

REDUCING BIOPROCESS OF CADMIUM SOLUBILITY RHIZOSPHERIC

ECUADOR / ARGENTINA / SPAIN



Webstory



The technological solution

To generate a bioprocess based on a fungal consortium that will reduce the Cd content in cocoa beans



Description

The bioprocess will involve: (a) the isolation of a consortium of soil fungi native to cocoa plantations that have the ability to decrease aerial and root Cd bioaccumulation (CB_{r,a}) coefficients ; (b) the assessment of the effectiveness of the bioprocess in bioreactors and (c) the elevation of cocoa FF to Technology Readiness Levels (TRL) 6 and 7.



Results

- 1- A database was obtained with 445 beneficiaries in Level 1 and 25 beneficiaries in Level 2
- 2- 8 bioreactors were built
- 3- 4 selected contaminated soils were selected
- 4- We have obtained 35 colonies of fungi and selected the fungus *Phanerochaete chrysosporium* as tolerant to very high concentrations of Cl₂Cd (5,000 ppm).
- 5- We found 1 mycorrhizal strain from the Bank of Glomeromycota in vitro (BGIV) identified as Cd hyperaccumulator
- 6- We carry out the validation in bioreactors of 1 mycorrhizal symbiosis with *Baccharis salicifolia* with very high bioextractive power of Cd
- 7- 1 doctoral thesis defended
- 8- 1 doctoral thesis in progress
- 9- 1 degree thesis defended
- 10- 2 undergraduate theses in progress
- 11- Presentations at congresses and in scientific journals

+6000

Women benefited from the initiative

2

Technological solution

+5

Graduate and postgraduate theses defended and in progress

15

Publications

7

Networks

PARTICIPATING ORGANIZATIONS



ABOUT FONTAGRO

FONTAGRO is a unique cooperation mechanism for agricultural innovation in Latin America and the Caribbean (ALC) and Spain, that works through regional platforms. It is composed of 15 countries that have contributed capital exceeding 100 million dollars and the Inter-American Development Bank (IDB), which is its legal representative.

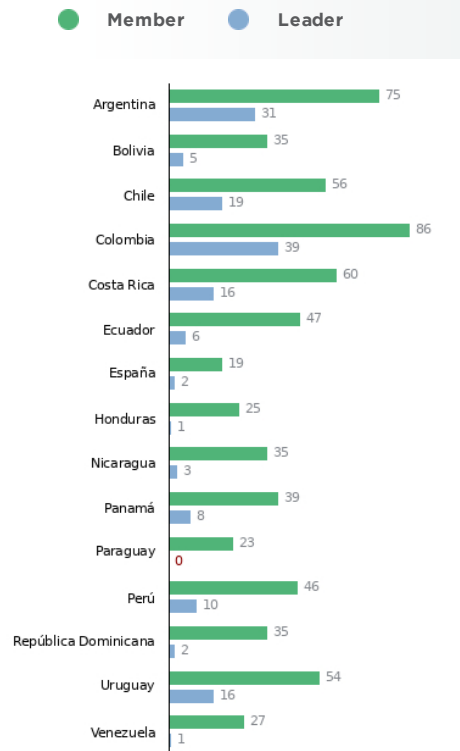


ORIGIN OF RESOURCES



- **Counterpart contribution**
93.177.555
- **FONTAGRO**
28.989.468
- **IDB**
9.922.700
- **Other agencies**
9.809.078

PARTICIPATION AND ROLE IN CONSORTIUMS SINCE 1998



FONTAGRO IN NUMBERS

193 Number of projects approved

141.9 Approved total amount US\$
MILLONES

9.8 Contribution from other agencies
MILLONES

32 Benefited countries

63 Generated technologies

15 New technologies for ALC

8 Technology of global relevance

MEMBER COUNTRIES

- | | | | |
|------------|--------------------|-----------|----------|
| Argentina | Bolivia | Chile | Colombia |
| Costa Rica | Dominican Republic | Ecuador | Honduras |
| Nicaragua | Panama | Paraguay | Peru |
| Spain | Uruguay | Venezuela | |