

Nutricereals For Nutritional Empowerment In The Present Global Situation

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INTRODUCTION:

Millets presently called nutricereals are small seeded grasses grown dry zones of Asia and Europe, cheaper than rice and wheat and hence called poor people's food. They are three to five times nutritionally superior to staple grains with respect to proteins, minerals and vitamins. The nutritionally superior millets are still confined to traditional consumers and low-income groups. But the unpredictable climatic conditions and constantly growing population necessitated the nutritionists to develop millet based functional and novel health foods that not only fight hunger and poverty but are readily acceptable amongst common man.

Millets are good sources of micronutrients like vitamins and β -carotene which are being consumed like pharmaceutical pills in present day. These are nutrient dense with sweet and nutty flavour, easily digestible and non-allergic grains available for consumption along with their disease resistance to be cultivated under highly adverse conditions with less labour and reduced cost of cultivation. They alkalize the body due to their higher mineral content thereby reducing the propagation of life style diseases due body inflammation.

Millets are nutritionally superior to other majorcereals as they are rich indietary fiber, resistant starches, vitamins, essential amino acids, proteins and bioactive compounds. Small millets have high resilience to adapt to different ecological conditions. The unique nutritional and nutraceutical properties of millets provide nutritional security to larger sections of disadvantaged and economically weaker groups worldwide.

CLIMATE RESILIENT CROPS: These nutricereals adapt to wide range of climatic conditions requiring less irrigation with better growth and productivity in low nutrient soils with minimal chemical fertilizer requirements and vulnerability to environmental stresses. The food security of a nation is a major policy goal and millets with high amounts of proteins, fiber, B-complex vitamins, essential sulphur-containing amino acid like methionine, lecithin and vitamin E. They are rich in minerals like iron, magnesium, calcium and potassium. The seeds contain phytonutrients that lower cholesterol and reduce the risk of cancers. The world is dealing with rural and nutritional challenges as agricultural lands with irrigation facilities arebeing exploited to the maximum. The need of the hour is to focus on dry lands to further increase grain production for ever exploding population and owing to the low fertility of these dry lands producing sufficient grains is a big challenge. These are very important crops drought resistance, resilience to pests and diseases and short growing season as compared to other major cereals like rice and wheat.

Millets as climate change compliant crops score highly over staple grains under marginal growing conditions with high nutritional value. These nutri-cereals are power houses of vitamins, minerals, essential fatty acids, phytochemicals and antioxidants that can help to eradicate the plethora of nutritional disorders. The cultivation of millets can keep dry lands productive and ensure future micronutrient security. The revival of millet cultivation in Karnataka, AP and Telangana is a step towards sustainable cropping practices that helps in bring crop biodiversity. There are many factors that make millets more sustainable as food crops than rice and wheat with millets requiring nearly 2.5 times less water than rice.

SUPERIOR GRAINS FOR HEALTH: In the present scenario, climate change, water scarcity, food scarcity,

ever booming world population, rising food prices and societal factors impacting and threatening agriculture and nutrition security worldwide. Hence, to overcome hunger and poverty, millets can be an awesome food sources as they are nutrient dense, rich in antioxidant, alkaline forming, gluten free and adaptable to diverse soil and climatic conditions providing food security to people in arid and semi-arid regions. Food processing techniques to enhance nutritional quality, improve the digestibility and bioavailability of food nutrients along with reducing anti-nutrients can be taken up.

In India, millets can produce multiple securities relating to food, nutrition, fodder, fiber, health, livelihood and ecology. Most millets have edible stalks favoured as fodder for cattle along with being storehouses of nutrition for them. Traditional medicine considered food as medicine and medicine as food with the main motto being that medicine is for prevention of disease rather than cure. This system believed that proper intake of food supplements can prevent mankind from dreadful diseases.

Millets due to their nutritive value have potential health benefits to prevent cancers, decrease the occurrence of cardiovascular diseases, reduce tumours, lowers blood pressure, risk of heart diseases, cholesterol content, rate of fat absorption, delay gastric emptying and increase gastrointestinal bulk. They are non-glutinous grains that can be used by people with celiac diseases and gluten allergy replacing wheat in diets. The consumption of millets prevent formation of acid in the digestive tract, hence are easy to digest and non-allergic.

