



Quinoa in Peru: Andean Pseudocereal, a food for present and future generations

La quinua en el Perú: Pseudocereal andino, alimento de generaciones presentes y futuras

De La Cruz-Arango, Jesús

 Jesús De La Cruz-Arango

jesus.delacruz@unsch.edu.pe

Universidad Nacional de San Cristóbal de Huamanga.

Facultad de Ciencias Biológicas. Laboratorio de

Botánica. Portal Independencia No. 57. Ayacucho,

Perú

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directoreditorbiosphere@gmail.com

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Quinoa (*Chenopodium quinoa*), an Andean crop of importance for its high nutritional value, contains essential amino acids, trace elements, vitamins, fiber that our body requires, in addition to being gluten-free. Even superior to other cereals such as wheat, barley and soybeans, only comparable to milk protein. It has valuable therapeutic properties and other benefits^{1,2}. In fact, it is a gift from our ancestors, inherited from the pre-Incas and Incas. A species protected and preserved by the indigenous populations of South America as food for present and future generations². However, during the Spanish conquest and the colonial and even republican era in Peru, it was marginalized and despised, considered Indian food and excluded from the table of wealthy families. Over the centuries, it faced numerous challenges, including attempts to erase its spiritual significance during colonization³. Despite this, Andean peoples have maintained and used it as a valuable food, even with its difficulties in harvesting and eliminating its bitterness due to the presence of saponins⁴.

The discovery of the benefits of quinoa has changed the way consumers think, regardless of their social position. The nutritional value of this food inherited from the Incas is now recognized. It is consumed by

wealthy families and is found in the main markets in different presentations. It is exported to Europe, Asia and North America, expanding its consumption beyond South America. Several countries are researching how to grow it in different ecosystems, although quinoa is a traditional Andean food, it is now considered an indicator of social status, consumed mainly by people from the upper strata of society³.

The change in the way of life and customs of the inhabitants of Andean and rural areas has been influenced by the growing international demand and exports. This has led to a monetary emphasis and a greater importance on growing quinoa because of its high price on the international market. However, this change also had negative consequences, as now all production is destined for the market and poor families, especially those living in rural areas, can no longer include quinoa in their daily diet³. These developments in Peru have spread to most of the Andean communities and populations that grow quinoa. Due to an erroneous belief, the rural inhabitants of the highlands of Peru, Bolivia and Ecuador have begun to abandon their ancestral food traditions in favor of modernity⁵. Small producers sell quinoa to buy other foods and products from the city, as they are unaware of its nutritional value and believe that they are improving their food quality by consuming products such as noodles, rice, among others.

Quinoa has its center of origin in the Andes region, especially in the Altiplano around Lake Titicaca in Peru and Bolivia. The peoples of the Andean Region of South America have cultivated, protected and conserved it for thousands of years⁶.

In terms of its geographic distribution, it is a plant that can adapt to diverse ecological environments and climates. It has the ability to withstand long periods of drought, salty soils and poor in organic matter. It grows from sea level to altitudes of 4000 meters. In addition, it can withstand temperatures ranging from -8 to 38° C. Its cultivation was initiated by the pre-Incas and expanded by the Incas throughout the empire. Its distribution extended from the region of Pasto in Colombia to Catamarca (Argentina) and the Maule River in Chile².

Today, the crop has expanded to all continents, due to the characteristics indicated above, it has great ecological plasticity and biological diversity, which makes it suitable for the development of the crop in other regions of the world. This is especially important in the current context, and it is necessary to take measures to adapt to climate change⁷. Therefore, as a measure to protect and conserve this genetic resource, countries considered as centers of origin should create national strategies to preserve their biological diversity. International agreements recognize the sovereignty of States over their genetic resources and the role of indigenous communities in their preservation. They also establish principles to promote a fair and equitable sharing of the benefits arising from the utilization of these genetic resources by all countries of the world⁷.

In terms of exports, since 1998 Peru has become one of the world's leading producers of quinoa. In 2013, there was an increase in external demand, which led to the expansion of its cultivation on the Peruvian coast. In the highlands, the departments of Puno, Ayacucho, Apurímac, Cusco and Junín are the main centers of organic quinoa production, albeit with lower yields but higher prices. On the other hand, on the coast, production is higher, but conventional and not organic. These events led to a decrease in exports in 2014, especially to the North American market from Arequipa and La Libertad⁸.

To prevent the recurrence of bad practices in agriculture and to guarantee the quality of export products, it is necessary for the Peruvian government and relevant institutions to provide technical advice to farmers on all aspects of cultivation. This should apply not only to quinoa, but to all export products. In addition, production areas should be zoned and surveillance, control and training actions should be carried out for producers, processors and exporters in general.

Jesús De La Cruz-Arango

San Cristobal de Huamanga National University

Faculty of Biological Sciences

Botany Laboratory

Portal Independencia No. 57

Ayacucho – Peru

jesus.delacruz@unsch.edu.pe

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