

UNIVERSIDAD DE LA FRONTERA

Facultad de Ingeniería y Ciencias

Doctorado en Ciencias de Recursos Naturales



**POTENTIAL INSECTICIDE EXTRACTS ISOLATED FROM
CESTRUM PARQUI L' HERIT (SOLANACEAE) FOR
CONTROLLING OF *HYLURGUS LIGNIPERDA*
(FABRICIUS)**

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

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ARRIAGADA

TEMUCO-CHILE

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**“POTENTIAL INSECTICIDE OBTAINED FROM EXTRACTS ISOLATED FROM
CESTRUM PARQUI L’ HERIT (SOLANACEAE) FOR CONTROLLING OF
HYLURGUS LIGNIPERDA (FABRICIUS)”**

Esta tesis fue realizada bajo la supervisión del director de Tesis Dr. ANDRES EDUARDO 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

"The increase in international trade of forest products has introduced exotic bark beetles into forests, causing significant damage. In Chile, the golden-haired bark beetle has affected radiata pine plantations since the 1980s. The use of the pesticide methyl bromide for fumigation is being phased out due to its ozone-depleting impact. Therefore, researching safe and effective pest control alternatives is essential. The thesis focused on studying the pesticidal activity of extracts from *C. parqui* using different solvents, aiming to find sustainable solutions for pest control. The study investigated how the chloroform fraction of the ethanol extract from *C. parqui* leaves affects feeding deterrence activity at a concentration of 0.6%. The F4 subfraction, obtained with chloroform and ethyl acetate in an 80:20 ratio, exhibited the highest activity compared to the control. Compounds like pentacosane, tetracosane, and tricosane could be responsible for this activity. In summary, the F4 subfractions of the ethanol extract from *C. parqui* could be utilized to develop eco-friendly treatments for managing attacks by *H. ligniperda*."