Dhatu Shoshana* (reduction of body tissues) of over nourished *Dhatu*s like *Meda* (adipose tissue) and *Mamsa* (muscle tissue) while simultaneously nourishing the body by giving micro-nutrients. When dealing with problems like *Sthoulya* (obesity) and *Prameha* (diabetes), this concept performs well. As *Kangu* is *Bhagnasandhankarak*, it is indicated in *Bhagna* (fractures) and based on its *Guna* and *Karma* it is indicated in conditions like *Kapha-Pitta Pradhan Twaka Vikara* and *Amavata*. [1],[16]

The aqueous extracts of foxtail millets have excellent anti-hyperglycemic activity.[17]

2) *Cheenak* (Proso millet) - Is mentioned before *Cheenaka* is recommended for *Santarpana Janya Vyadhi* (Diseases caused by excessive nourishment of body tissues) such as *Sthoulya* (Obesity), *Prameha* (Diabetes Mellitus), and *Medoroga* (Diseases caused by excessive lipids) because it has the properties like *Guru*, *Ruksha* (Reduces unctuousness), *Kapha Hara*, *Brumhana*. [1],[18]

Proso millet is indicated in conditions like Cardiovascular diseases and diabetes mellitus.

Improved plasma levels of adiponectin and high-density lipoprotein (HDL) cholesterol in genetically obese type -2 diabetic mice under high-fat conditions were observed on feeding Proso millet. Proso millet has been shown to improve glycemic responses and insulin in genetically obese type 2 diabetic mice under high-fat feeding conditions [19].

3) *Shyamak* (Barnyard millet): Indications for *Shyamaka* (Barnyard Millet) include *Atisara* (Diarrhea), *Grahani* (Sprue) as it is *Sangrahi*, *Badda Vitkara* (compactness of faeces), *Santarpana Janya Vyadhi*, including *Sthoulya*, *Prameha* (Diabetes Mellitus), *Medoroga* (Diseases caused by excessive lipids) as it has *guna* like *Shoshana* (dries up excessive moisture), *Ruksha*, *Baddha Mutrakara*, *Lekhaniya*. [20]

Barnyard millet is indicated in conditions like Cardiovascular diseases, Diabetes mellitus.

Rats fed with a diet of treated starch from barnyard millet had shown to lower blood glucose, serum cholesterol, and triglycerides compared with rice and other minor millets. [21] Barnyard millet has been reported to be beneficial for type 2 diabetics, especially the dehulled varieties, as the glycemic index for dehulled millet (50.0) and heat treated was 41.7. [1], [22]

4) *Kodrava / Koradusha* (Kodo millet) - As mentioned before *Koradusha/Kodrava* (Kodo millet) is recommended for *Grahani* (Sprue) due to *Param Grahi* (absorbs excessive fluids and helps for normal formation of feces and enhances digestion), *Badda Vitkara* (compactness of feces), *Vrana* (Wound and ulcers), and *Santarpana Janya Vyadhi* like *Sthoulya* (Obesity), *Prameha* (Diabetes Mellitus), *Medoroga* (Diseases due to excessive lipids) due to *Kleda Shoshana* (Dries up excessive moisture), *Ruksha* (Reduces unctuousness), *Lekhana* (scraping), *Vatarakra* (Increases *Vata*), due to *Pitta-Rakta Shamaka* (Pacifies vitiated Pitta and Blood), *Vishartha* (Affected due to poison) as it is *Visha Hara* (Pacifies effects of poison) and other *Kapha-Pitta Pradhana Roga*. [1] [23]

Kodo millet drastically lowers levels of glycated hemoglobin, stimulates the creation of liver glycogen,

and increases diabetics' levels of energy right away. Kodo millets are an impressive source of powerful antioxidants. The phenolic extracts in this tiny millet reduce LDL or bad cholesterol, keep the heart healthy, bring down blood pressure levels, and prevent various other chronic conditions. These antioxidants also act against free radicals causing damage to the cells and tissues thus preventing various types of cancers. Kodo, a great alternative to rice and wheat, serves the purpose of weight loss, as it triggers metabolic activity, and fights against metabolic syndrome. Kodo millets contain no gluten and are good for people who are gluten intolerant. Regular consumption of kodo millet is very beneficial for postmenopausal women suffering from signs of cardiovascular diseases, like high blood pressure and high cholesterol levels. [10]

