



Injera: A Secret of the Beauty and Healthiness of Eritreans

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Eritrea, a country resides in the horn of Africa and well known for its long struggle for freedom. The country had deep scar as it survived through war, famine and crisis for long period of time. Although, Eritreans are do nurture well in physical health, a secret lies in the Eritrean cuisine, as they are wise to choose Injera as their staple food. Injera is known to be a cheap source of essential and quality nutrients. Despite of its sublime nutritional profile it has little recognition in the world. Therefore, present article aims to reveal brief information of Injera including recipe, health benefit, scope and challenges.

Introduction

Eritrea was colonized by the Egyptians, the British, the Italian and neighboring countries like Ethiopia and Sudan. Therefore, Eritrean cuisine is influenced during these colonial periods. A staple Eritrean meal consists of Injera (sour flat bread) and variety of vegetables. Moreover, the fashion they served food is very different and unique as the family members share food from a large plate where different curries are topped on Injera (Fig. 1). Injera is used as a tool to scoop up vegetables or by dipping it into stews. Traditional Eritrean dishes are mostly preferred to be hot served and spicy using chili powder/spices. These traditional dishes include 'Alicha' made from various vegetables and 'Shiro' a puree of different legumes such as chick pea. The Eritrean cuisine is regional, meaning there are many traditional foods in different regions of Eritrea. In the lowlands of Eritrea, main traditional dishes include 'Ga'at', porridge like dish made from grains like wheat and sorghum flour, which is dipped in a mixture of chili powder and melted butter finished off with fresh yogurt. Also in regions alongside the coastal area of Eritrea main dishes are composed of fish. The Eritrean people intend to drink tea and coffee much like the British's "tea time" and traditional alcoholic drink such as Suwa (barley based fermented drink) and Meis (fermented alcoholic drink from honey). Injera is considered as the central element of the Eritrean cuisine. It is a sour dough-risen flatbread, slightly spongy texture and light brown in color. It can be prepared using variety of cereals such as sorghum but most commonly used is teff. According to genetic evidence, teff was one of the earliest plants domesticated and it is believed to have originated in Ethiopia and Eritrea between 4000 BC and 1000 BC. The word "teff" is associated to the Ethio-semitic root, which means "lost", because of the small size of the grain, measuring only about 1/32 of an inch in diameter. Injera is rich source of various essential nutrients



Figure 1. Injera Foods

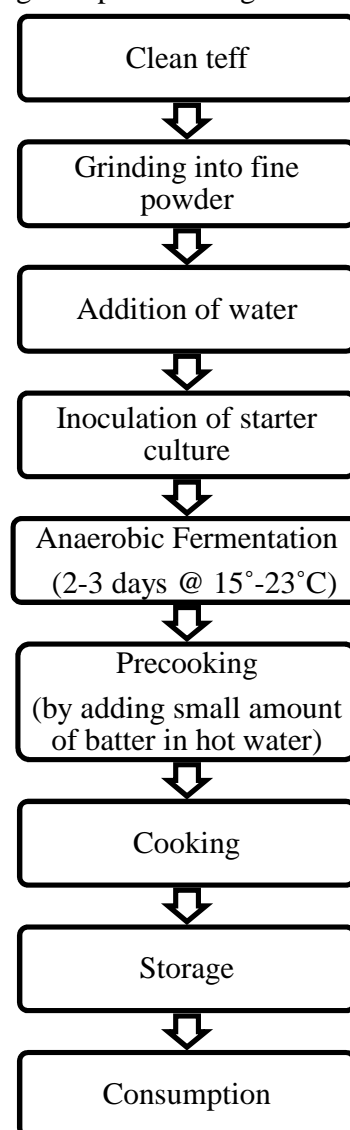
including fiber, protein, and vitamins. It contains high amount of protein including all 8 essential amino acids (higher in lysine in barely or wheat), high amount of vitamin (B, A and K.), wide range of minerals (iron, calcium, potassium, phosphorus, magnesium, zinc). Injera made from pure teff is gluten free making it suitable for people with celiac disease, patients which have difficulty in absorbing fat or gluten. In 1996, the United States National Research Council characterized teff as having the "potential to improve nutrition, boost food security, foster rural development and support sustainable land care".

Health Benefits

On an average daily intake of Injera of an Eritrean family is twice a day. A single serving of Injera has iron (3.68 milligram) useful for better circulation of oxygen throughout the body and potassium (206 milligram) which maintains the heart's electricity activity. Regular consumption of Injera also ensures supply of vitamin A and antioxidant which maintains healthy eyes. Injera acts to protect the cell damages from free radicals, decreases risk of heart disease and cancer. The vitamin K from Injera aids for blood coagulation. Injera made from other mixture grain such as sorghum provides high level of minerals like magnesium, iron, and vitamins like niacin and thiamin. Some of the many health benefit of sorghum Injera includes boosting up digestive system, ability to resist cancer, helps to control diabetes and boost energy. Currently alongside quinoa and spelt, teff was recognized the new super food as it contains 40% resistant starch that benefits diabetics, weight loss and overall health management.

