NOURISH YOUR BODY WITH NATURE'S SUPER FOOD: FINGER MILLET - A NUTRIENT PACKED GRAIN FOR A HEALTHIER YOU

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ABSTRACT

Finger millet or ragi, holds importance not only in India but also in the global context is a small-seeded cereal grain that belongs to the grass family. It is a staple food crop for millions of people worldwide, particularly in regions of Africa and Asia. It is a primary source of nutrition and sustenance for communities in countries such as India, Ethiopia, Uganda, Kenya, Nepal, and many others. Finger millet cultivation possesses significant relevance for several reasons, ranging from its impact on food security and nutrition to environmental sustainability. It holds a long-standing history and cultural importance in Indian agriculture, cuisine, and traditional practices. The Indian government has recognized the nutritional significance of finger millet and has undertaken various initiatives to promote its cultivation and consumption. Schemes like the National Food Security Mission and the Integrated Nutri-cereals Promotion Program aim to increase the production and consumption of millets, including finger millet.

Keywords: Cereal, Environmental sustainability, Finger millet, Food security, Ragi

Introduction

Finger millet (*Eleusine coracana*), commonly known as ragi, is one of the important millet crops grown for grain and fodder purpose under varied agro-climatic conditions in India. This self-pollinated crop (Goron and Raizada, 2015) belonging to the family Poaceae requires low input and its high rejuvenation capacity after alleviated stress conditions makes it ideal for dry land farming. In India, finger millet is mostly grown or produced in southern parts and hilly areas in the northern regions like Karnataka, Andhra Pradesh, Tamil Nadu, Uttarakhand, Orissa, Jharkhand and Maharashtra (Vijayakumari J, Mushtari BJ, Shamshad B, Sumangala G, 2003). Finger millet is a nutrient-dense crop, rich in carbohydrates serving as the primary energy source for the body; dietary fibre essential for maintaining a healthy digestive system; protein mandatory for various bodily functions, including tissue repair, muscle growth, and enzyme production; essential minerals such as calcium, iron, phosphorus, and potassium; vitamins including vitamin B-complex (thiamine, riboflavin, niacin), vitamin E, and folate; essential amino acids particularly methionine and cysteine as well as antioxidants due to its phenolic compounds and other bioactive components. Its cultivation helps address nutritional deficiencies and provides a valuable source

of sustenance, especially in communities with limited access to diverse and nutritious food options. Finger millet cultivation aligns with sustainable agriculture practices, known for its tolerance to drought and can be grown in marginal lands with minimal inputs. Its low water requirement and ability to thrive in diverse agro-climatic conditions contribute to sustainable farming systems. Cultivating finger millet helps improve the economic well-being of farming communities, contributing to rural development.

Significance of finger millet

Finger millet, scientifically known as *Eleusine coracana*, is an ancient cereal grain that is widely cultivated and consumed in various parts of the world. Here are some key aspects of finger millet.

1. Nutritional Profile: Finger millet is highly nutritious and is considered a valuable source of essential nutrients. It is rich in carbohydrates, dietary fibre, and protein. It is also a good source of minerals such as calcium, iron, and magnesium. Additionally, ragi contains important vitamins, including vitamin B-complex (thiamine, riboflavin, and niacin), vitamin E, and antioxidants.
2. Gluten Free: Finger millet is naturally gluten free, making it an excellent grain option for individuals with celiac disease or gluten sensitivities. It can be used as a substitute for gluten-containing grains like wheat, barley, and rye in various recipes, allowing people with dietary restrictions to enjoy a variety of dishes.
3. Health Benefits: Consumption of ragi is associated with several health benefits. Due to its high fibre content, it promotes healthy digestion, helps regulate blood sugar levels, promotes a feeling of fullness, making it beneficial for managing diabetes and weight and helps prevent constipation. The presence of antioxidants contributes to its potential as a protective food against oxidative stress and chronic diseases. Finger millet's iron content aids in the prevention of anaemia, while its calcium content supports bone health.
4. Blood Sugar Management: Finger millet has a low glycemic index, which means it releases glucose into the bloodstream at a slower rate. This property can help regulate blood sugar levels, making it beneficial for individuals with diabetes or those at risk of developing the condition.
5. Energy and Stamina: It is known for providing sustained energy due to its complex carbohydrate content. It can help maintain stamina and keep you feeling fuller for longer periods, making it a suitable food choice for athletes or those engaged in physically demanding activities.
6. Versatile Culinary Uses: Finger millet can be incorporated into a variety of dishes. It is commonly ground into flour and used to make traditional flatbreads or rotis, dosas or crepes, porridges, and pancakes. The flour can also be used as an ingredient in baked goods, such as bread, cookies, and muffins. In some cultures, finger millet is fermented to make alcoholic beverages.
7. Crop Diversity and Food Security: This crop plays a vital role in crop diversification, offering an alternative to other major cereal crops. Its cultivation contributes to food security by providing a staple grain source that can withstand climatic uncertainties and support subsistence farming.
8. Climate Resilient: Ragi is known for its adaptability to diverse agro-climatic conditions, including regions with low

rainfall/drought and marginal soils/poor soil fertility. It is considered as a resilient crop that can withstand challenging environmental conditions, making it an important food source in areas prone to drought or erratic weather patterns mainly in arid and semi-arid regions. Its ability to thrive under challenging conditions contributes to food security and sustainable agriculture.

