HORIZON 2020

Role of bacterial cellulases in the transition from free living to root endophytes in rapeseed crops and in the design of efficient biofertilizers

Fact Sheet

Project Information

BIOFERTICELLULASER

Grant agreement ID: 750795

DOI
10.3030/750795

Project closed

EC signature date
22 February 2017

Start date
1 June 2017

End date
31 May 2019

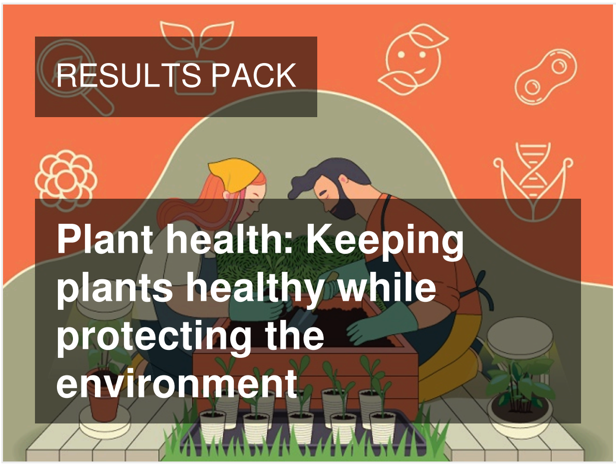
Funded under
EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions

Total cost
€ 170 121,60

EU contribution
€ 170 121,60

Coordinated by
UNIVERSIDAD DE SALAMANCA
Spain

This project is featured in...



18 May 2021

4 February 2020

Objective

One of the main challenges for humanity during next decades will be to increase food production while using scarce resources and protecting the environment, being therefore one of the priorities of the European Program “Horizon 2020”. Plant’s productivity can be enhanced by the activity of Plant Growth-Promoting (PGP) bacteria, applied in agricultural fields as biofertilizers or plant probiotics, constituting an environmental friendly manner to increase crop yields. Biofertilizers have been applied in agriculture during decades, but in many cases bacteria which showed great PGP potential in lab conditions, fail when applied in natural soils, probably because they are out-competed by the soil native microbial populations or they are unable to adapt to the new environmental conditions.
Based on the model Rhizobium-clover, it is known that bacterial cellulases are crucial in the bacterial entrance into the root. Nevertheless, the implication of these enzymes in the active entrance of bacterial endophytes in non-legume crops has not been studied yet. This project aims to research, using a trascriptomic approach and endophytes mutant strains isolation, the role of cellulases in the capability of endophytes to enter non-legume plant roots, using rapeseed (B. napus) as model plant. If cellulase encoding genes enable active root infection, giving an advantage over passive mechanisms, selection of bacterial strains not only on the base of their PGP capacity, but also on their ability to enter the plant -where they have less competitors and are protected from abiotic stresses-, will allow the design of more

efficient bacterial biofertilizers. The ultimate goal of this project is to lay the firm foundations for the development of biological microbial-based fertilizers which shall allow the reduction or even suppression of chemical fertilizers (dangerous for human health and environment and contributing to the climate change) while maintaining or increasing crops production.

Fields of science (EuroSciVoc)

natural sciences > biological sciences > microbiology > **bacteriology**

social sciences > economics and business > economics > production economics > **productivity**

agricultural sciences > agriculture, forestry, and fisheries > **agriculture**

natural sciences > earth and related environmental sciences > atmospheric sciences > climatology > **climatic changes**

natural sciences > biological sciences > biochemistry > biomolecules > proteins > **enzymes**

Programme(s)

H2020-EU.1.3. - EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions MAIN PROGRAMME

H2020-EU.1.3.2. - Nurturing excellence by means of cross-border and cross-sector mobility

Topic(s)

MSCA-IF-2016 - Individual Fellowships

Call for proposal

H2020-MSCA-IF-2016

See other projects for this call

Funding Scheme

MSCA-IF-EF-ST - Standard EF

Coordinator

UNIVERSIDAD DE SALAMANCA

Net EU contribution

€ 170 121,60

Total cost

€ 170 121,60

Address

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37008 Salamanca
Spain

Region

Centro (ES) > Castilla y León > Salamanca

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Last update: 16 August 2022

Permalink: https://cordis.europa.eu/project/id/750795