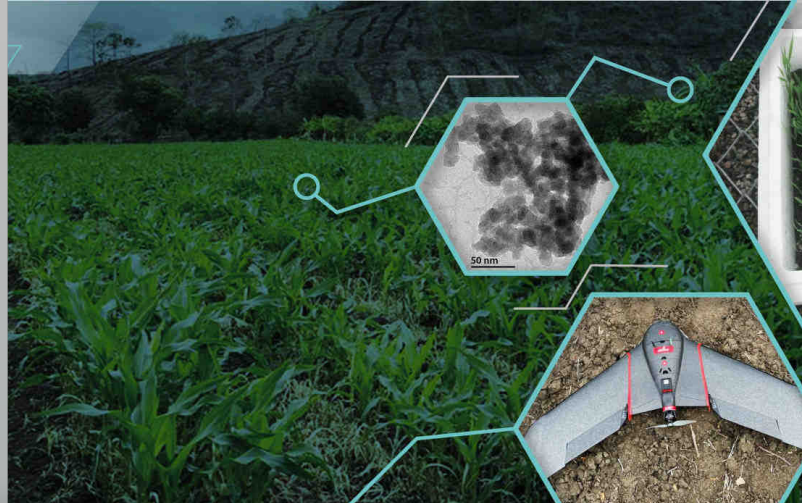


Nanofertilizers in the soil and nitrous oxide emissions

COLOMBIA, ECUADOR



Webstory



Technological solution

Synthesize and characterize titanium dioxide, zinc oxide, and zeolite nano-fertilizers to evaluate their effect on fertilization, nutrient use, and nitrous oxide emissions.



Technological description

Nanotechnology research applied to sustainable agribusiness. Nanofertilizers will be synthesized and characterized. Ecotoxicological bioassays and greenhouse and field studies will be carried out to determine edaphic characteristics, biomass, the spectral response of crops and GHG emissions. This project will create a spin-off.



Impacts and results

The project synthesised and characterised titanium dioxide, zinc oxide and zeolite nanofertilizers, documenting particle size through images and histograms, X-ray diffractograms and XPS spectra. Their environmental impact on a terrestrial organism was categorised under laboratory conditions using the mean effective concentration (EC50), and the project assessed the increase in plant nutrient uptake and nutrient use efficiency, the effect on the soil's physical, chemical and biological characteristics, the increase in biomass production and crop nutritional quality, and nitrous oxide and soil carbon dioxide emissions in experiments with and without nanofertilizer application. The findings were published in two scientific papers.



16

Presentations and publications



15

research work



1

Proposal for the creation of the Spin-Off.



529

Trained producers



23

Trained students



10

technical support



3

Photogrammetric flights



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Dissemination Activities

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