# Study of the climate adaptation of wild coffee (Coffea canephora)

## OBJECTIFS

We propose to conduct a detailed analysis of the relationship between climate change and C. canephora genetic variation at the level of both genome and drought-tolerance candidate genes, using the geographic distribution of wild C. canephora African populations with contrasted habitats.

The aim of this project is to training a Brazilian Ph.D. student in bioinformatics and landscape genomics in a collaborative network.

## ACTIONS

The objectives are to better understand the genetic and biological basis of coffee drought tolerance in C. canephora and to characterize the underlying diversity both in cultivated and natural germplasm (wild populations).

We will conduct a detailed analysis of the relationship between climate change and C. canephora genetic variation in its wild and natural environment.

The first part of the work will be to train Sinara Oliveira de Aquino to the bioinformatics management of NGS (resequencing) data and the use of R Programming (for statistical analysis). She will follow the training sessions proposed by the i-trop platform at IRD.

Then, Sinara Oliveira de Aquino will analyze climatic data (downloaded from public platforms) in both present and future environment.

Finally, based on a robust statistical approach, we propose to assess relationships between genomic and climate data to provide a comprehensive map of selection signals in the genome.

A manuscript will be initiated to publish the main results.

## RESULTATS

Adapt-in-Wild will allow the training of a Brazilian Ph.D. student in the latest bioinformatics appoaches, climatic models and genome wide association studies (GWS). Adapt-in-Wild will strengthen the collaboration between UMRs DIADE & IPME and their Brazilian partners (EMBRAPA and UFLA).

The detection of putative adaptive regions of the genome of the present populations will help to predict their response to future environmental changes.

**Responsable :**

**Date de démarrage :** 01/06/2018
**Date de clôture :** 30/06/2019
**Montant :**