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Millet: Characteristics, Nutrition, Advantages, and More

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Abstract

One of the earliest foods consumed by humans, millets may have been the first cereal grain employed in household cooking. Since ancient times, millets have been a primary source of nutrition for the inhabitants in semi-arid tropics in Asia and Africa, where other crops do not thrive. India and Asia have both been major millet consumers for centuries. Millet seeds are mashed and used to make the Indian flatbread roti. Despite all of these remarkable traits and capabilities of millet farming systems, the area dedicated to millet production has been declining over the past 50 years, and this decline accelerated during the green revolution. The little "grain" is free of gluten and rich in vitamins and minerals. Good quality protein, minerals, dietary fibre, phytochemicals, and vitamins are all abundant in millet grain, which is also extremely nutrient-dense. When compared to wheat and rice, millets have a lower glycemic index. When compared to wheat, the protein level of foxtail millet, proso millet, and pearl millet is higher. Kodo, tiny, foxtail, and barnyard millet have higher fibre contents. Interestingly, finger millet has 344.00 mg of calcium per 100g. Millets are added to cereal-based food products, which have grown in popularity due to their nutritional and practical benefits. Consumers feel that millets and foods made from millet directly contribute to their health, therefore value-added millet products have the potential to bring value to businesses and have a significant potential for growth.

Key words-: Millet, Kodo, Vitamins, Minerals, Primary Source.

Introduction-:

The Poaceae family, also referred to as the grass family, includes a variety of cereal grains known as millets. It is extensively consumed in developing nations in Asia and Africa. Although millet looks like a seed, it has a comparable nutritional profile as sorghum and other grains. Because they are gluten-free and contain high protein, fibre, and antioxidant

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contents, millets have become more and more popular in the West. All you need to know about millets, including their nutritional content, advantages, and drawbacks, is covered in this article.

Characteristics and millet species:-

Little, spherical whole grains known as millets are grown in Nigeria, India, and other Asian and African nations. They are regarded as an ancient grain and are utilised as food for humans, animals, and birds. They are superior to other crops in several ways, including drought and pest tolerance. Moreover, they can endure inhospitable conditions and infertile ground. These advantages result from their physical characteristics, such as their small size and toughness, and genetic make-up. Despite all millet types being members of the Poaceae family, they vary in species, colour, and look. Moreover, this crop is split into two categories: large millets and small millets, with major millets being the most well-known or widely grown types.

Large millets include:

- pearl
- foxtail
- proso
- finger (or ragi)

Small millets include:

- Kodo
- barnyard
- little
- Guinea
- browntop
- fonio
- adlay (or Job's tears)

Nutritional status:-

Millets are starchy grains, making them high in carbohydrates like most cereals.Moreover, they include a number of vitamins and minerals . 174 grammes of cooked millet, or one cup, provides.

- **Calories:** 207

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- **Carbs:** 41 grams
- **Fiber:** 2.2 grams
- **Protein:** 6 grams
- **Fat:** 1.7 grams
- **Phosphorus**: 25% of the Daily Value (DV)
- **Magnesium:** 19% of the DV
- **Folate:** 8% of the DV
- **Iron:** 6% of the DV

Compared to most other cereals, millets supply more necessary amino acids. The components of these substances are what make up proteins . Moreover, finger millet has the greatest calcium content of any cereal grain, providing 13% of the daily value (DV) for calcium in 1 cooked cup (100 grammes) of the grain . Calcium is essential for maintaining healthy bones, muscle contractions, and neuron function.

Health benefits of millets:-

The minerals and plant components in millets are abundant.They might therefore provide a variety of health advantages.

A source of antioxidants

Ferulic acid and catechins are two phenolic chemicals that millets are particularly high in.When your body is exposed to damaging oxidative stress, these molecules work as

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antioxidants to shield it.Ferulic acid has been linked in studies on mice to quick wound recovery, skin protection, and anti-inflammatory qualities.To stop metal poisoning, catechins bond to heavy metals in your system.All millet kinds contain antioxidants, but those that are deeper in color—like finger, proso, and foxtail millet—have more than their lighter counterparts that are white or yellow.

May aid in blood sugar regulation

Fiber and non-starchy polysaccharides, two classes of indigestible carbohydrates that aid in blood sugar regulation, are abundant in millets.Also, this cereal has a low glycemic index (GI), making it less likely to cause a blood sugar surge.Millets are therefore regarded as the best grain for diabetics.For instance, a study of 105 individuals with type 2 diabetes found that switching from a breakfast made of rice to one made of millet decreased blood sugar levels after the meal.Similar findings came from a 12-week trial including 64 prediabetic participants.They noticed a small decline in fasting and post-meal blood sugar levels, as well as a decline in insulin resistance, after consuming 1/3 cup (50 grammes) of foxtail millet each day.

May reduce cholesterol

Soluble fibre found in millets causes your gut to generate a sticky material.This ultimately traps lipids and lowers cholesterol levels.According to a study done on 24 rats, those given foxtail and proso millet had considerably lower triglyceride levels than the control group.Millet protein may also aid in lowering cholesterol.In a trial with type 2 diabetic mice, a high-fat meal including millet protein concentrate was given to the animals.Comparatively to the control group, this resulted in a drop in triglyceride levels and a considerable rise in adiponectin and HDL (good) cholesterol levels.Adiponectin is a hormone that has anti-inflammatory properties, promotes fatty acid oxidation, and supports heart function.Those who are obese and type 2 diabetes typically have lower amounts of it.

Accommodates a gluten-free diet

Millets are a grain that is devoid of gluten, making them an excellent option for those who have celiac disease or are on a gluten-free diet .Grain species like wheat, barley, and rye naturally contain the protein known as gluten.Gluten must be avoided by those who have celiac disease or non-celiac gluten sensitivity since it can induce unpleasant digestive symptoms like diarrhoea and nutritional malabsorption.To be sure millets haven't been

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contaminated with any gluten-containing substances, seek for a label that says they are gluten-free when purchasing millets.

How to cook and consume millets

When cooked whole, millets are a flexible ingredient that works well as a rice substitute.Just mix 1 cup (174 grammes) of raw millet with 2 cups (480 mL) of water or broth to prepare it.Next, simmer it for 20 minutes after bringing it to a boil.To reduce the amount of antinutrients, remember to soak it overnight before cooking.Before cooking, you might also toast it in a skillet to bring out more of its nutty flavour.Millets can also be purchased as flour.In fact, research indicates that using millet flour in baked goods greatly improves their nutritional profile by raising the amount of antioxidants present.Moreover, this grain is processed to create pasta, non-dairy probiotic drinks, snacks, and pasta.

Conclusion :-

Millets may grow well in harsh environments like drought, and some wild kinds can even survive in flooded fields and marshy environments. The inclusion of millets in processed or packaged foods will entice farmers to plant millets, provide them with new opportunities, and reenergize them. The current nutrient deficits of protein, calcium, and iron in poor nations will be addressed through the inclusion of millet-based foods in international, national, and state-level feeding programmes.