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Thematic area : Phytochemistry and *in vitro* biological activity of bioactive compounds from medicinal plants. **NO. POSTER 65**

In vivo Evaluation of the Effect of Alkaloids against a Goldenberry Phytopathogen

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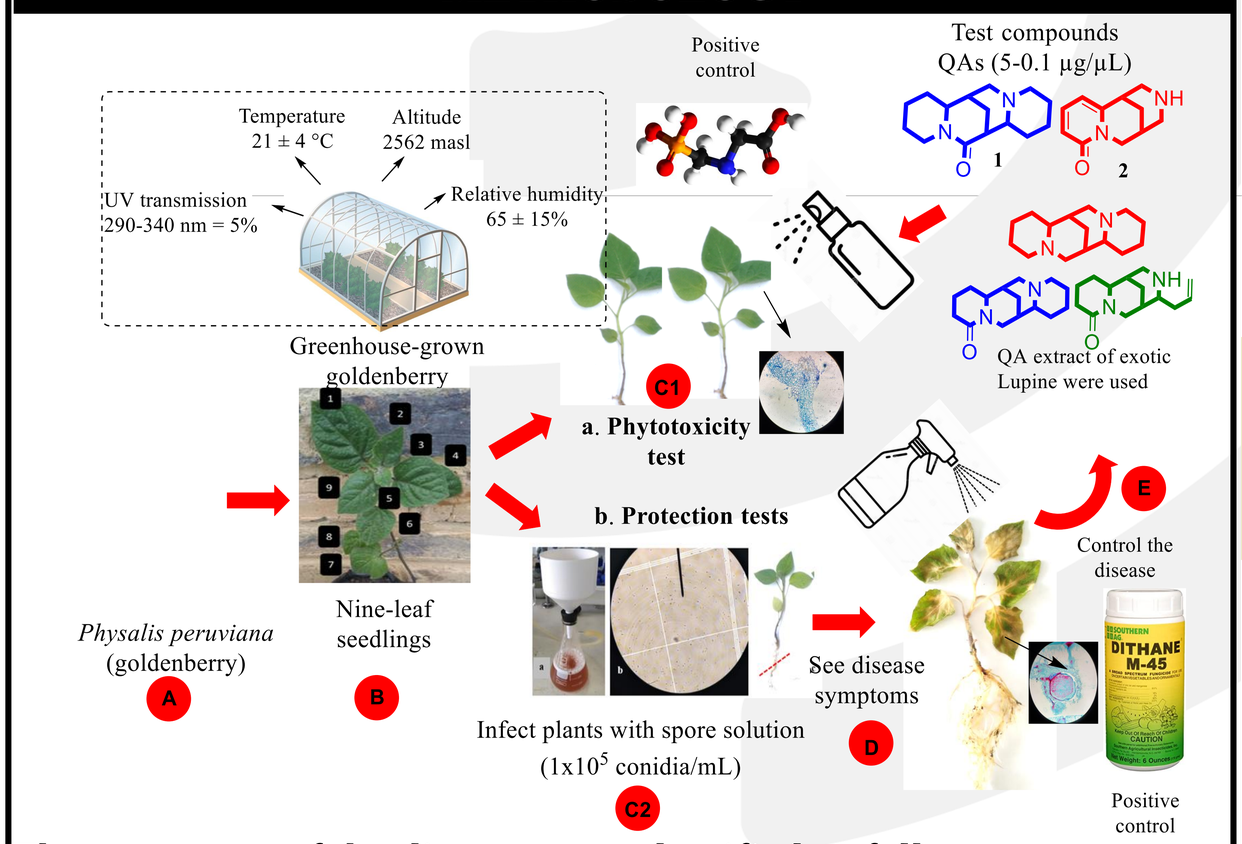
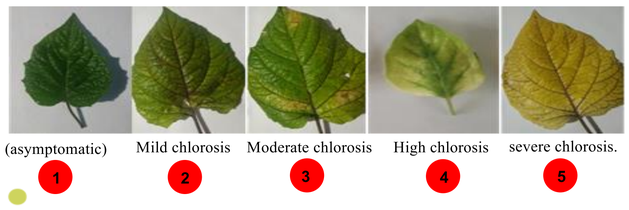
INTRODUCTION

The cultivation of goldenberry (*Physalis peruviana*) in Colombia is one of the most important and representative fruit crop. However, it suffers from various phytosanitary problems, among which is the "fusariosis" caused by *Fusarium oxysporum*. The studies for the control of this phytopathogen have been framed in the biological and chemical control, the latter one is the most used. However, the excessive application of such products leads to resistance and residual events, which makes necessary the searching for chemical substances that mitigate such situations and are friendly to the environment. One of these strategies is the use of natural plant products, such as quinolizidine alkaloids (QA), which are widely distributed in Lupine plants [**1**] and whose biological activity antecedents [**2**] have been taken into account in this work in order to propose a strategy under greenhouse conditions for the management and control of this phytopathogen on the goldenberry crop.