Injera Preparations

Every household of Eritrea have their own unique style of preparing Injera using different grains, technique, cooking materials, fermentation period etc. Injera can be made from different grains but commonly used are teff, sorghum or combination of both. Ingredient selection depends on the personal preference though it does not necessarily mean a change of the recipe. To ensure proper fermentation, temperature should be maintained below 35°C. Improper fermentation affects on the shelf life of Injera significantly, which is usually expected more than five days. Essential ingredients required for Injera preparation are teff (Grain) flour, starter culture from previous batch and water. Grind the teff into fine powder (flour) and sieved it to remove any undesired substances and store it in a dry place ready for use. Prepare the dough by adding water into fine floor of teff in mixing bowl. Add the starter culture from previous batch and mix it gently to form liquidly batter and avoid lump formation. Initially the starter culture can be prepared by adding yeast to the dough or preparing a starter culture beforehand by fermenting small amount of dough for 2-3 days. Store the dough in air tight container for a period of 2-3 days without any agitation. It is suggested that 15°-23°C temperature is best suited to happen good fermentation. During the fermentation dough develops sour taste as a result of pH drop from 6.7 to 4. The sour taste is depends on the period of fermentation, as prolong fermentation develops sour taste. Moreover, long time fermentation changes the texture of Injera from spongy to soggy-like.



Therefore, optimum fermentation conditions are the key factors to have delicious and nutritional enriched Injera. After fermentation pre-cooking is done to develop spongy texture and maintain consistency of batter. Pre-cooking is obtained by mixing cup of batter into boiling water and holding on flame for 5 to 7 minutes until it is thickened sufficiently. Later, pre-cooked batter is mixed with remaining batter and held for self-rise. During this period, formation of bubbles on the top of the batter indicates the batter is ready for cooking. Injera is cooked on a clay plate, placed on fire locally known as Mogogo. At present time modern Mogogos run on electricity. The Mogogo surface is oiled sufficiently to avoid Injera sticking to the surface. Using a jag, a small amount of batter is spread on the Mogogo surface in a circular shape to form a thin layer. The lid of the Mogogo should be tightly sealed to conceal all moisture; otherwise, the Injera might develop cracks. Once the surface of Injera is dry and holes appear at the surface, remove the bread without flipping it. Allow cooked Injera to cool down and pack it in a container for consumption. Injera is sun-dried to preserve for longer time, locally known as Korosho.



Figure 2. Mogogo

Scope and Challenges

Teff is the major ingredient in Injera preparation. The nutritional background of teff is winning as it has earned the tag of 'super food' alongside spelt, and quinoa. Teff is also called an emergency grain owing to its small cultivation period. Sowing can be done in late spring and harvesting multiple times in the summer. The average yield of teff ranges from 4 to 7 tonnes/acre, and it depends on the length of the growing season and other agronomical factors. Yield of high quality and excellent nutritional profile makes teff unique to consider as a good solution to tackle malnutrition issues in underdeveloped countries. The consumption of teff around Europe and North America is gaining momentum. Ethiopia is taking the lead to cultivate and export teff across the world. Indian scientists at CFTRI (Central Food Technology Research Institute, Mysore) are successful in cultivating teff in India. Efforts are on the way to develop different products based on Indian cuisine. After successful trials, large-scale teff production and its processing is possible in India. Small grain size of teff makes it difficult and challenging for harvesting and post-harvesting operations. Till date, no technology is developed to harvest teff and therefore harvesting becomes a labor-intensive operation. Compared to Sorghum and Barley, the per-acre yield of teff is marginally low. Moreover, agronomical practices are not standardized to increase the yield of Injera. Therefore, the cost of per kg of teff is high. All these factors hamper the production and processing of Injera at a large scale.

Conclusion

Injera has been hidden but rediscovered and is slowly gaining acceptance all over the world in the last decade. Injera is the major element of the nourishing beauty secret of Eritreans. Eritreans are enjoying a healthy life by considering Injera as a staple food. A multidisciplinary approach (agronomy, engineering, extension etc) is vital in order to avail its benefits to individuals in need. From the first impression, Injera tends to be less appetizing if compared with other breads. Therefore, research efforts are essential to invent a variety of food products from Injera which can fit in different cuisines without compromising its nutritional properties. Injera could be seen as a solution to areas which have issues with cultivation, malnutrition, and food security.

References

- Web source: <https://www.eritrea.be/old/Eritrea-cuisine.html>
<https://www.exploratorium.edu/cooking/bread/recipeinjera.html>
<https://www.organicfacts.net/healthbenefits/cereal.html>