

GOJINOV

Goji: Novel prospects for enhancing quality and sustainability of fruit production through GxExM interactions

ABSTRACT

Goji berries are traditionally eaten in Asia for their high nutritional value. Goji consumption is increasingly growing worldwide. However, the physiological and genetic determinisms of the organoleptic and nutritional quality of goji berries remain unexplored.

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Project number : 1605-015

Type of funding : AAP OS

Project type : AAP

Research units in the network : LEPSE QUALISUD

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Flagship project : no

Project leader : Anne-Laure Fanciullino

Project leader's institution : INRA-INRAE

Project leader's RU : PSH

Budget allocated : 20000 €

Total budget allocated (including co-financing) : 20000 €

Funding : Labex

GOAL

The overall objective of GOJINOV is to characterize the physiology of goji plants subjected to contrasting watering regimes and pruning practices. The experiments will be performed on novel goji varieties and goji x tomato hybrids. We aim at gaining basic knowledge on this innovative genetic material to support the development and strengthening of a production sector for goji in Mediterranean regions where climate seems to be appropriate for *Lycium* cultivation. We also aim at providing comparative insight for increasing fruit quality and adaptation to drought of tomato species.

ACTION

Determine the physiological grounds of goji responses to soil water deficit on six accessions (new varieties, interspecific and intergeneric hybrids) : phenology, shoot physiology and berry quality traits (metabolomics) will be monitored.

Assess the variations in yield and quality of goji subjected to contrasting pruning regimes : the dynamics of yield components and berry quality will be assessed.

RESULTS

The scientific outputs of this project will be :

A framework that accounts for goji phenology, and a proper developmental characterization in different GxExM conditions ;

An enhanced knowledge of goji responses to drought stress, including a classification of its behaviour as regards isohydric or anisohydric strategy ;

A reference dataset for goji berry size and metabolite content as affected by the variety, watering regime

and pruning system ;

A better understanding of the build-up of major fruit quality traits such as size, sweetness, acidity, and macro and micronutrient composition ;

A comparison of key biosynthetic steps among genera of the Solanaceae family.

PERSPECTIVES

GOJINOV investigate how genetic, environmental and management factors affect the metabolic content of goji berries, with the aim of identifying major levers to accelerate breeding and optimize practices. Our work will promote the availability of fresh and local fruits with enhanced nutritional and organoleptic values, thereby contributing to secure food content in metabolites of interest.