



Advancement towards cutting-edge agriculture

In a global context, one of the distinguishing characteristics of Chile is its agriculture. In fact, according to ODEPA (Office of Agricultural Studies and Policies of the Ministry of Agriculture), Chile has more than 300 thousand hectares planted with fruit species and is the regional leader in the production and exportation of products such as the table grape, blueberries, nectarines, and apples.

While fruit and vegetable production represent one of the most important sources of income for the country, there is a need to develop technologies and strategies for optimizing harvests, preventing reductions in production, and for achieving competitive pricing against agricultural leaders and upcoming countries new to the market.

It is in this context that Dr. María Francisca Blanco, investigator for the Center of Plant Biotechnology of the Faculty of Biological Sciences at the Universidad Andrés Bello, is leading an investigation to identify the molecular aspects that participate in pathogen-plant interactions.

Dr. Blanco explains that, “the central purpose of this work is to determine the defense mechanisms that plants develop when faced with the stress caused by organisms such as bacteria, fungi, and insects.”

According to Dr. María Francisca Blanco, this research, financed through Fondecyt, will facilitate the use of plant-pathogen interaction models. Specifically, these models will provide better information on the realities of national agriculture, which, in turn, can be applied to achieve optimal agricultural strategies for the elimination of diseases and infections. For this, the project contemplates the identification and analysis of defense-related signaling pathways triggered in plants when a negative, external stimulus is recognized.

“Over the last three years, we have been able to identify some mechanisms through which plants regulate the defense response. In other words, our advances have led us to determine the control points through which a plant decides how to respond to stressful environmental factors,” adds Dr. Blanco.

Finally, Dr. Blanco explains that through molecular findings, particularly in regards to central regulator proteins, it is possible to determine if a plant will be able to establish a final defense response, in addition to defining the effector proteins that will be used to orchestrate a response to biotic and abiotic stressors.

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