

DEPARTMENT OF BOTANY  
PRESENTS

# GULMOHAR NEWSLETTER

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## FROM THE EDITOR'S DESK

CHAITRALI DESHPANDE

Welcome to yet another edition of Gulmohar! In this edition, we are celebrating the International Year of Millets in 2023 as declared by the UN. Millets are a group of small-seeded grass known for their sturdiness in dry and harsh climates and prove as a nutrient-high source of nourishment in Asia and Africa.

The International Year of Millets is celebrated to draw attention to the millet crops' nutritional, cultural and ecological importance. It will also help raise awareness about sustainable agricultural practices and stimulate consumption as a healthy alternative to other grains.

We hope you continue to read and find out more about this fascinating world of millets. Happy Reading!!



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# NUTRI-CEREALS OF INDIA: MINOR AND PSEUDO MILLETS

Millets are a highly varied group of small-seeded grasses, widely grown around the world as cereal crops or grains for fodder and human food. Most species generally referred to as millets belong to the tribe *Paniceae*, but some millets also belong to various other taxa.

Most of millet crops are native of India and are popularly known as Nutri-cereals as they provide most of the nutrients required for normal functioning of human body. Millets are classified into Major Millets and Minor Millets based on their grain size. Pseudo millets are so called because they are not part of the *Poaceae* botanical family, to which 'true' grains belong, however they are nutritionally similar and used in similar ways to 'true' grains.

Ministry of Agriculture and Farmers Welfare has recognized the importance of Millets and declared Millets comprising of Major, Minor Millets and two pseudo millets as "Nutri-Cereals" for production, consumption and trade point of view.

## Minor millets:

### **Foxtail millet (Kakum)**

- It is high in carbohydrates.
- It has double quantity of protein content compared to rice.
- It contains minerals such as copper & iron.

### **Kodo millets(Kodon)**

- It has high protein content (11%), low fat (4.2%) and very high fibre content (14.3%).
- Kodo millet is rich in B vitamins especially niacin, pyridoxin and folic acid as well as the minerals such as calcium, iron, potassium, magnesium and zinc.
- It contains a high amount of lecithin and is an excellent for strengthening the nervous system.

### **Barnyard millet (Sanwa)**

- It is the richest source of crude fiber and iron.
- Its grains possess other functional constituents i.e., Gamma amino butyric acid (GABA) and Beta - glucan, used as antioxidants and in reducing blood lipid levels.



Finger millet

Foxtail millet

Proso millet

Kodo millet

Little millet

Barnyard millet

## Little millet (Kutki/Shavan)

- It is high in iron content.
- It has high antioxidant activities.
- It contains about 38% of dietary fiber.

## Proso millet (Chenna/Barri)

- It contains the highest amount of proteins(12.5%).
- Health benefits of proso millet come from its unique properties. It has significant amounts of carbohydrate and fatty acids.
- It is cheaper source of manganese as compared to other conventional sources like spices and nuts.
- It contains high amounts of calcium which is essential for bone growth and maintenance.

## Pseudo Millets:

### Amaranth (Ramdana/ Rajgira)

- High protein content (13-14%) and a carrier of lysine, an amino acid that's missing or negligible in many other grains.
- Consists of 6 to 9% of oil which is higher than most other cereals. Amaranth oil contains approximately 77% unsaturated fatty acids and is high in linoleic acid.
- It is high in dietary fibre.

### Buckwheat (Kuttu)

- It contains protein 13-15% protein and rich in the amino acid lysine.
- Rich in carbohydrates(mainly starch).
- Contains vitamins B1, C and E.
- Rich in polyunsaturated essential fatty acids, such as linoleic acid.



Millet, an ancient grain that is often overlooked, has gained popularity in recent years as a nutritious and versatile ingredient. This gluten-free grain is packed with essential nutrients such as magnesium, phosphorus, fibre, and antioxidants. Millet has a subtle nutty flavour and a fluffy texture, making it a great alternative to rice or quinoa in many dishes. In this article, we will explore some delicious millet-based recipes that you can try at home.

## Millet Porridge

Millet porridge is a delicious and healthy breakfast option that is easy to prepare. To make millet porridge, rinse the millet in cold water and then toast it in a dry pan for a few minutes. Add water or milk and simmer until the millet is cooked and the liquid has been absorbed. Sweeten with honey or maple syrup and top with fresh fruit and nuts for added texture and flavour.

## Millet Tacos

Millet tacos are a fun and tasty lunch option that is sure to be a hit. Cook the millet according to package instructions and let it cool. In a skillet, sauté chopped onion and garlic, and add ground beef or turkey and taco seasoning. Heat up corn tortillas and fill them with the millet, meat mixture, shredded cheese, and your favourite toppings such as salsa, avocado, and sour cream.



