

High level of diversity

There is a high level of diversity at the morphological level (tree habit, meristems wax color, flowers, leaves and fruits shapes) but also in their adaptation to highly contrasted habitats.



Keywords

Biodiversity preservation - Sustainable development -
Eco-valorisation - Education - Research



ENDEMIC COFFEES FROM MADAGASCAR

Preservation and Eco-valorisation at Kianjavato Research Station

Wild coffees (a total of 124 species) occur naturally in Africa, Indian Ocean Islands, Asia (including the Indian sub-continent) and Australasia. However, their distribution is not equal among these regions with half the species endemic to Madagascar. Natives to natural forest habitats, they were mostly collected in Madagascar between the 1950s and 1980s. They were preserved as a living field collection in the Kianjavato Research Station located ca. 600 Km southeast of the capital Antananarivo. This collection (some 170 populations corresponding to ca. 50 species) is **unique** in Madagascar as well as in the world.

After World War II, an increase in deforestation and loss of natural habitats in Madagascar resulted in the complete disappearance of many coffee populations/species. Currently, 76% of these coffee species are on the IUCN red list as critically endangered, endangered or vulnerable.

An eco-valorisation project for the Kianjavato *Coffea* field collection should contribute to safeguard these invaluable genetic resources. Such a project has two main objectives: 1) to facilitate the development of national and international research projects (biological and human sciences in their broad sense); 2) through the eco-valorisation of the whole research station, to contribute to the sustainable development of local human populations.

**The future of this collection is in great danger
of disappearance due to the lack of national and
international funds.**

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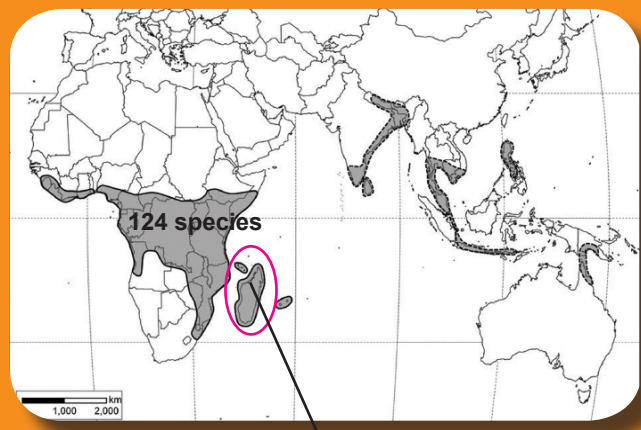
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Mascarocoffea species (all coffees native to Indian Ocean Islands) are naturally caffeine free except three species (with less than 0.8% dmb compared to 0.8 to 1.2 % for *C. arabica*) but rich in various biochemical compounds such as phenolics, terpenes etc..



Out of the 124 coffee species, 61 are natives to Madagascar distributed over all forests (dried, riverine, humid and sub-humid), mainly from western coast to southeast coast.



Kianjavato research station: a biodiversity sanctuary



The Kianjavato research station (120 ha) is located in a primary forest (S 21°22'28 E 047°52'02, and at altitudes ranging from 50 to 150 m above sea level).

The station hosts several plots : jatropha, pepper, vanilla, hybrids. But the most important area is dedicated to coffee.

The *Coffea* collection is established in an area of 30 ha. It includes a total of 3,700 trees from 170 populations, of which 150 correspond to 48 species; all endemic to dried or humid forests from the Northwest to Southeast.

Possible actions

Long term preservation of these species should be possible through a project of eco-valorisation of the whole research station involving local human populations.

Safeguarding the Kianjavato *Coffea* Collection

It requires:

- the rejuvenation of the collection from cuttings or seedlings once the integrity of the species / population is verified.
- the duplication of the collection to assure the preservation of the species from different calamities such as fires, cyclones...
- the cleaning of the plots.



For all plants, a nursery (about 3,000 m²) is available for maintenance and rejuvenation, nearby the coffees collection plots.



Eco-valorisation at the Kianjavato Research Station around *Coffea*

Houses and buildings are present in the station. It is possible to renovate and transform them both for scientists, scholars and/or visitors specific uses. A central building of ca. 1800 m² can host spaces for pedagogic, handicraft and restaurant areas. Another building of ca. 120 m² can host lecture rooms for scholars and offices for scientists. At this time, the FOFIFA (National Research Center Applied to Rural Development) cannot support by itself the *Coffea* collection because the lack of national and international funds.



The forest is now a sanctuary for coffee genetic resources but also for other species such as lemurs, bats, chameleons, frogs, all mostly endemics in this area.

Hence, it is urgent to get money dedicated to these operations.