Millets are gluten free, rich source of antioxidants and cholesterol lowering waxes benefiting people to combat lifestyle diseases. They can save foreign exchange required to import staple cereals and provide millets producing farmers with niche market. There is a growing demand in today's world for gluten free food products as many are suffering from celiac diseases.

TYPES OF MILLETS: There are nine types of millets available with three major and six minor millets. These millets can be used as popcorn or ravva or flour or idli or porridge or muesli or roti or dhokla and an array of items making the dishes taste at a whole new level.

Major millets: Sorghum, finger and pearl millet

1. Sorghum: A super grain in Africa and Asia called jowar or jola in India with slightly bitter taste and brownish hue is loaded with fibre, iron and antioxidants. It helps in combating inflammations, amplifying digestion and overcoming cancer risks.

2. Finger millets: The nutritious gem hailing from Africa also called ragi or nachni in India is a reddish hued and earthy flavoured grain. It is a rich source of protein, calcium and vitamin D that promote bone-strengthening, muscle-boosting and warding off osteoporosis.

3. Pearl millets: The millet recognized as bajra or kambu in India greyish shaded and a coarse textured millet. It is rich source of zinc, iron and energy pumping up metabolism, circulation and boosting immunity.

Minor millets: Foxtail, kodo, barnyard, little, proso and brown top millets

4. Foxtail millets: The ancient superstar dating back to 4000 BC known as kakum or kangni or korralu in India has a mild nutty vibe with yellowish charm. It is bursting with carbohydrates, iron and calcium aiding in managing blood sugar, fortifying immunity and beating anaemia.

5. Kodo millets: The ancient wonder from India, Africa and China, named kodra or varagulu is a light brown hued and a slightly bitter taste grain. It is high in fibre, protein and antioxidants fighting obesity,

diabetes, arthritis and asthma supporter.

6. Barnyard millets: The rapid grower across India is commonly called sanwa or kuthiraivali or udalu has greenish hue and is soft textured. It is lowcalorized, high-fibre and minerals like iron, calcium and phosphorus packed grain.

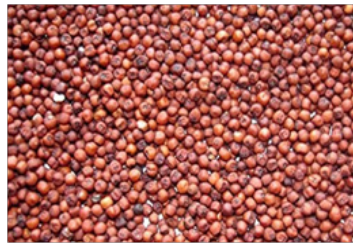
7. Little millets: The petite powerhouse grown in India, Nepal and China for centuries, named kutki or samai or samaluis yellowish shadedwith mild flavour. It is low on fat but rich in protein, magnesium, potassium and zinc helping fight constipation and promotes nerve functioning.

8. Proso millets: It is originated in China and termed as barri or chena or arikelu in India, has sweet taste and whitish hue. It is low on calories but high in protein, magnesium, phosphorus and potassium promoting cholesterol management, heart health and keeping gallstones under control.

9. Brown top millets: The rare find from India known as korale or andukorralu are brown coloured with mild flavour. They are low on glycemic index but rich in thiamine, niacin and riboflavin helping in controlling diabetes, blood pressure and skin health.



Sorghum



Finger millets



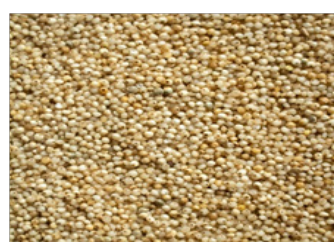
Pearl millets



Foxtail millets



Kodo millets



Barnyard millets



Little millets



Proso millets

CONCLUSION:

Millets hold great potential for food and nutrition security in the ever-increasing agricultural cost of cultivation, unforeseen climate change and booming population to feed universally. These are nutritious with health benefits requiring significantly meagre inputs and less cost of cultivation along with naturally being tolerant to most biotic and abiotic stresses. These features of millets highlight them as food crops of choice in the present global scenario.