## Millet Burgers

Millet burgers are a tasty vegetarian alternative to traditional beef burgers. Cook the millet according to package instructions and let it cool. Mix the millet with mashed black beans, chopped onions, garlic, and spices such as cumin and chilli powder. Form the mixture into patties and grill or pan-fry until golden brown. Serve on a whole-grain bun with avocado, tomato, and lettuce.

## Millet Stuffed Peppers

Millet stuffed peppers are a colourful and flavorful dinner option that is sure to impress. Cut the tops off of bell peppers and remove the seeds and membranes. Cook the millet according to package instructions and mix it with cooked ground turkey, chopped vegetables such as onions and carrots, and your favourite herbs and spices. Stuff the mixture into the peppers and bake in the oven until the peppers are tender and the filling is heated through.

## Millet Risotto

Millet risotto is a creamy and comforting dish that is perfect for a cozy night in. Cook the millet in a pot with vegetable or chicken broth until it is tender and creamy. Add sautéed mushrooms, garlic, and herbs such as thyme and rosemary for added flavour. Top with grated Parmesan cheese and serve with a side salad for a complete meal.



## Millet Pudding

Millet pudding is a sweet and satisfying dessert option that is easy to make. Cook the millet in coconut milk or almond milk until it is tender and creamy. Sweeten with honey or maple syrup and add cinnamon and nutmeg for added flavour. Top with fresh fruit such as sliced bananas or berries and serve chilled.



## Millet Soup

Millet soup is a comforting and hearty option that is perfect for a cold winter day. Cook the millet in a pot with vegetable or chicken broth, and add chopped vegetables such as carrots, celery, and onions. Season with your favourite herbs and spices and simmer until the vegetables are tender and the flavours have melded together.



Millet-based recipes are not only healthy and flavorful, but they are also easy to make and can be customized to fit your taste preferences. Whether you are looking for a quick and easy lunch option or a hearty soup for a cold day, there is a millet recipe for every occasion. So next time you're in the kitchen, consider trying out one of these delicious and nutritious millet-based recipes and reap the benefits of this ancient grain!

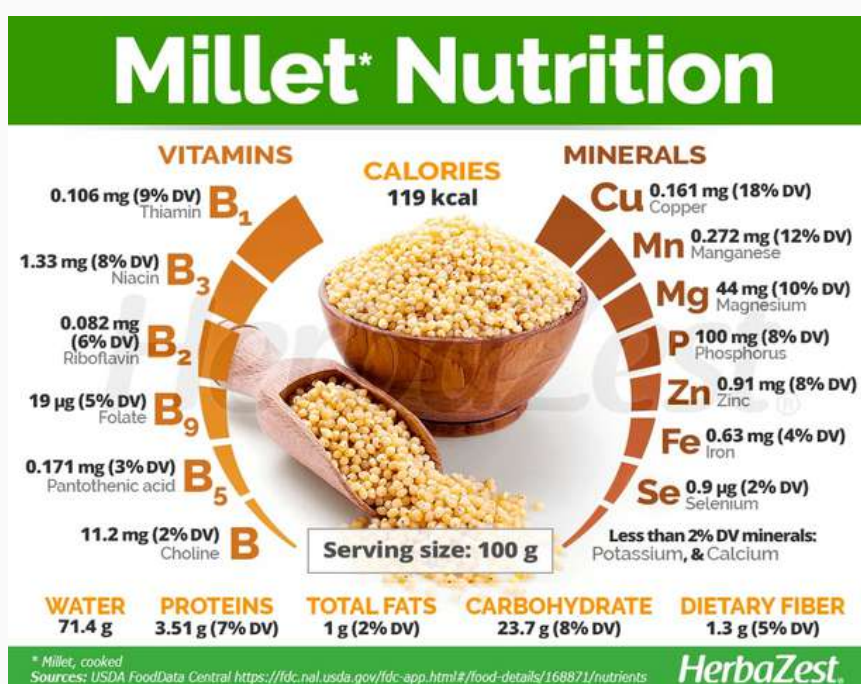
# NUTRITIONAL VALUE & HEALTH BENEFITS OF MILLETS

Our body requires proper nutrition for its growth and development, but due to modern life style of eating unhealthy and Junk food, Insufficient amount of nutrition. is received by our body.

Proper nutrition can be achieved by having Balanced diet, which is composed of Carbohydrates, proteins, fats, minerals, high Fibre content, vitamins and more.

