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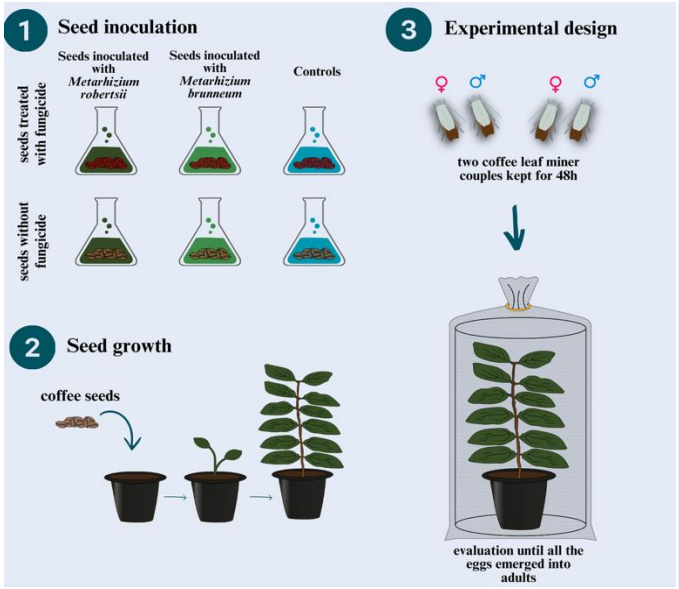
Metarhizium fungi: a sustainable option to *Leucoptera coffeella* management in coffee crops

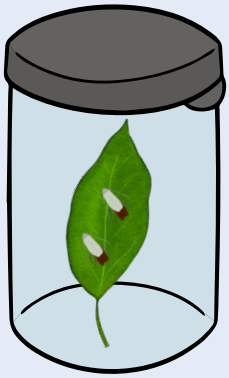
Jéssica Martins (jessica.lamartins@gmail.com), Mayara Franzin, Douglas Ferreira, Larissa Magina, Elem Martins, Laís Viana, Wânia Neves, Angelo Pallini, Fernando Valicente, Jason M. Schmidt, Simon Elliot, Madelaine Venzon

Introduction

Coffee production is one of Brazil's most important agricultural activities. However, this valuable crop is often threatened by pests, particularly *Leucoptera coffeella* (the coffee leaf miner, CLM), a major pest whose control remains challenging due to the negative impacts of chemical pesticides on both coffee quality and the environment. In this context, microorganisms could be a sustainable option to manage entomopathogenic fungi represent a promising alternative for managing CLM populations sustainability

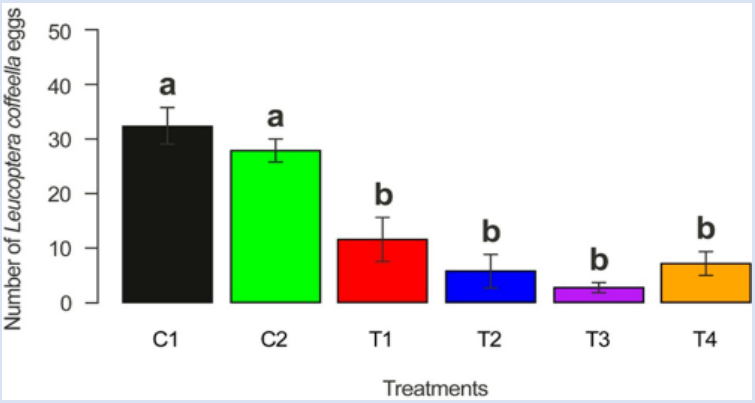
Material and Methods





Daily evaluation of the number of eggs from the second generation of insects

Figure 1: Illustration of experiment conduction and evaluation



Results/Discussion

The CLMs laid fewer eggs compared to those fed on plants without fungal inoculation, and the fungicide did not affect any of the evaluated parameters ($p<0.001$).

Figure : Number of eggs per female of *Leucoptera coffeella* that emerged from coffee seedlings grown from seeds inoculated with the treatments: C1 (untreated seeds); C2 (fungicide-treated seeds); T1 (untreated seeds plus *M. robertsii*); T2 (fungicide-treated seeds plus *M. robertsii*); T3 (untreated seeds plus *M. brunneum*); and T4 (fungicide-treated seeds plus *M. brunneum*).

Conclusion/Perspectives

Plant growth was promoted when seeds were inoculated with fungi, and the fungicide did not affect any of the evaluated parameters. Coffee seed inoculation with *M. robertsii* and *M. brunneum* appears to provide protection against CLMs and promote growth improvement.

References: Martins, J. L. A., Franzin, M. L., Ferreira, D. D. S., Magina, L. C. R., Martins, E. F., Mendonça, L. V. P., ... & Venzon, M. (2024). *Metarhizium*-inoculated coffee seeds promote plant growth and biocontrol of coffee leaf miner. Microorganisms, 12(9), 1845.