

From Field to Fork: Nourishing Innovations with Ragi Noodles and Jowar Ladoo

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Malnutrition includes both undernutrition (such as stunting, wasting, and micronutrient deficiencies) and overnutrition (such as obesity and diet-related noncommunicable diseases). In the case of women and children, inadequate intake of essential nutrients like iron, iodine, vitamin A, and zinc can lead to serious health problems, affecting growth, development, and overall well-being. Malnutrition during pregnancy can lead to adverse outcomes for both the mother and child. Maternal malnutrition increases the risk of complications during pregnancy and childbirth, as well as low birth weight and stunted growth in infants. Early childhood malnutrition can have lifelong consequences, including impaired cognitive development and increased susceptibility to infections. Limited access to nutritious foods due to poverty, food price volatility, and inequitable distribution systems contributes to malnutrition. Women and children in low-income households are particularly vulnerable to food insecurity, which exacerbates the risk of undernutrition and micronutrient deficiencies.

Diets lacking in diversity and predominantly based on staple grains, with limited intake of fruits, vegetables, proteins, and micronutrient-rich foods, contribute to malnutrition. This is especially common in regions where traditional diets have been displaced by cheaper, processed foods high in sugars, fats, and refined carbohydrates. Poor access to clean water and sanitation facilities increases the risk of waterborne diseases and intestinal infections, leading to nutrient malabsorption and nutrient loss through diarrhea. Women and children are disproportionately affected by inadequate sanitation, which can further compound the effects of malnutrition. Environmental degradation, climate variability, and extreme weather events impact agricultural productivity, food availability, and livelihoods, particularly in rural areas where subsistence farming is prevalent. These challenges can disrupt food supply chains and exacerbate food insecurity and malnutrition, with

women and children bearing the brunt of the consequences.

Addressing malnutrition requires a comprehensive approach that encompasses interventions targeting health, nutrition, agriculture, education, social protection, and gender equality. Empowering women, improving access to nutritious foods, promoting breastfeeding, enhancing agricultural diversity, and strengthening health systems are essential components of efforts to combat malnutrition and improve the well-being of women and children globally.

Millets are rich in dietary fiber, which plays a crucial role in digestive health and helps prevent constipation. Unlike refined grains, which are stripped of their bran and germ during processing, millets retain their fiber content. This fiber promotes satiety, aiding in weight management, and helps regulate blood sugar levels, reducing the risk of type 2 diabetes. Increased fiber intake also supports heart health by lowering cholesterol levels and reducing the risk of cardiovascular disease. Ragi and jowar are valuable sources of plant-based protein, making them ideal components of vegetarian and vegan diets. Protein is essential for muscle repair and growth, immune function, and hormone synthesis. Incorporating millets into processed foods provides an alternative protein source to animal products and can help meet the dietary needs of individuals following plant-based diets. Additionally, the protein quality of millets is comparable to that of other cereal grains like wheat and rice, making them suitable for inclusion in diverse food products. Millets are packed with essential vitamins and minerals, including iron, calcium, magnesium, phosphorus, and B vitamins. Iron is particularly important for preventing iron-deficiency anemia, a common nutritional disorder, especially among women and children. Calcium supports bone health, while magnesium plays a role in muscle and nerve function. By incorporating millets into processed foods, consumers can benefit from a wider

array of micronutrients compared to refined products made with refined grains, which are often fortified to compensate for nutrient losses during processing. Ragi and Jowar are naturally gluten-free grains, making them suitable for individuals with gluten intolerance or celiac disease. This makes millet-based processed foods a safe and nutritious option for those with gluten-related disorders. Additionally, millets are considered hypoallergenic, meaning they are less likely to cause allergic reactions compared to common allergens like wheat, soy, and dairy. This broader accessibility makes millet-based products inclusive and suitable for diverse dietary needs and preferences. Millets have a lower glycemic index compared to refined grains like white rice and wheat flour. This means they are digested more slowly, leading to gradual increases in blood sugar levels and providing sustained energy release. Incorporating millets into processed foods can help stabilize blood glucose levels, making them a favorable choice for individuals with diabetes or those seeking to manage their weight and energy levels more effectively.

