



Little Millets –Review on Nutritional Profile and Health Benefits

Dr Nishma Singh 1st Ms Akansha Chaudhry 2nd

Associate Professor & Head 1st, Student 2nd

Department of Home Science, Faculty of Arts & Social Sciences

Swami Vivekanand Subharti University, Meerut, India.

Abstract-

Little millet (*Panicum sumatrense*) is one of the oldest cultivated crops in the world and is gaining popularity as a nutritious and healthy food due to its high nutritional value. In this review, we discuss the nutritional profile and health benefits of little millets. Little millets are a good source of energy, protein, dietary fiber, and minerals like iron, phosphorus, and calcium. They are also rich in photochemical such as phenols, flavonoids, and tannins that have been linked to numerous health benefits.

Key Words- Little millets, Antioxidants, Health Benefits

Introduction

According to Rajasekaran NS et al. (2004), the consumption of millets can result in reduced postprandial hyperglycemia by reducing the enzymatic hydrolysis of complex carbohydrates. This is achieved by reducing the activity of α -glucosidase and pancreatic amylase. Additionally, millets can help prevent the accumulation of sorbitol and reduce the risk of diabetes-induced cataract diseases by inhibiting enzymes such as aldose reductase. Furthermore, the antioxidants found in millets can aid in dermal wound healing and contribute to the control of blood glucose levels.

The consumption of little millets has been associated with several health benefits such as improved digestion, reduced risk of chronic diseases such as diabetes, hypertension, and cardiovascular disease. They also help in maintaining healthy body weight and reducing the risk of obesity. The high fiber content in little millets helps to regulate blood sugar levels and prevent constipation. Moreover, little millets have antioxidant and anti-inflammatory properties that have been shown to reduce the risk of cancer and other chronic diseases.

This review aims to collect available information from existing literature, either online or offline, related to the nutritional importance and health benefits of Little millet and present the collected data in an easily-documented pattern. With the given nutritional profile and photochemical contribution of millets, nutritionists and dieticians must make an effort to encourage the public to consume more millets in general and particular. Little Millet, also known as kutki in Hindi, sava in Marathi, gajro in Gujrati, same in Kannada, samai in Tamil, and samalu in Telugu, is a type of small millet that is suitable for people of all age groups. It is a traditional crop grown throughout India and is a relative of proso millet, but its seeds are much smaller.

This millet is commonly consumed as rice and can be used in any recipe that calls for staple rice. Due to its small size, it cooks faster than other millets. Little millet is widely available as a whole grain, and millet flour can be obtained from certain sources or made at home. It also has a long storage life as it is practically devoid of grain storage pests.

Minor millets, such as little millet, have been found to have a low carbohydrate content, slow digestibility, and low water-soluble gum content, which improve glucose metabolism. These grains release sugar slowly into the blood and slow down glucose absorption. Additionally, the dietary fiber and resistant starch in minor millets exhibit hypoglycemic and hypolipidemic effects.

Little millet is a significant source of nutraceutical components, including phenols, tannins, and phytates, along with other nutrients. Traditional recipes from different millet-growing states in India, such as, porridge, paddu, and payasam, samai dosa, use little millet.

Nutritional Fact about Little Millets- When comparing the nutritional information of Little Millet to other millets, it is important to note that the values are per 100g of raw millet.

Protein (g) - 9.7

Carbs (g) – 6.7

Fat (g) - 4.7

Fiber (g) -7.6

Calcium (mg) - 17

Phosphorus (mg) -220

Iron (g) – 9.3

Energy (Kcal)-329

Morphology of Little Millets-

Little Millet has a panicle inflorescence that is contracted or thyrse-form and ranges from 15 to 45 cm in length and 1 to 5 cm in width, as reported by **Seetharam et al. in2003**.