Millets are an excellent source of nutrients to fulfil an excellent source of nutrients to fulfil a balanced diet, examples of Millets are - Ragi, Barley, Horse gram, kambu etc.

Millet is an ancient grain that people have enjoyed for thousands of years. Millet is a good source of protein fibres key vitamins and minerals as well as gluten free.



Millets are excellent grains which helps to nourish our body leading to its proper growth and development making them good source of balanced diet, thus we should include millets in our diet.

## HEALTH BENEFITS OF MILLETS ARE:

### Millets Keeps Your Blood Sugar Levels Low

Millets have a low glycaemic index. Therefore, consume millets regularly to lower your risk of developing diabetes.

### Millets Boost Your Immunity

Millets provide a great source of protein and can help develop and strengthen our immunity.

## **Millets Reduce Cardiovascular Risks**

Millets contain essential fats, which provide our bodies with good fats which prevent excess fat storage as well as effectively lowers the risk of high cholesterol, strokes, and other heart complaints. The potassium content in millets regulates your blood pressure and optimises your circulatory system.

## **Millets Helps Your Digestion**

Millets are a rich fibre source that benefits digestion by alleviating bloating, gas, cramping, and constipation. In addition, Millets also acts as prebiotics leading to growth of beneficial microorganisms in our digestive system.

## **Millets Acts as an Antioxidant**

Millets help your body detox because of their antioxidant properties; which helps to flush out toxins from your body and neutralise the enzymatic actions of your organs.

## **Battles Cancer Cells**

Millets such as foxtail and proso varieties are proven by research to be effective in inhibiting the growth of cancerous cells in various tissues.

## **Good For Heart**

Millets are loaded with an impressive profile of antioxidants. These antioxidants play a crucial role in lowering LDL cholesterol, total cholesterol and helps to maintain the blood vessels healthy and clears off the clots, thereby lowering the risk of heart disease, and stroke.



## LAHARI BAI - 'THE BRAND AMBASSADOR FOR MILLETS'

Lahari Bai , a 27 year old tribal women hails from the Baiga tribe in the Dindori district, Madhya Pradesh has received noteworthy praise from Prime Minister Narendra Modi. She has earned praise because of her prime focus in preserving coarse cereals.

'Millets' which were called as coarse cereals has regained status as India has made them more valuable by calling them 'Shree Ann' because of its ultimate importance. Millets are considered a boon to our economy, you must be wondering why? Because millets are those super foods that are nutritionally superior to rice and wheat.

Any sort of nutritional deficiency can be easily tackled off with an intake of this less expensive and best nutritionally rich food grains. These are rich in proteins, fibres, minerals, irons and what not! They are a storehouse of nutrition thereby protecting cardiovascular health.

Lahari Bai has conserved a wide variety of millets. She has turned her hut into 'Beej Bank' for 150+ rare varieties of millets all through her own means. As we know that United Nations has declared 2023 as a year of millets at India's insistence. She has been engaged in the conservation of millets such as Sanwa, kodo, kutki etc. Once after the collection, she distributes these millet seeds to farmers, they cultivate and in return gift her a small part of their produce.

PM Modi himself has tweeted "Proud of Lahari bai, who has shown remarkable enthusiasm towards Shree Ann", not only this she also received praise from Madhya Pradesh Chief minister Shivraj Singh Chauhan. She is also participating in the ongoing G20 Agriculture Working Group Meeting in Indore as a millet brand ambassador.

What has made her deserve all this today is her determination to make millets regain its lost glory.

This unprecedented work done by Lahari Bai has boosted the pride of India.



SUBIKSHA YADAV

REFERENCES: <https://www.news9live.com/india/meet-citizen-scientist-and-indias-millet-queen-lahari-bai-a-baiga-tribal-from-mps-dindori-au40-2056050>  
<https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1897559>

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# Photo Gallery



*Ceropogia sahyadrica*

Location: Khandala

By: Tripti Pal (M.Sc Botany)

St. Xavier's College



*Pleione praecox*

Location: Jawarharlal Nehru Botanical Garden, Sikkim

By: Felix Sekar (TYBsc)

SIES College, Sion



*Glebionis coronaria*

Location: Dharmashala

By: Selvamathi Kamaraj (SYBsc)

SIES College, Sion



*Ramaria stricta*

Location: Sanjay Gandhi National Park

By: Vedant Khokrale (SYBsc)

SIES College, Sion



*Opuntia humifusa*

Location: Amboli hills

By: Sanket Khambe (SYBsc)

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*Nerium oleander*

Location: BARC

By: Somlata Nagar (SYBsc)

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