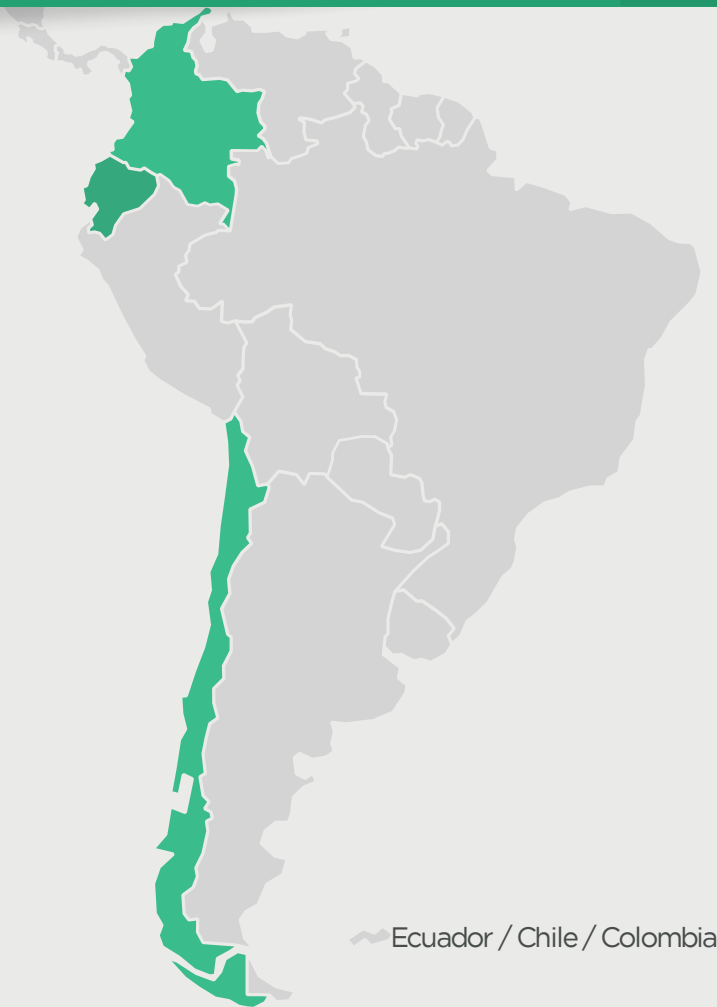


Safe fruits for a healthy and secure life

The application of multifunctional metabolites produced by microorganisms and natural compounds, both GRAS (generally safe), will ensure that consumers have access safe and high-quality foods.



Ecuador / Chile / Colombia



Bio-protectors for postharvest preservation

The implemented initiative

Improve the safety and nutritional quality of small fruits postharvest through the formulation and application of Multifunctional Bio-protectors (MBs). Three prototypes of MBs with antimicrobial-antifungal-antioxidant capacity will be selected in vitro. The aim is to increase safety by up to 50% and determine the effect on the

functional properties of fruits after the use of MBs. A technical-economic feasibility study of the generated MBs will be carried out. Finally, knowledge management, transfer and communication of the results obtained will be carried out.

Safe fruits for our market

The technological solution

Multifunctional Bio-protectors (MBs) will become a commercial product to improve the food safety of postharvest fruits through natural conservation from farms to the consumer, and it will be a solution to

mitigate potential losses due to pathogen contamination and reduce the risk of diseases transmitted by the consumption of contaminated food.

DEVELOPMENT OF NOVEL MULTIFUNCTIONAL BIO-PROTECTORS FOR FRUIT SAFETY POSTHARVEST

Recent advancements in biotechnology have focused on developing sustainable and natural bio-protectors to enhance the perishable fruit's shelf life and safety.

An enthusiastic team of researchers from Universidad Técnica del Norte (UTN-Ecuador), Universidad de Antioquia (UdeA-Colombia), and Universidad de Talca (UT-Chile) with financial support of FONTAGRO (BID) are developing bio-protectors based on bioactive molecules from probiotic bacteria, natural products, and plant hormones as an eco-friendly alternative to chemical preservatives, aligning with the growing demand for clean-label products.

The project led by Prof. Dr. Gabriela N. Tenesa, UTN-Ecuador, in collaboration with Prof. Dr. Miguel-Angel Puentes-UdeA, and Prof. Dr. Carlos R. Figueroa-UT, and the associated organizations "Terrafert S.A." from Ecuador and "Frutimar A.G." and "S.A.T. Frutillas Chanco-Pelluhue" from Chile, will test the novel bio-protectors in cape gooseberries (*Physalis peruviana*) and strawberries (*Fragaria x ananassa*).

This coating creates a thin barrier that prevents the attachment and proliferation of harmful microorganisms, while preserving the fruit's sensory and healthy qualities. The benefits of these multifunctional bio-protectors include:

- Increased food safety by minimizing pathogen contamination.
- Extended shelf life by slowing down microbial spoilage.
- Reduction in post-harvest losses, especially during storage and transport.
- Increased health-promoting components in food.
- Natural and biodegradable alternative to synthetic chemicals.

With consumer interest in sustainable agriculture and natural preservation methods, this initiative could become a key innovation in fruit preservation strategies, supporting both environmental goals and food security initiatives.

Logos: UTN, FONTAGRO, UdeA, TALCA

MÁS INFO



Results

Prototypes of Multifunctional Bio-protectors for postharvest conservation

