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Millet: The future rice

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Abstract
Millet is one of the cereal grain belongs to grass family. Its widely consumed in developing countries and in India. Millet Millet is a rich source of nutrition. The food products and beverages made out of them have many health benefits. "Different types of millets have their own specialties. Sorghum grain is completely gluten-free and rich in iron, protein and fibre. Finger millet is a source of natural calcium and iron. It helps cure anaemia, and improves bone health. Pearl millet consists of magnesium which helps in reducing respiratory problems. Millets are highly nutritious, non-glutinous and non acid forming foods. Millets have many nutritional and health promoting properties especially the high fibre content. Millets hydrate our colon to keep us from being constipated. Niacin in millet can help lower cholesterol. Millets contain major and minor nutrients in good amount along with dietary fibre. They are rich in nutrition and dietary fibre. They serve as good source of protein, micronutrients and phyto chemicals. The millets contain 7-12% protein, 2-5% fat, 65-75% carbohydrates and 15-20% dietary fibre. The essential amino acid profile of the millet protein is better than various cereals such as maize. Millets contain fewer cross-linked prolamins, which may be an additional factor contributing to higher digestibility of the millet protein. Millets are more nutritious than fine cereals. Small millets are good source of phosphorous and iron. Millets contributes to antioxidant activity with phytates, polyphenols, tannins, anthocyanins, phytosterols and pinacosanols present in it having important role in aging and metabolic diseases. All millets possess high antioxidant acitivity. There are several varieties of millets. Pearl millet (bajra), sorghum millet (jowar), buckwheat (kuttu), amaranth (rajgira), finger millet (nachni /ragi), foxtail millet (kangni), little millet (samai), kodo millet (kodon), barnyard millet (sanwa) and proso millet (chena) are some of the types. The nutritional value, availability and huge production of the grain has drag the special attention of stakeholders. This article deals with three major aspects that Millet as a substitute food against rice, nutritional benefit of millet and awareness of millet consumption in common people.

Keywords: Millet, millet consumption and nutrient

Introduction

Millet as a substitute against Rice

Millets, a group of small but incredibly nutritious and environment friendly cereals consumed for centuries in India, are making a comeback in our diets. Millets are traditional grains, grown and consumed in India from the past more than 5000 years. Millet is one of the cereal grain belongs to grass family. Its widely consumed in developing countries and in India. Millet are basically used in Maharashtra, Karnataka, Andhra Pradesh, Madhya Pradesh. Millet is a rich source of nutrition. The food products and beverages made out of them have many health benefits. Millets are small - grained, annual, warm - weather cereals belonging to grass family. They are rain-fed, hardy grains which have low requirements of water and fertility when compared to other popular cereals. They are highly tolerant to drought and other extreme weather conditions. Millets are nutri rich cereals comprising of sorgum, pearl millet, finger millet (Major millets) foxtail, little, kodo, proso and barnyard millet (minor millets). These are one of the oldest foods known to humanity [1]. These are one of the several species of coarse cereal grasses cultivated for their small edible seeds. 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.

Millets are highly nutritious, non-glutinous and non-acid forming foods. Millets have many nutritional and health promoting properties especially the high fibre content. Millets hydrate our colon to keep us from being constipated. Niacin in millet can help lower cholesterol. Millets contain major and minor nutrients in good amount along with dietary fibre.

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Odisha Millet Mission-A Critical Analysis

Millet mission is planned for the revival of millets not only in fields but on plates too by Govt of Odisha. Government of Odisha has realised the significance of producing millets on a mission mode to address the issues of food security, nutrition and sustainability. “National Year of Millets was also observed in the year 2018. The state of Odisha under Millets mission is committed to bring about changes in promoting production and consumption of millets. The mission have designed and developed the agricultural intervention to bridge the existing gaps and problems. The challenges and uncertainties for farmers to adopt practices to produce millets are manifold. A comprehensive plan and an enabling environment is required for the promotion of millets in the state. Millet mission aims to provide the technical and management expertise dealing with issues of production, bio-inputs, crop insurances, post-harvest infrastructure, value addition, certification and remunerative marketing systems. Odisha has shifted its focus towards millets which was considered as the traditional foods. Generally the common people uses the millet as a supportive food rather than a staple food. There are many factors contributing to the failures of millet production and consumption [6]. The factors like market failure, industrialization, globalization and Lack of awareness leads to poor demand of the millet. The transition from traditional to commercial agriculture including market forces, profit maximization and promoted by government programmes to address constraints that limited productivity of rice-based cropping in Odisha. The Odisha Millets Mission emerged from a consultative workshop on revival of millets in Southern Odisha organized by the Planning and Convergence Department, Government of Odisha in partnership with Nabakrushna Choudhury centre for Development Studies (NCDS), Bhubaneswar. The programme has not just helped farmers have access to seeds of preferred varieties and appropriate farm machinery on time to get better yields, but has also gone one step beyond to create a policy space for inclusion of Ragi and other millets in the Public Distribution System and state nutrition programmes [4]. The procurement of Ragi by the state at Minimum Support Price has given price guarantee to farmers on millet crops for the first time in the history of the state. Odisha Millet mission achieved milestones in terms of policy implementation as well as recognition. But the question is whether this millet mission is fulfilling the requirements of common farmers in terms of production, financial benefit and acceptance as a substitute food against rice. The statistical facts and figures related to consumption and awareness is very surprising. Generally agriculture programmes have yield or productivity as the central objective. The Odisha Millets Mission is a unique with household consumption as its central objective. Giving millets visibility and acceptance in public food culture is being actively promoted. The programme has funded components on awareness campaigns for household consumption of millets, organizing millet food festivals, establishing small eateries and inclusion of millets under ICDS and PDS. While Facilitating Agencies are organizing consumption related events at the block and Gram Panchayat level. People from the older generations are appreciating the encouragement of millets while younger people are learning about nutritious values of millets through these events. The following is a list of recipes that have been served on these occasions [5].

