



Millets And Its Importance

¹Dumpapenchala Vijayreddy and ²Maram Bhargav Reddy

¹Plant Pathology, School of Crop Protection

²Agronomy, School of Natural Resource Management

^{1,2}College of Post Graduate Studies in Agricultural Sciences, Central Agricultural University (Imphal),
Umiam, Meghalaya-793103, India.

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Introduction

The name millet comes from the French word mille which means thousands of seed grains. Millets are a group of small seeded grasses belongs to the family Poaceae and serves as an important grain and fodder crop. They are being utilized as a staple food in many under developing and developing countries, especially having dryland agriculture. Millets are the 6th most important crop of cereals. Millets are originated from African regions and then spread to the different parts of the world during trading and establishment of colonies. Earliest people known the importance of these millets and included them in their diet as mentioned in the testament of Bible and in the literature of Greek and Romans. Millets are also called as nutri-cereals due to presence of proteins, fibre, vitamins and minerals especially having micronutrients. Millets provide nutritional security, and it is necessary to promote millets since they are healthy and nutritious. The cultivation of millets are very easy as they require less amount of maintenance, drought resistance in nature and matures earlier than cereal crops like wheat and rice.

Classification

There are nearly 20 different types of millets are grown in the world and they are classified into mainly two groups named as 1) major millets and 2) minor millets. Pearl millet and sorghum are included in major millets and minor millets contains finger millet, foxtail millet, proso millet, little millet and barnyard millet.



Common Name	Scientific Name
Pearl millet	<i>Pennisetum glaucum</i> (L.) R. Br
Sorghum	<i>Sorghum bicolor</i> (L.)
Finger millet	<i>Eleusine coracana</i> (L.)
Foxtail millet	<i>Setaria italica</i> (L.) P. Beauvois
Little millet	<i>Panicum sumatrense</i> (L.)
Proso millet	<i>Panicum miliaceum</i> (L.)
Barnyard millet	<i>Echinochloa crusgalli</i> (L.) P. Beauvois
Kodo millet	<i>Paspalum scrobiculatum</i> (L.)

Cultivation and production

Millets are grown in 93 countries worldwide, with just seven nations having more than one million hectares of millet cultivation. India, Nigeria and China are the world's major millet growers, accounting for more than 55% of total global production. But in the recent years the scenario has been changed and the India production is drastically reduced and Africa is taking lead in the production. In general, developing countries produce and consume more than 97% of millets. Between 1961 and 2018, it is predicted that the acreage under millets cultivation declined by 25.71% throughout the continents. However, worldwide millet production has improved by 36% from 575 kg/ha in 1961 to 900 kg/ha in 2018. In most countries of the world, except Africa, millet production has decreased during the previous 58 years, according to average data. West Africa saw the greatest increase, nearly double that of the 1960s. Although the area under millet cultivation in Asia has decreased, the production trend has gradually increased, resulting in increased productivity. In the Indian situation, millet output peaked in the 1980s and then steadily declined due to a steep loss in cropped land. India produces the most millets, accounting for 37.5% of total global output, followed by Sudan and Nigeria (Meena *et al.*, 2021).

Nutrient status in millets

Name of the millet	Nutrient composition of the millets								
	Carbohydrates (g)	Fat (g)	Protein (g)	Moisture (g)	Energy (KJ)	Fe (mg)	Ca (mg)	Cu (mg)	Al (mg)
Pearl millet	61.78 ± 0.85	5.43 ± 0.64	10.96 ± 0.26	08.97 ± 0.60	1456 ± 18	6.42 ± 1.04	27.35 ± 2.16	0.54 ± 0.11	2.21 ± 0.78
Sorghum	67.68 ± 1.03	1.73 ± 0.31	09.97 ± 0.43	09.01 ± 0.77	1398 ± 13	3.95 ± 0.94	27.60 ± 3.71	0.45 ± 0.11	2.56 ± 0.59



Finger millet	66.82 ± 0.73	1.92 ± 0.14	07.16 ± 0.63	10.89 ± 0.61	1342 ± 10	4.62 ± 0.36	364 ± 58	0.67± 0.22	3.64 ± 0.69
Foxtail millet	60.09	4.30	12.30	-	331	-	-	1.40	-
Little millet	65.55 ± 1.29	2.55± 0.13	08.92 ± 1.09	14.23 ± 0.45	1449 ± 19	1.26± 0.44	16.06 ± 154	0.34± 0.08	-
Proso millet	70.04	1.10	12.50	-	341	-	-	1.60	-
Barnyard millet	65.55	2.20	06.20	-	307	-	-	0.60	-
Kodo millet	66.19 ± 1.19	2.55 ± 0.13	08.92 ± 1.09	14.23 ± 0.45	1388 ± 10	2.34 ± 0.46	15.27 ± 1.28	0.26± 0.05	1.07 ± 0.83