5) *Gavedhuka* (Adlay millets): As mentioned before *Gavedhuka* can especially be indicated in *Sthoulya* (Obesity) and *Sthula Pramehi* (Diabetes mellitus which leads to overweight) and other *Kapha Pradhana Vyadhi* (Diseases due to *Kapha*) as it is *Karshyakaari* (Imparts weight loss), *Kapha Hara* (Pacifies *Kapha*). [24] The use of Adlay millet was mentioned in Diabetes, Rheumatism, etc. [25]

6) *Yavanaala* (*Sorghum/ Jowar*): As mentioned before *Yavanaala* (*sorghum*) is best advised in *Raktapitta* (Bleeding disorders), *Amlapitta* (Gastric disturbances), *Twak Roga* (Skin diseases) as it is *Pittaghna* (Pacifies vitiated *Pitta*), *Rakta Shamaka* (Pacifies vitiated *Pitta*), *Trishna* (Thirst), *Sthoulya* (Obesity), *Prameha* (Diabetes Mellitus) as it is *Tikta-Kashaya* in *Rasa*, *Trishnaghna*, *Kaphahara*. [26]

Sorghum has certain properties which make it suitable to be consumed by the population suffering from chronic disorders. Each sorghum nutrient has specific nutritional significance, which is suggestible to prevent and control lifestyle diseases and disorders. [10]

Health benefits of *Sorghum*-

(a) Celiac disease- One of the most prevalent hereditary disorders, celiac disease (CD), causes reactions in genetically predisposed persons to the gluten proteins found in wheat and other grains. This

condition, which can cause excruciating abdominal pain, is brought on by the immune system's unfavorable reaction to gluten. For those suffering from celiac disease, sorghum might be a healthy diet option because it contains no gluten. During continuous intake, sorghum products were unable to change the amount of anti-transglutaminase antibodies.[27]

(b) Obesity- In India, obesity is a growing issue and is positively correlated with several chronic illnesses, such as diabetes and cardiovascular disease (CVD). Evidence from experiments suggests that consuming more dietary fiber reduces the prevalence of obesity. [28],[29]. Foods high in dietary fiber enhance the function of the large bowel and slow down digestion and absorption, lowering the risk of chronic diseases.[30],[31] *Sorghum* has special chemical and physical properties (bulk to the diet, viscosity, water holding, and absorption capacity), which control the consequent physiological behavior. It is also high in dietary fiber. It contributes to hunger satisfaction, heightens satiety, and lowers risk factors for obesity.

(c) Diabetes mellitus - Diabetes Mellitus - the complex metabolic disease is a major health concern in many countries. Diets rich in whole grain foods tend to decrease LDL cholesterol, triglycerides, and blood pressure, and increase HDL cholesterol.[32] Studies performed on the processing and cooking of white and yellow jowar varieties showed that boiled Yellow Jowar flour (coarse) had a lower glycemic index compared to flour prepared from the same. Similarly, chapati prepared from white Jowar flour showed a low glycemic index over yellow Jowar flour. These changes in the glycemic index due to processing and cooking play an important role in diets followed in the dietary management of diabetes.[33]

(d) Coronary Heart Diseases - Empirical evidence [34],[35] suggests that regular consumption of whole grains reduces the risk of CVD [36].

(e) Cancer - Anti-carcinogenic properties of sorghum have been well documented. In Vivo and In Vitro studies have shown consumption of sorghum has positive health impacts on cancer. The polyphenols and tannins present in sorghum have anti-mutagenic

and anti-carcinogenic properties [37]and can act against human melanoma cells, as well as positive melanogenic activity.[38]

7) *Nartiki (Ragi/finger millet) - Nartiki* (Finger millet) can advise in *Raktapitta* (Bleeding disorders), *Amlapitta* (Gastric disturbances), *TwakRoga* (Skin diseases), as it is *Tikta-Madhura* (Bitter-Sweet), *Kashaya Rasa* (Astringent taste), *Sheeta* (cold in potency), *Snigdha Gunayukta* (Property of Unctuousness), *Durbala* (Loss of energy) due to *Balya Karma* (helps to improve energy), *Sthoulya* (Obesity) and *Prameha* (Diabetes Mellitus) as it is *Tikta-Kashaya* (Bitter and Astringent in taste) & *Balya* (Increases strength and energy). [1]

Nutritionally, finger millet is a good source of nutrients especially calcium, other minerals, and fiber. Health benefits of Finger Millet :[39]

Finger millet is highly nutritious and renders various health benefits. The nutritional facts of finger millet are listed below.

- Finger millet/ *Ragi* for losing weight: *Ragi* contains an amino acid called Tryptophan which lowers appetite and helps in keeping weight in control. *Ragi* gets digested at a slower rate thus keeping one away from the intake of excessive calories. Also, fibers present in *Ragi* give a feeling of fullness thus controlling excessive food consumption.

