

A promising fruit: The tree tomato

February 26 2013



A tree tomato in a plant, in the Real Jardín Botánico of Madrid. Credit: Juan Martínez Laborde

A researcher at the UPM is collaborating in the characterization of genetic resource of the tree tomato to enhance its cultivation and commercialization in Andean and Mediterranean countries.

Tree tomato is originally from South Africa and has a high potential for

Andean cultivation but it is currently not properly exploited. To preserve and enhance this cultivation, a researcher at the School of Agronomist of the UPM in collaboration with the Universidad Politécnica de Valencia and the Universidad Técnica Particular de Loja (Ecuador), have carried out a research whose aims to have depth knowledge of morphology and genetic diversity of tree tomato. The results obtained can open possibilities of new varieties demanded by the market.

Tree tomato (*Solanum betaceum* or *Cyphomandra betacea*) can reach up three meters of height and belongs to the Solonaceae family, which is the same family of potato, tomato and aubergine. It is original from the Andean area of South Africa and widely grown from the north of Chile and Argentina until the south Mexico, and especially in Ecuador. Its fruits are fleshy, oval or elliptic shaped and yellow, orange or purple color with a pulp of pleasant taste, slightly acidic, aromatic, rich in vitamins and minerals.



Diversity of shapes and sizes of tree tomato. Credit: Pablo Acosta

Their fruit is recommended to consume as fresh fruit or as juices and canned. They are becoming popular in other places: the tamarillo (the name as it is known internationally) is grown and consumed in some European and Asian countries but mainly in New Zealand, which is leading of production and exportation.

However, in Ecuador, and in the Andean region, the cultivation and [commercialization](#) of tree tomato is mainly local. Although it is an excellent alternative to other crops, its production continues to suffer from lack of [basic knowledge](#) over its production and because there is not any programme of preservation or improvement. The varieties are not clearly differenced and are frequently improperly cultivated. The inadequate commercialization of the product hinders them from its commercialization with recent falls of over 70% of exported volume in Ecuador.

Besides, Mediterranean countries as Spain could constitute a promising cultivation. This situation woke the interest of the agronomist engineer Pablo Acosta Quezada, who focused his Doctoral Thesis on the study of morphology and genetic diversity of tree tomato. The experimental crops in soil at the Universidad Técnica particular de Loja (Ecuador) provided him with the samples that later were used to carry out a detailed work of characterization. He analyzed the morphological character of the stem, leaves, flowers, fruits and seeds and he also studied the genetic diversity expressed in the DNA by the molecular markers called AFLPs (amplified fragment length polymorphism) in collaboration with researchers at the Universidad Politécnica de Madrid and the Politécnica de Valencia.

As a result of this work and apart from publishing papers about morphological and genetic diversity of this fruit, he elaborated a list of over 80 descriptors (morphology characters) to describe and to identify varieties and to identify plants and their features of agronomist interest. This list has being recently published in Biodiversity International, the organization of research Support, preservation and use of agricultural biodiversity which work in closely collaboration with the FAO.

The morphological characters of the fruit are of special interest for the variability and heritability, what can open possibilities of plant breeders to obtain proper varieties to market needs. Besides, the 78 polymorphic DNA fragments found reveal that the presence of a wide [genetic diversity](#) can provide a great action field to enhance and to obtain new varieties.

This research is a pioneering contribution of high relevance to know the diversity of a tree tomato, which can be the base to preserve and enhance the marginalized crop of high potential for Andean countries, especially for Ecuador.

More information: Acosta-Quezada, PG; Vilanova, S; Martinez-Laborde, JB; Prohens, J. Genetic diversity and relationships in accessions from different cultivar groups and origins in the tree tomato (*Solanum betaceum* Cav.). *EUPHYTICA* 187 (1): 87-97. [DOI: 10.1007/s10681-012-0736-7](#). SEP 2012.

Provided by Madrimasd

Citation: A promising fruit: The tree tomato (2013, February 26) retrieved 3 May 2024 from <https://phys.org/news/2013-02-fruit-tree-tomato.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.