UNIVERSIDAD DE LA FRONTERA

Facultad de Ingeniería y Ciencias

Doctorado en Ciencias de Recursos Naturales

EFFECTS OF PROTEASES INHIBITORS ON THE DIGESTIVE SYSTEM, FEEDING AND DEVELOPMENT OF *Aegorhinus superciliosus* RASPBERRY WEEVIL (GUÉRIN-MÉNEVILLE, 1830) (COLEOPTERA: CURCULIONIDAE)

DOCTORAL THESIS IN FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE DOCTOR OF SCIENCES IN NATURAL RESOURCES

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Esta tesis fue realizada bajo la supervisión del Doctor Andrés Quiroz Cortez, perteneciente al Departamento de Ciencias Químicas y Recursos Naturales de la Universidad de La Frontera y es presentada para su revisión por los miembros de la comisión examinadora.

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Thesis summary

"This research focused on studying the digestive system of the raspberry weevil (*Aegorhinus superciliosus*) to evaluate the effects of protease inhibitors on its feeding and development. It was determined that proteases play a crucial role in food digestion in the digestive system of this insect. Specific enzymes such as trypsin and chymotrypsin were analyzed, identifying their activity characteristics and responses to different inhibitors. It was found that protease inhibitors have a significant effect on the enzymatic activity of trypsin and chymotrypsin, impacting the insect's feeding and development. Additionally, various commercial inhibitors were sprayed on the leaves of host plants, and it was observed that some of them had an antifeedant and lethal effect on adult weevils, with SBTI inhibitor being the most effective. These findings suggest that protease inhibitors could be an effective alternative for controlling *Aegorhinus superciliosus* instead of using chemical pesticides. However, further trials under field conditions would be needed to verify the feasibility of this strategy as an insecticide."