

Role of Millets in Ensuring Nutritional Security

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One of the earliest human-cultivated meals, 'millets' have been a mainstay in Northern Africa for thousands of years. Before fine cereals like rice became prominent, millets were also a mainstay in China and India. Millets are very hardy and drought-resistant crops that are remarkably adaptive to a range of agro-climatic challenges. Because of their greater plasticity, they are crucial to the marginal agriculture practiced in hilly and semi-arid tropical climates. Because millets are C4 plants, they have a much more efficient photosynthetic system than C3 plants like rice and wheat. The majority of millet grains are now frequently referred to as "Nutri-cereals" since they have higher protein, fiber, calcium, and mineral contents than the widely consumed rice and wheat. Millets are one of the major small seeded grains for nutritional security. In the field of functional foods, millets are derived as the super foods. Like maize, wheat and rice, millet grains are also enriched with the nutrients. Millets belong to the Poaceae family which is used for food as well as fodder. Millets can be grown in less fertile land with low irrigation. Millet grains are enriched with minerals, proteins, calcium, and fibers. Millet grains contain gluten free proteins and due to this, it can be used as an alternative of the wheat flour for celiac patients. Millet grains contain dietary fiber and phytochemicals like phytic acid and ferulic acid. Dietary fiber is very useful for growing probiotic microorganisms. Thus, millets are used as a good prebiotic source. Apart from this, dietary fibers are useful in reducing the glycemic index of the food. Phytic acid helps in controlling cholesterol and is also useful for reducing cancer, while ferulic acid, which is an antioxidant, possesses strong free radical scavenging as well as anti-inflammatory activities. By these ways, millet grains provide nutritional security to the poor families which are incapable to add various food items in their diet.

Millets are naturally high in phytochemicals and nutrients that promote health. Millets have a significantly greater dietary fiber content than other common cereals. Foods with a high dietary fiber content have lower glycemic indexes. Additionally serving as prebiotics,



dietary fiber promotes the development of a balanced gut microbiome. All of the necessary amino acids are present in the millet proteins, which are also gluten-free. Unsaturated fatty acids are prevalent in millet fats. They are also a good source of B-complex vitamins and important minerals like calcium, iron, and zinc. They contain far more phytochemicals, such as phenolic acids, flavonoids, and tannins, than do the common grains. According to reports, these non-nutritive components have antioxidant, anti-diabetic, anti-cancer, and anti-cardiovascular. Despite the health benefits and efficiency of the millet farming method, millet cultivation is declining. For the revival of millet, immediate policy and market support, value addition, and promotional measures are required. The dual strategies should be to increase demand while also increasing productivity. To promote millets among the urban population in addition to the traditional rural customers, focused emphasis should be given to the development of health foods and their commercialization.

In the past, food security was seen to be the answer to India's dietary issues. India started a number of programmes to promote agriculture after experiencing severe food shortages and famine, and as a result, is now self-sufficient in food. Recently, though, it has become clear that in these attempts, millets have been marginalized while cereal production and distribution have received significant policy focus. The millets also lost importance in our everyday meals as a result of changing dietary trends. This pattern is frequently cited as contributing to India's current nutritional dilemma, where under nutrition and hidden hunger (micronutrient deficiency even in communities with access to sufficient food) issues coexist. Despite the fact that India is the world's largest producer of millets, these grains have never been given priority in agricultural policy or food systems. Millets, which are abundant in micronutrients like minerals and B-complex vitamins, have the potential to become significant for both food security and nutritional security in India. Given the growing recognition of millets' significance, the current review's focus is on the potential contribution that millets might make to the promotion of dietary diversity and balanced diets. It also offers recommendations for using millets to address food and nutrition security issues in India.