Little millet is a highly nutritious food source that is often underestimated due to its small size. Despite its small size, it is rich in essential nutrients such as B-vitamins, calcium, iron, zinc, potassium, and others. Little millet is also a good source of essential fats that aid in weight loss. Its high fiber content makes it an ideal alternative to rice in dishes such as pongal or kheer. A study conducted by **O.S.K. Reddy in 2017** highlights the nutritional benefits of little millet and its potential as a healthy food choice.

Good source of potent antioxidants: Millets are an excellent source of potent antioxidants such as polyphenols, phenolic compounds, tannins, and flavonoids. These antioxidants play a crucial role in promoting health by combating lifestyle diseases such as diabetes, cardiovascular disease, obesity, cataracts, cancers, inflammation, and gastrointestinal problems, which are becoming increasingly prevalent.

Polyphenols are the most abundant group of phytochemicals in millets and exhibit antioxidant, metal-chelating, and reducing powers. These antioxidants are beneficial for health, as they delay aging, reduce metabolic syndrome, and improve the immune system. Moreover, the bioactive properties of polyphenols include anticarcinogenic, anti-inflammatory, antiviral, and neuroprotective activities, further highlighting their potential health benefits

Health Benefits of Little Millets-

Millet is a good source of potent antioxidants such as polyphenols, phenolic compounds, tannins, and flavonoids. While these antioxidants do not directly provide nourishment to the body, they play an essential role in promoting health by adding in the prevention and management of diseases such as diabetes, cardiovascular disease, cataract, cancer, inflammation, and gastrointestinal problems.

The study aimed to investigate the impact of germination, steaming, and roasting on the nutraceutical and antioxidant properties of little millet. The results indicated that all three processing techniques increased the total phenolic, flavonoid, and tannin contents of little millet to a significant extent compared to the native sample. This suggests that processing has beneficial effects on the nutraceutical and antioxidant properties of little millet. **Maulishree Jhaver(2017)**

According to a study published in Proceedings of the **Nutrition Society in 2017**, millet grains were found to have higher levels of polyphenols and antioxidants compared to millet flour and flakes. This study provides a foundation for future research on the effects of polyphenol-rich millet products on glycemic response in humans.

Combating lifestyle diseases;- Little millets can aid in combating lifestyle diseases due to their low carbohydrate content, slow digestibility, low glycemic index, and water-soluble gum content. The polyphenols in millets inhibit the activity of digestive enzymes such as amylase, glucosidase, pepsin, trypsin, and lipases, leading to the slow release of sugars into the blood and delayed glucose absorption from the intestines.

Minor millets also contain dietary fiber and resistant starch, which have hypoglycemic and hypolipidemic effects. They induce carbohydrate tolerance, satiety, weight loss, and prolonged gastric emptying, making them beneficial for people with lifestyle diseases such as obesity, diabetes, and cardiovascular conditions. Therefore, incorporating little millets into the diet is recommended for individuals with these conditions.

Little Millets in Diabetes-Little millet has a low glycemic index which means it is absorbed more slowly by the body and causes a slower and more gradual rise in blood sugar levels compared to high glycemic index foods. This makes it an ideal food for individuals with diabetes or those who want to manage their blood sugar levels. The high dietary fiber content in little millet also helps in slowing down the absorption of glucose and maintaining stable blood sugar levels. In addition, the fiber in little millet helps in promoting a healthy digestive system and can also aid in weight management

Little Millets in Obesity-Little millets are a good source of dietary fiber and have a low glycemic index, which means they are less likely to cause a spike in blood sugar levels. Including little millets in your diet can be beneficial for people with obesity as it can help in weight management and prevent the onset of other metabolic disorders

Little millets can play a significant role in addressing nutritional deficiencies and providing essential nutrients to different segments of society. Overweight and obesity are major health concerns, accounting for approximately 7.1% of all global deaths and 4.9% of all disability-adjusted life years (DALYs) among adults. Poor diets are the second-leading cause of deaths and DALYs globally, with cardiovascular diseases responsible for 50% of deaths attributed to this risk factor.

