

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



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Keywords

Carob tree

Ceratonia siliqua

Clone park

orchard plantation

wild harvested

Mediterranean pine nut

chestnut

NWFP

Wild Nuts & Berries

Scale

National

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.

Variety 1: Ainsobh (Tabarka)	Variety 2: Aintounga (Beja)	Variety 3: INRGREF (Ariana)
		
		
Shape: Single trunk and medium crown Length of pods: 22.04 cm Pod width: 2.54 cm Pod thickness: 1.44cm Number of viable seeds: 15.36 Seed weight: 0.24 cm Seed thickness: 0.47cm Seed yield: 7.59%	Shape: Forked trunk and spreading crown Length of pods: 17.1 cm Pod width: 2.14 cm Thickness of pods: 0.7 cm Number of viable seeds: 12.2 Seed weight: 0.17 gm Seed thickness: 0.37 cm Seed yield: 14.2%	Shape : Single trunk and well-developed crown Length of pods: 20.54cm Pod width: 2.18cm Pod thickness: 1.14cm Number of viable seeds: 11.4 Seed weight: 0.27cm Seed thickness: 0.45cm Seed yield: 8%.
Variety 4: Zaghouan	Variety 5: Bargou (Siliana)	Variety 6: Sayada (Monastir)
		
		
Shape: Forked shaft and fairly developed crown Length of pods: 19.68 cm Pod width: 1.71 cm Pod thickness: 0.62 cm Number of viable seeds: 13.4 Seed weight: 0.19 cm Seed thickness: 0.39 cm Seed yield: 23.56%.	Shape: Single trunk and medium sized crown Length of pods: 13.28 cm Pod width: 1.48 cm Thickness of pods: 0.48 cm Number of viable seeds: 11.24 Seed weight: 0.15 cm Seed thickness: 0.41 cm Seed yield: 31.9%.	Shape: Single trunk and developed crown Pod length: 20.3cm Pod width: 1.86cm Pod thickness: 0.9cm Number of viable seeds: 17.36 Seed weight: 0.24 cm Seed thickness: 0.45 cm Seed yield: 18.19%.

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Further information

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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.



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