Ragi and jowar, also known as finger millet and sorghum respectively, hold significant importance in the diet due to their nutritional richness and potential to combat various nutritional deficiencies. Ragi and jowar are nutrient-dense grains packed with essential vitamins, minerals, and dietary fiber. Ragi is particularly rich in calcium, iron, and fiber, while jowar is a good source of protein, fiber, and antioxidants. Incorporating these millets into the diet provides a diverse array of nutrients crucial for overall health and well-being. Micronutrient deficiencies, such as iron-deficiency anemia and calcium deficiency, are prevalent health issues, especially among women and children. Ragi is an excellent source of iron, making it particularly beneficial for combating anemia. Additionally, its calcium content contributes to bone health, which is crucial for women, especially during pregnancy and lactation. Jowar's protein content helps meet dietary protein needs, supporting muscle development and repair, especially in growing children.

The development of novel foods such as jowar and ragi noodles and ladoos represents an innovative

approach to increasing the consumption of these millets. By transforming traditional grains into convenient and appetizing products, consumers are more likely to incorporate them into their diets regularly. These processed foods offer versatility in meal planning and cater to modern dietary preferences, including gluten-free and plant-based diets.

Preparation of Ragi Noodles

Ingredients:

- Ragi flour (finger millet flour)
- Water
- Salt (optional)
- Oil (for greasing)

Dough: Steam dough for 10 minutes, mix ragi flour and water, knead the mixture into smooth pliable dough adjust water to achieve right consistency. Extrude through snacks extruder and boil raw noodles on steam for 15 minutes. Sauté it with mixed vegetables, oil, tomato sauce and decorate with coriander leaves, serve hot.

Preparation of Jowar Ladoo

Ingredients

- Jowar flour (sorghum flour)
- Jaggery or sugar
- Ghee (clarified butter)
- Cardamom powder (optional)
- Chopped nuts (optional)

Roast the Jowar Flour, in a pan over medium heat and add the jowar flour. Dry roast the flour, stirring continuously, until it turns light golden brown and emits a nutty aroma. Be careful not to burn the flour.

Once roasted, transfer the flour to a bowl and let it cool completely. In the same pan, melt the jaggery or sugar with a little water to make a thick syrup. Add a pinch of cardamom powder for flavor, if desired. Cook the syrup until it reaches a soft ball consistency. To test, drop a small amount of syrup into a bowl of cold water; it should form a soft ball that holds its shape but is still pliable. Once the jowar flour has cooled slightly, add it to the warm jaggery syrup. Mix well until all the flour is coated with the syrup. If

desired, add chopped nuts such as almonds, cashews, or pistachios for added texture and flavor. Grease your palms with a little ghee to prevent sticking. Take small portions of the jowar mixture and shape them into round balls or ladoos by pressing firmly between your palms. The size of the ladoos can be adjusted according to preference. Allow the jowar ladoos to cool and set at room temperature for about 15-20 minutes. Once set, the ladoos are ready to be served and enjoyed as a nutritious snack or dessert.

In conclusion, the preparation of ragi noodles and jowar ladoo offers a delightful fusion of traditional grains with modern culinary innovation, presenting an enticing solution to combat nutritional deficiencies and promote healthier dietary choices.

Through these innovative recipes, we witness the revival of age-old grains in contemporary cuisine, celebrating their rich heritage and nutritional bounty. By incorporating ragi and jowar into our diets through novel foods like noodles and ladoos, we not only elevate our culinary experiences but also nourish our bodies with essential nutrients vital for optimal health and well-being. As we savor the flavors and textures of ragi noodles and jowar ladoo, let us embrace the journey towards a more diverse, sustainable, and nutritious food future, where traditional grains play a central role in promoting health, culture, and culinary creativity. With each bite, we take a step closer to a healthier, more vibrant tomorrow, where everyone can thrive through the power of wholesome, nourishing foods.

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