Combating lifestyle diseases;- Little millets can aid in combating lifestyle diseases due to their low carbohydrate content, slow digestibility, low glycemic index, and water-soluble gum content. The polyphenols in millets inhibit the activity of digestive enzymes such as amylase, glucosidase, pepsin, trypsin, and lipases, leading to the slow release of sugars into the blood and delayed glucose absorption from the intestines.

Minor millets also contain dietary fiber and resistant starch, which have hypoglycemic and hypolipidemic effects. They induce carbohydrate tolerance, satiety, weight loss, and prolonged gastric emptying, making them beneficial for people with lifestyle diseases such as obesity, diabetes, and cardiovascular conditions. Therefore, incorporating little millets into the diet is recommended for individuals with these conditions.

Discussion -

Little millets are an excellent source of nutrients and offer a range of health benefits. They are known for their high fiber content, which promotes digestion, reduces cholesterol levels, and helps regulate blood sugar levels. Additionally, they are a rich source of minerals such as iron, magnesium, and phosphorus, which are essential for maintaining healthy bones, teeth, and muscles.

Little millets are also rich in antioxidants, which play a vital role in reducing inflammation and protecting the body from damage caused by free radicals. They are also gluten-free, making them an excellent choice for individuals with gluten sensitivity or celiac disease.

Studies have shown that consuming little millets may help lower the risk of chronic diseases such as cardiovascular disease, diabetes, and certain types of cancer. Their low glycemic index also makes them an ideal food for individuals with diabetes or those looking to manage their blood sugar levels.

Furthermore, little millets are easy to incorporate into a healthy diet, as they can be used to prepare a wide range of dishes, including porridges, salads, and baked goods. They are also an affordable and sustainable food source, making them an excellent choice for individuals looking to adopt a more environmentally conscious diet.

Overall, the nutritional profile and health benefits of little millets make them an excellent addition to any healthy diet. By incorporating these nutrient-dense grains into our diets, we can promote optimal health and well-being while enjoying delicious and versatile food options

Conclusion-

In conclusion, little millets are a nutrient-dense grain that offer a range of health benefits. They are an excellent source of fiber, minerals, antioxidants, and are gluten-free, making them suitable for individuals with gluten sensitivity or celiac disease. Their consumption has been linked to a reduced risk of chronic diseases such as cardiovascular disease, diabetes, and cancer, while also aiding in digestion and blood sugar regulation. Little millets are also versatile and easy to incorporate into a healthy diet, making them an affordable and sustainable food source. Incorporating little millets into our diets is a simple and effective way to promote optimal health and well-being

References

.Maulishree Jhawer(2017) ,Little Millet-The Immune Boosting Indigenous Grain ww w.medindia.net/d

.O.S.K.Reddy (2017), Smart Millet and Human Health,Green Universe Environmental Services Society.

B. Dayakar Rao K. Bhaskarachary G.D Arlene Christina G. Sudha Devi Vilas, A. Tonapi(2017) ,ICAR- Indian Institute of Millets Research, Hyderabad,ISBN : 81-89335-68-5

Priya PrakashLittle Millet and its Huge Benefits <https://naturallyyours.in/blogs/blog/little-millet-and-its-huge-benefits>

Ms. B. Neeharika, Dr. Jessie Suneetha. W, Dr. B. Anila Kumari and Dr. J. Hemantha Kumar, October 2020, Agri News Network LITTLE MILLET: AN INDIGENOUS GRAIN WITH HEALTH BENEFITS

Kimeera Ambati and Sucharitha K V (2019)International Journal of Recent Scientific Research Vol. 10, Issue, 07(I), pp. 33943-33948 DOI:<http://dx.doi.org/10.24327/ijrsr.2019.1007.3786>

Rajasekaran NS, Nithya M, Rose C & Chandra TS (2004).The Effect of Finger millet feeding on the early responses during the process of wound healing inDiabetic rats. Biochimica et Biophysica. Acta: 1689:190-201.