-Finger millet/ *Ragi* for bone health: *Ragi* is rich in Calcium which helps in strengthening bones. It is an excellent source of natural calcium for growing children and ageing people. *Ragi* consumption helps in the development of bones in growing children and the maintenance of bone health in adults. *Ragi* keeps diseases such as osteoporosis at bay and could reduce the risk of fracture.

-Finger millet/ *Ragi* for diabetes: Finger millet's phytochemicals help in slowing the digestion process. This helps in controlling blood sugar levels in the condition of diabetes. In a study conducted in 2000, it was found that a Finger Millet based diet helps diabetics as it contains higher fiber than rice and wheat. Also, the study found that a diet based on whole-finger millet has a lower glycemic response i.e. lower ability to increase blood sugar levels. This is due

to the presence of factors in *Ragi* flour that lower the digestibility and absorption of starch.

- Finger millet/ *Ragi* for lowering blood cholesterol: Finger millet contains amino acids Lecithin and Methionine which help in bringing down cholesterol levels by eliminating excess fat from the Liver.

- Finger millet/ *Ragi* for anemia: *Ragi* is a very good source of natural Iron. *Ragi* consumption helps in the condition of Anaemia.

- Finger millet/ *Ragi* for relaxation: *Ragi* consumption helps in relaxing the body naturally. It is beneficial in conditions of anxiety, depression, and insomnia (sleepless nights). *Ragi* is also useful for migraines.

Different methods of consuming millet: Although Millets are very nutritious, its taste is not as good as other cereals. Consume these millets various methods of preparation can be implemented. Some of the ways in which millet can be consumed are given as follows.

- Millets can be used in our day-to-day routine in many forms. Breads prepared from millet are more healthy than regular breads.

-Laddoos of millets with flax seeds and dry-fruits can be made.

-In Sweet pongal and Bisibelebath foxtail millets can be used as a substitute for rice.

- Foxtail millets, barnyard millets, proso millets, and little millets can also be used as a substitute for rice in kheer and mango rice.

- Idli, dosa, and pancakes can also be prepared by using different millets.

- Upma, sweet halwa, barfis, and vegetable pulao can be prepared by using different millets.

- All the recipes are very healthy and full of nutrition.

- *Bajra*, *Sorghum*, and *Ragi* can be used to make chapatis which are full of fiber and easy to digest. These chapatis can be specifically given to obese and diabetic patients.

- Millet porridge with fruits and dry fruits can also be made for children.

- Cakes and cookies using millet are also very nutritious and healthy for children.

- Cutlets, dhokla, and various types of rice can also be prepared.

- Roasted millets or puffed millets are also prepared.

In this way, different types of healthy, nutritious, and even tasty recipes can be prepared using millet. In this way, one can lead a healthy life in this sedentary lifestyle.

CONCLUSION

Today's life is very fast, and everyone prefers fast food which causes malnourishment. Malnourishment is either due to over-nourishment or under-nourishment. The use of millet, an old, treasured grain-like seed, in our daily diet has numerous health benefits. Millets are best utilized in the *Santarpanajanya Vikaras* (diseases due to over-nourishment) and *Kapha-Pittaja Vikara* caused because of the outbreak of non-communicable diseases brought on by the sophisticated sedentary lifestyle. Including millet in the diet and avoiding refined foods like rice, wheat, refined flours, processed meats, refined oils, packed & ready-to-eat foods, and milk will help one live a healthy life. Millets have nutritional potential similar to common cereals like rice, wheat, and barley in terms of protein, carbohydrates, and energy content. The majority of the millet's health advantages are typically brought on by the presence of phytochemicals such as polyphenols, tocopherols, phytosterols, and dietary fiber as well as by the abundance of certain minerals, vitamins, and trace elements. According to several epidemiological research, regularly consuming millet grains and their byproducts is associated with a reduced risk for chronic diseases like diabetes, heart disease, cancer, and all-cause death. Hence, consumers can improve their health and lower their chance of developing chronic diseases by changing their diet by increasing their daily intake of a wide variety of fruits, vegetables, and millet grains. Millets can be included in a daily diet by creating a variety of healthy as well as delicious meals. Although millets are among the healthiest foods, many people still view them as poor man's food. For these reasons processing techniques and standardization methods should be employed so that millet products can be used on a large scale. And finally, the marketing of

these products should be done so that the importance of millet is known to each and every person.

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