

MANGGIS

Ensuring the future of perennial crops in Southeast Asia in a context of global change : case of *Garcinia* fruit tree species.

ABSTRACT

Southeast Asian rainforests host a remarkable biodiversity. This natural heritage is seriously threatened from deforestation and climate change. To ensure that crop production meets future needs, genetic diversity (the source of adaptation and improvement) needs to be conserved in cultivated and in close wild relative species. Yet, determining wild ancestors of perennial crops is very complex. For a large number of cultivated plants, we still do not know their origin or cultivation history. These elements are fundamental to establish strategies of conservation, sustainable management and use (CSM&U) of perennial crops, and thus to ensure their contribution to food and nutrition security.

Year : 2018

Project number : 1803-002

Type of funding : AAP

Project type : AAP ASE

Research units in the network : DIADE

Start date : 2019-09-01

End date : 2022-11-30

Flagship project : no

Project leader : Jérôme Duminil

Project leader's institution : IRD

Project leader's RU : DIADE

Budget allocated : 21555 €

Total budget allocated (including co-financing) : 58977 €

Funding : Labex

GOAL

MANNGIS will focus on a key perennial crop, the mangosteen (*Garcinia mangostana*; Clusiaceae), as one of the most desirable tropical fruits of the region. Mangosteen's place of origin and cultivation history remain unknown, but it is believed to have originated from a wild relative species in the Malay archipelago. *Garcinia malaccensis* and *G. hombroniana* are often cited as candidates, although this needs to be verified.

ACTION

In order to better understand the origin, cultivation history and future evolution of mangosteen, MANNGIS will tackle the following objectives:

Delimitation of *G. mangostana* / *G. malaccensis* / *G. hombroniana* using a joint botanical/population genetics approach

Relying on this species delimitation study, characterize the genetic diversity of the species at the regional level

Develop species niche models, and map genetic diversity of the species in the future under different scenarios of climate change

RESULTS

MANNGIS will allow:

unravelling the respective status of these species, as well as the cultivation history of mangosteen
identifying zones of high or particular genetic diversity to be conserved
contributing to the establishment of CSM&U strategies

PERSPECTIVES

A number of wild *Garcinia* species are still neglected (and threatened by deforestation), yet they can contribute to diversity in markets and to diets. These species need to be characterized (diversity, distribution, threats, nutrition, agronomic and economic potential, etc), and MANNGIS will provide a methodological framework to be replicated