METHODOLOGY



The symptoms of the disease were classified as follows:



RESULTS

The treatments showed excellent results in the phytotoxicity and protection tests, very comparable to the positive control (dithane), giving indications that they are efficient substances for the management and control of *F. oxysporum* in goldenberry.

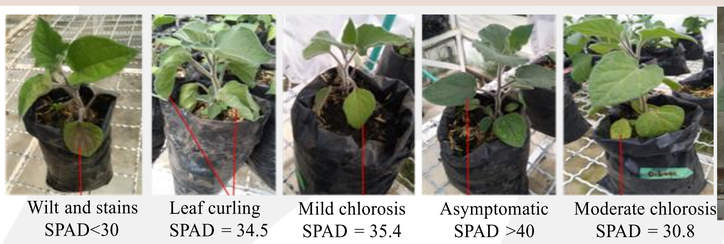


Fig 1. Early symptoms of fusariosis (10 days after infection)

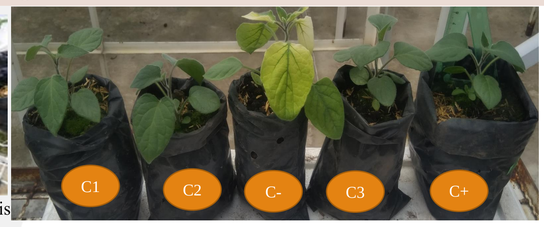


Fig 2. Treatments: **C1** (aphyline); **C2** (cytisine); **C3** (AQ Extract); **C+** (dithane) and **C-** (No treatment)

Fig 1. shows the symptoms of fusariosis and Fig 2. Shows the efficacy of the controls (C1-C3), which managed to control the symptoms of fusariosis after two fumigations at 1000 ppm every 15 days.

Important variables such as SPAD units and the porosity index showed that the treatments did not cause damage to the plant.

Fig 3. a). SPAD units (Soil Plant Analysis Development) and **b)**. Porosity index (mmol / m²s), taken from cape gooseberry plants, for the protection test against *Fol*.

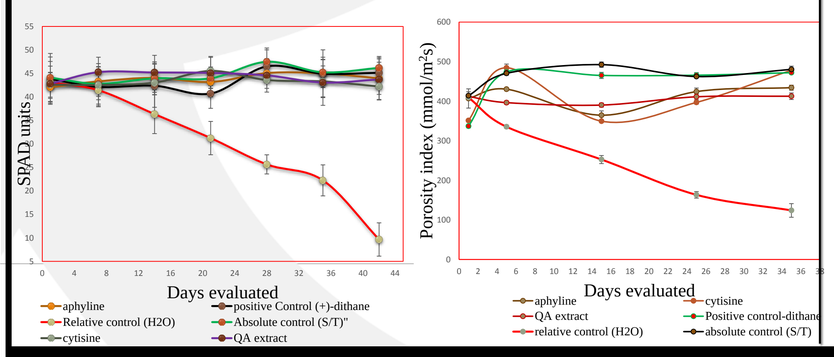
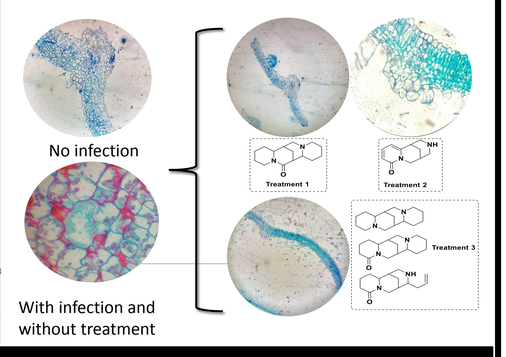


Fig 3. Leaf tissues under paraffin processing of *Physalis peruviana*



CONCLUSIONS

QA and extract protected the goldenberry plants against phytopathogen. Results described in this study are important as an alternative for the management and control of *F. oxysporum* in economically-important crops such as goldenberry under greenhouse conditions

ACKNOWLEDGEMENTS

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[2] Zamora, F, et al. (2008). Composition of alkaloids in seeds of Lupinus mexicanus (FABACEAE) and antifungal and allelopathic evaluation of the alkaloid extract. *Agrociencia*, 42(2), 185–192.