(Adapted from: Indian Food Composition Tables, NIN – 2017, Nutritive value of Indian foods, NIN – 2007 and Rao *et al.*, 2017)

Importance

Millets are gaining importance in present day scenario due to the awareness created among the people regarding changes in the modern-day life style and the diseases associated with them are also increasing day by day. The current generation people are more attracted towards to westernized life style and following the diet habits of these people by having more oil, cheese and unwanted fatty acid products leads to the disturbance of the both physical and mental health. The possible solution to overcome this challenge is by having millets in their diet plate and various advantages of them are enlisted below:

Digestion

Improper digestion and constipation are the major problems in the human health at present. It is mainly due to lack of fibre constituted diet in their meals. Consuming the fibre allows easy digestion and helps in the easy passage of bowel in the intestine. As the millets contains prebiotics, they enrich the microbiome in the gut. These enriched biome helps in the digestion process (Dresden, 2022).

Cardiovascular diseases

Magnesium present in the millets helps in the maintenance of heart beat in a rhythm. It also contains different types of protein which protects the cardiovascular tissues (Dresden, 2022).

Diabetes

In general, one in every three persons are suffering from diabetes and it is occurring irrespective of the age and mostly appearing in the Middle Ages. Millets are effective in preventing the type-2



diabetes. Millets contain adiponectin protein which improves the activity of insulin and maintains blood glucose levels (Dresden, 2022). The high magnesium content of millets improves the effectiveness of insulin and glucose receptors in the body, which aids in the prevention of diabetes. Diets rich in finger millet have showed decreased glycemic response due to high fibre content as well as alpha amylase inhibitory capabilities, which are proven to reduce starch digestion and absorption (Kumari and Sumathi, 2002).

Obesity

It is also known as killer's lifestyle disease, occurring mainly due to the imbalance of calorie intake. India is the 2nd most nation suffering from the obesity in children. It is common in now a days in everyone and occurs in all age groups. As the India is having the highest youth population it is important to realize the health issues occurring due to it. The diet rich in fatty acids contents leads to dementia also eventually.

Mood stabilizers

Millets are rich in different types of amino acids and they contain highest amount of tryptophan amino acid. By having millets in the diet improves the person's mood and improves one's concentration. Research conducted in 2014 tells that the people who are having diet rich in tryptophan amino acid are free from depression and anxiety (Dresden, 2022).

Anti-Carcinogenic

Millets are rich in various types of anti-oxidants namely flavonoids, terpenoids, phytates, phenolic acid and tannins and they detoxifies the harmful substrates present in the body. They reduce the risk of breast and colon cancer. Sorghum exhibits anti-mutagenic and anti-cancer properties due to the presence of polyphenols and tannins (Grimmer *et al.*, 1992).

Fatigue

Proteins and carbohydrates present in the millets prevents the feeling of exhaustion and provides refreshment after consuming it.

Millets based products

Different types of products are prepared from different millets. Examples of some of the items prepared from millets are given in the table:



Name of the millet	Item prepared	References
Pearl millet	Flour, Porridge, Fermented Bread and Chapati	Rai <i>et al.</i> , 2008
sorghum	Fermented Bread, Porridge, Bhakri, Laddoo and Puttu	Rai <i>et al.</i> , 2008
Little millet	Dosa, Porridge and Payasam	Kumar <i>et al.</i> , 2021
Finger millet	Malt (Ambali), Idly and Halwa (Pudding)	Kumar <i>et al.</i> , 2021
Foxtail millet	Porridge, Pongal, Burfi and Kabab	Kumar <i>et al.</i> , 2021
Kodo millet	Papad, Vadagam, Idli And Dosa, Thatuvadai, Kodo Kheer, Muruku and Vadai	Kumar <i>et al.</i> , 2021

Conclusion

Millets are known to the man from the time immemorial and played a great role in the healthy being of human kind. Due to present day changing conditions and increased awareness on health leads to the presence of these millets in the human diet. It helps in the prevention of constipation, fatigue, cancer, different types of neurological disorders and reduces anxiety, depression and enhances the immune responses of the individuals. Composite flour products are nutritionally superior to their respective raw millets and can be successfully employed in supplemental feeding programmes. People should be educated about the nutritional worth and health advantages of millets and its food products.

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