

## ABSTRACT

### **Elicitation by Organic Compounds for Inducing Defense in *Alstroemeria* sp. against *Frankliniella occidentalis* (Pergande)**

Andrés Felipe Velasco Cárdenas<sup>1,2</sup>, Juan Sebastián León Beltrán<sup>1,2</sup>, Diego Quiroga<sup>1</sup>, Ericsson Coy-Barrera<sup>1</sup>, Daniel Rodríguez Caicedo<sup>2</sup>

<sup>1</sup>Bioorganic Chemistry Laboratory, Faculty of Basic and Applied Science, Universidad Militar Nueva Granada, Cajicá 250247, Colombia

<sup>2</sup>Biological Control Laboratory, Faculty of Basic and Applied Science, Universidad Militar Nueva Granada, Cajicá 250247, Colombia

*Frankliniella occidentalis* (Thysanoptera: Thripidae), better known as Western Flower Thrips (WFT), is a common pest affecting plant growth and reducing crop yields. They are particularly problematic in *Alstroemeria* sp. (Asparagales: Alstroemeriaceae) production in Colombia. The current management method relies heavily on the use of pesticides, which can have harmful effects on non-target organisms. Additionally, it may promote soil erosion and disrupt the functioning of the soil's biota. A novel alternative to mitigate the damage caused to plants is oriented to carry out an elicitation event for activating metabolic pathways related to defense against phytophagous through diverse physiological and biochemical mechanisms. The alstroemeria-thrips case lacks substantial information regarding effective elicitation. Consequently, we assess two organic elicitors, selected based on their well-established track record of successful elicitation against insects in other plant species. The plant response was evaluated by recording the phytochemical profiles. The first step in evaluating potential elicitors is to rule out their possible insecticidal activity. For this, we evaluate the direct effect of the compounds on the phytophagous by spraying a solution of each compound at 500 ppm with the respective adjuvants on individuals, placed on petri dishes with alstroemeria leaves as feeding. After ruling out the insecticidal effect, alstroemeria plants were elicited by spraying with two concentrations of each elicitor (150 and 300 ppm). After 24 hours, leaves were removed from the elicited plants to feed a cohort of second instar larvae of WFT for which a survival curve was performed. We aimed to better understand the efficacy and selectivity of the test elicitors, thus ensuring a targeted and environmentally friendly approach to pest management in *Alstroemeria* cultivation. This study was funded by the Vice-Rector for Research at the Universidad Militar Nueva Granada through the IMP-CIAS-3739 research project, validity 2023-2025.