Table 1: Millet Recipes prepared and served at different events

Name of Millet Grain	Recipes Made
Ragi	Biscuits, Wada, Idli, Laddu, Cake, Muffin, Pakudi, Pyaaji, Beguni, Mixture, Murukku, Soup, Tea
Suan (Little Millet)	Biscuits, Curd Rice, Vegetable Rice, Upma, Kheer, Halwa, Wada, Idli, Laddu, Cake, Muffin, Mixture, Murukku
Kangu (Foxtail Millet)	Biscuits, Curd rice, Vegetable Rice, Upma, Kheer, Halwa, Wada, Idli, Laddu, Cake, Muffin, Mixture, Murukku
Jowar	Jowar Pop, Wada, Idli, Laddu, Cake, Muffin, Biscuits, Mixture, Murukku
Kodo	Biscuits, Vegetable Rice, Upma, Kheer, Halwa, Wada, Idli, Laddu, Cake, Muffin, Mixture, Murukku
Mixed Millets	Biscuits, Laddu, Veg Rice, Pulao, Mixture

http://www.milletsodisha.com/recipe

Table 2: Nutritional proximate composition of millets as compared with major cereal crops (per 100 g)

Commodity	Protein (g)	Carbohydrates (g)	Fat (g)	Crude fibre (g)	Mineral matter (g)	Calcium (mg)	Phosphorus (mg)
Sorghum	10. 4	72. 6	1. 9	1. 6	1. 6	25	222
Pearl millet	11. 6	67. 5	5. 0	1. 2	2. 3	42	296
Finger millet	7. 3	72. 0	1. 3	3. 6	2. 7	344	283
Proso millet	12. 5	70. 4	1. 1	2. 2	1. 9	14	206
Foxtail millet	12. 3	60. 9	4. 3	8. 0	3. 3	31	290
Kodo millet	8. 3	65. 9	1. 4	9. 0	2. 6	27	188
Little millet	8. 7	75. 7	5. 3	8. 6	1. 7	17	220
Barnyard millet	11. 6	74. 3	5. 8	14. 7	4. 7	14	121
Barley	11.5	69.6	1.3	3.9	1.2	26	215
Maize	11.5	66.2	3.6	2.7	1.5	20	348
Wheat	11. 8	71. 2	1. 5	1. 2	1. 5	41	306
Rice	6. 8	78. 2	0. 5	0. 2	0. 6	10	160

***Source*:** National Institute of Nutrition (NIN), Hyderabad

Table 3: Nutritional composition of nutri-cereals and fine cereals (Per 100 g)

Crop	Protein (g)	Carbohydra tes (g)	Total Fat (g)	Total Dietary fibre (g)	Mineral matter (g)	Calcium (mg)	Phospho rus (mg)
Sorghum	9.97±0.43	67.68±1.03	1.73±0.31	10.22±0.49	1.39±0.34	27.60±3.71	274±35.7
Pearl millet	10.96±0.26	61.78±0.85	5.43±0.64	11.49±0.62	1.37±0.17	27.35±2.16	289±25.3
Finger millet	7.16±0.63	66.82±0.73	1.92±0.14	11.18±1.14	2.04±0.34	364±58.0	210±58.4
Little millet	10.13±0.45	65.55±1.29	3.89±0.35	7.72±0.92	1.34±0.16	16.06±1.54	130±27.5
Foxtail millet	8.92±1.09	66.19±1.19	2.55±0.13	6.39±0.60	1.72±0.27	15.27±1.28	101±5.2
Wheat, whole	10.59±0.60	64.72±1.74	1.47±0.05	11.23±0.77	1.42±0.19	39.36±5.65	110±9.8
Rice, raw, brown	9.16±0.75	74.80±0.85	1.24±0.08	4.43±0.54	1.04±0.18	10.93±1.79	267±64.9

***Source*:** One day National workshop on Nutri cereals 16th October 2019 organised by Department of Agriculture and Farmer's Empowerment, Govt of Odisha and Department of Agriculture cooperation and farmers welfare , Government of India .

Key Statistical Facts on common People's Awareness

The Odisha Millet Mission has been taking a lot of effort to create awareness but unfortunately it is not reaching to the end users. A very interesting statistical survey on awareness about millet was undertaken in which the results are not very impressive. The study was undertaken at Bhubaneswar city of Odisha. In the survey 48 families are interviewed for their opinion. It reflects that 47.92 percentage of house wives (23 numbers) are not aware about the use of millets. Only 39.58 percentage of families do not know about the cooking process of millets. A very negligible percentage of 62.50 percentages of house wives know about the use of millets. The interesting fact is that 12 numbers of families viewed that it is healthy to eat and 9 numbers of families revealed that it is tasty. The said survey is an eye opener for all the stakeholders that whether the millet can replace rice and other grains in future to come. Around 15 numbers of families responded that they know about from News Paper.

Conclusion

It is very sad that a state like Odisha, which is known by its villages, the Socio-economic status of its farmers is very poor. It is very essential to improve the socio- economic status of its back bone "The Farmer" through government support, maybe through subsidized inputs (like seed, fertilizer, chemicals, implements, electricity charges, irrigation system, irrigation charges of canal water etc.), remunerative rates of the produce with assured procurement, easy & low interest finance facility, road network to man dies for transportation of the produce, hygienic living condition, health facilities and proper education to their children. This will definitely improve the millets production in the state and country at large.

Let us eat millet
Let us create a healthy life

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