9. Cultural Significance: It has been cultivated for centuries in various parts of the world, particularly in Africa and Asia. It holds cultural and traditional significance in many communities, where it is used for religious ceremonies, festivals, and staple food preparation. Finger millet based recipes are often passed down through generations, preserving cultural heritage.
10. Infant and Maternal Health: Finger millet is commonly recommended as a weaning food for infants due to its nutritional value. It is easily digestible, making it suitable for introducing solid foods to babies. Additionally, finger millet is rich in calcium and iron, which are essential for the growth and development of infants and young children. Pregnant and lactating women can also get benefits from finger millet's nutrient profile.
11. Soil Health and Erosion Control: This crop has a fibrous root system that helps improve soil structure and fertility. Its cultivation aids in preventing soil erosion, promoting water infiltration, and maintaining soil health. Additionally, the straw leftover after harvest can be used as organic mulch or livestock feed.
12. Income Generation: Ragi cultivation can be a source of income for farmers, particularly in rural areas. It provides an opportunity for small-scale farmers to diversify their crops and generate additional revenue by selling finger millet grains, processed products, or value-added items.
13. Livestock Feed: Finger millet straw and by-products can serve as valuable fodder for livestock. It provides an alternative feed source during periods of scarcity, contributing to the nutrition and well-being of farm animals.
14. Conservation of Genetic Diversity: Finger millet cultivation aids in the conservation of genetic diversity. Traditional finger millet varieties, which often possess unique traits and resilience to local conditions, are preserved through cultivation, ensuring their availability for future generations.
15. Sustainability and Resilient Farming Systems: The cultivation of ragi aligns with sustainable and resilient farming systems. It promotes agro-ecological practices, reduces reliance on synthetic inputs, conserves water resources, and supports local agricultural biodiversity.

Package of practices

Finger millet cultivation involves a series of steps and considerations to ensure successful growth and yield. Here is an overview of finger millet cultivation:

1. Selection of Variety: Choose a suitable finger millet variety based on factors such as climate, soil conditions, and local preferences. Different varieties may have varying resistance to diseases, maturity periods, and yield potential.
2. Land Preparation: Prepare the land by ploughing or tilling to loosen the soil and remove weeds. Finger millet can be grown in a range of soil types, but it thrives best in well-drained soils with good organic matter content.

3. Seed Selection and Treatment: Select healthy and high-quality finger millet seeds from a reliable source. Treat the seeds with a suitable fungicide or bio-control agent to protect against seed-borne diseases.
4. Sowing: Finger millet can be sown directly in the field or raised in nurseries and then transplanted. The optimal time for sowing depends on the local climate and rainfall patterns. Sow the seeds at the recommended spacing and depth, usually 2-3 centimetres deep.
5. Watering: Finger millet requires adequate moisture for germination and growth. Ensure sufficient watering during the initial stages, especially if there is no significant rainfall. Once established, finger millet can tolerate moderate drought conditions.
6. Fertilization: Apply organic or inorganic fertilizers based on soil nutrient deficiencies. Conduct a soil test to determine the nutrient requirements and follow recommended fertilization practices. Nitrogen, phosphorus, and potassium are essential nutrients for finger millet growth.
7. Weed Control: Keep the finger millet field weed free to minimize competition for nutrients, water, and sunlight. Hand weeding or using appropriate herbicides can be employed for effective weed control.
8. Pest and Disease Management: Monitor the crop regularly for pests and diseases such as blast, head smut, and stem borers. Follow integrated pest management practices, including the use of resistant varieties, cultural practices, and safe pesticides, if necessary.
9. Harvesting: Finger millet is ready for harvest when the grains have turned fully mature and dry. The panicles (seed heads) should be brown and the grains should be hard. Cut the plants at the base and stack them for drying in a well-ventilated area.
10. Threshing and Storage: Thresh the dried finger millet plants to separate the grains from the straw. Clean the grains by winnowing or using suitable sieves. Store the grains in a cool, dry place in moisture proof containers to prevent insect infestation and maintain quality.

Conclusion

In summary, finger millet is a nutritious, gluten-free grain with numerous health benefits. Its versatility in cooking, adaptability to different climates and challenging conditions, and cultural significance make it a valuable crop and food source for diverse populations worldwide. Incorporating finger millet into diets can provide a boost of essential nutrients while diversifying grain options for individuals with dietary restrictions or those seeking healthier food choices contributing to overall nutrition, promoting digestive health, supporting energy levels, and providing valuable nutrients for various bodily functions. Its cultivation supports resilient and sustainable agricultural systems while providing valuable nutritional and economic benefits to communities.

References

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