



## 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



**+8**  
Multifunctional bioprotectors produced



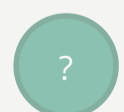
**~50 %**  
BM increased microbiological safety



**+4**  
Workshops



**700 personas**  
Producers trained



**2 unidad**  
Chemical profiles



**+5 %**  
Antioxidantes capacity in fruits

### Bio-protectors for postharvest preservation

## Initiative

The project focuses on developing, validating, and establishing a prototype of multifunctional bioprotectants for postharvest fruit preservation. It aims to formulate natural solutions based on microbial metabolites and natural compounds with antifungal, antibacterial, and antioxidant

activity. The initiative seeks to reduce losses due to spoilage, improve safety, and extend shelf life without affecting the sensory quality of the fruits. It also includes experimental validation, stability evaluation, and feasibility analysis for future agro-industrial application.

### Safe fruits for our market

## Tech solution

The solution consists of natural bioprotectors formulated from metabolites produced by beneficial microorganisms and bioactive compounds of natural origin. These agents exhibit antifungal, antibacterial, and antioxidant activity, enabling the control of pathogens responsible for postharvest spoilage.

The treatment is applied through simple and scalable methods such as

immersion or spraying, facilitating integration into existing agro-industrial processes. The technology reduces the use of synthetic preservatives, generates no chemical residues, and maintains quality attributes such as color, firmness, and nutritional value. Additionally, it responds to market demand for safer and more sustainable foods.

MORE INFO



## Impacts and Results

Multifunctional bioprotectants were developed for postharvest fruit preservation, formulated from microbial metabolites and bioactive compounds with antifungal, antibacterial, and antioxidant activity. Experimental trials conducted in Ecuador (UTN), Chile (UT), and Colombia (UdeA) demonstrated a significant reduction in microbial load and infection severity, both under ambient storage and refrigeration conditions.

An extension of shelf life was observed, along with lower biomass loss and the maintenance of commercial attributes such as color, firmness, and sweetness. No significant changes were recorded in nutritional parameters such as vitamin C and acidity; in some cases, an increase in antioxidant capacity was even observed. These results confirm the scientific and technical feasibility of the solution and support its potential for scaling up and transfer to the regional productive sector.