The carob tree in Tunisia: A big varietal richness to preserve and to valorize

Mohamed Larbi Khouja

Context
The carob tree is a native agroforestry species in Tunisia. To better understand this species (Ceratonia siliqua) and to promote its culture at a national level in appropriate environments, we explored the area of its distribution to study its morphogenetic variability and its agronomic value.

Objective
In addition to their traditional local use in human and animal food, the fruits of the carob tree have a high commercial value in industrial transformation. The demand for fruits and seeds is growing significantly and their commercial value is increasing. It is also an undemanding species, since it is found in various bioclimatic levels (humid, subhumid, semi-arid and arid) and on poor and skeletal soils. The objective of this work is to explore a panel of varieties to be characterized by describing the tree, fruits, and seeds in an illustrated form.

Results
Exploration of the carob tree in forestry (spontaneous state) and in agriculture (cultivated and grafted trees) has led to the identification of more than 70 morphotypes within natural populations and cultivated varieties. The characterization of the morphotypes, in particular from the point of view of pod and seed yield, chemical composition of the pulp and gum, revealed the existence of a high variability in the populations and varieties prospected. The results of the morphological characterization are given below in an illustrated form (Figure).
**Recommendations**

The presence of a marked geographical variability between the provenances tested translates in practice into the possibility of selecting in favor of the best performing provenances, a selection combining good survival and better growth. Considering its economic interest and profitability, carob tree cultivation can be proposed as a management model in forest areas or also in agricultural land with a purpose of integrating management and income diversification for small and medium-sized farmers.

**Impacts and weaknesses**

The carob tree continues to be subject to strong anthropic pressure (urbanization, illegal land clearing, coal mining, etc.) which is becoming increasingly alarming. The preservation and characterization of the different morphotypes explored in their natural habitat is urgent. It can be exploited in two ways: for in-situ genetic conservation and as a genetic reservoir for the supply of reproductive material (grafts, cuttings) for the creation of new plantations.

**Future developments**

Because of their importance and intrinsic genetic value, the varieties identified deserve to be well conserved in appropriate plantations by reproducing each variety by grafting. An effort should be made through research in tune with forest technicians to disseminate research results concerning the choice of carob species for honey production, and to ensure their multiplication and distribution among rural populations and small farmers. The association and involvement of the GDAs in this effort will further strengthen the results and will be an asset to ensure the success of such action.
Mohamed Larbi Khouja

Further information


## About INCREDIBLE Project

INCREDIBLE project aims to show how Non-Wood Forest Products (NWFP) can play an important role in supporting sustainable forest management and rural development, by creating networks to share and exchange knowledge and expertise. ‘Innovation Networks of Cork, Resins and Edibles in the Mediterranean basin’ (INCREDIBLE) promotes cross-sectoral collaboration and innovation to highlight the value and potential of NWFPs in the region.

## Funding

‘Innovation Networks of Cork, Resins and Edibles in the Mediterranean basin’ (INCREDIBLE) project receives funding from the European Commission’s Horizon 2020 programme under grant agreement Nº 774632.