

# The Sahara olive tree: A genetic heritage to be preserved

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Credit: USTHB / D. Baali-Cherif

The Saharan cousin of Mediterranean olive trees remains largely unknown. However, this subspecies (called the Laperinne's olive tree) is of great interest for several reasons. IRD researchers and their partners showed that its longevity is ensured by its original vegetative reproduction. Extremely drought-resistant, this "relict" tree could act as a genetic resource to improve its domestic counterparts, provided

conservation actions are implemented to prevent its disappearance.

## **The most resistant of all olive trees**

Contrary to its cultivated counterpart, the Laperrine's olive tree did not choose the mildness of the [Mediterranean climate](#). It grows in the middle of the [Sahara desert](#) at an altitude of between 1400 and 2800m, spanning southern Algeria, Niger and northern Sudan. In order to survive in this inhospitable environment over the past several million years, it had to adapt to extremely arid conditions. In order to preserve this exceptional [genetic heritage](#) over the course of time, it developed an unusual [reproductive strategy](#). As researchers have demonstrated in a recent synthetic study, it reproduces through vegetative or clonal growth.

## **A genetic resource for cultivated plants**

A symbol of Saharan mountain ecosystems, the Laperrine's olive tree is a source of wood for local populations. Its leaves are also a valued resource to feed animals and are used as a traditional pharmacopoeia. Scientists also underline its agronomic benefits. Indeed, it can be crossed with cultivated [olive trees](#) to improve various properties, such as the drought-resistance of the latter. Thanks to molecular analyses, biologists discovered that such crossing has already been carried out previously, confirming the possibility of hybridizing the two subspecies.

## **An endangered tree**

Developing a conservation niche like the Laperrine's olive tree is not a risk-free process. Today it pays the price of its isolation and genetic protectionism. The limited gene flow among populations and its vegetative reproduction method resulted in less genetic mixing over long periods of time. Under current climatic conditions, the number of trees

also tends to decrease. This combination of factors leads to the gradual erosion of the genetic diversity, which lowers the ability of the Laperrine's olive tree to adapt to environmental changes and means this subspecies is potentially endangered in the long term.

**More information:** Besnard, G., Fabien, A. and Baali-Cherif, D. The Laperrine's olive tree (Oleaceae): a wild genetic resource of the cultivated olive and a model-species for studying the biogeography of the Saharan Mountains. *Acta Botanica Gallica*, 2012, 159 (3), p. 319-328. ISSN 1253-8078 [doi:10.1080/12538078.2012.724281](https://doi.org/10.1080/12538078.2012.724281)

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