

COATING OF CHITOSAN AND OREGANO ESSENTIAL OIL (*Origanum vulgare*) AS A BIOCONTROL AGENT OF THE PHYTOPATHOGENIC FUNGUS *Penicillium brevicompactum* In CASSAVA (*Mandioca spp.*) AND YAM (*Dioscorea spp.*)

Fredy Gómez G¹, Yeimmy Peralta², Carlos David Grande Tovar³

Research group of fotoquímica y fotobiología, Universidad del Atlántico, Puerto Colombia, Colombia.

falexandergomez@mail.uniatlantico.edu.co, yeimmyperalta@mail.uniatlantico.edu.co, carlosgrande@mail.uniatlantico.edu.co

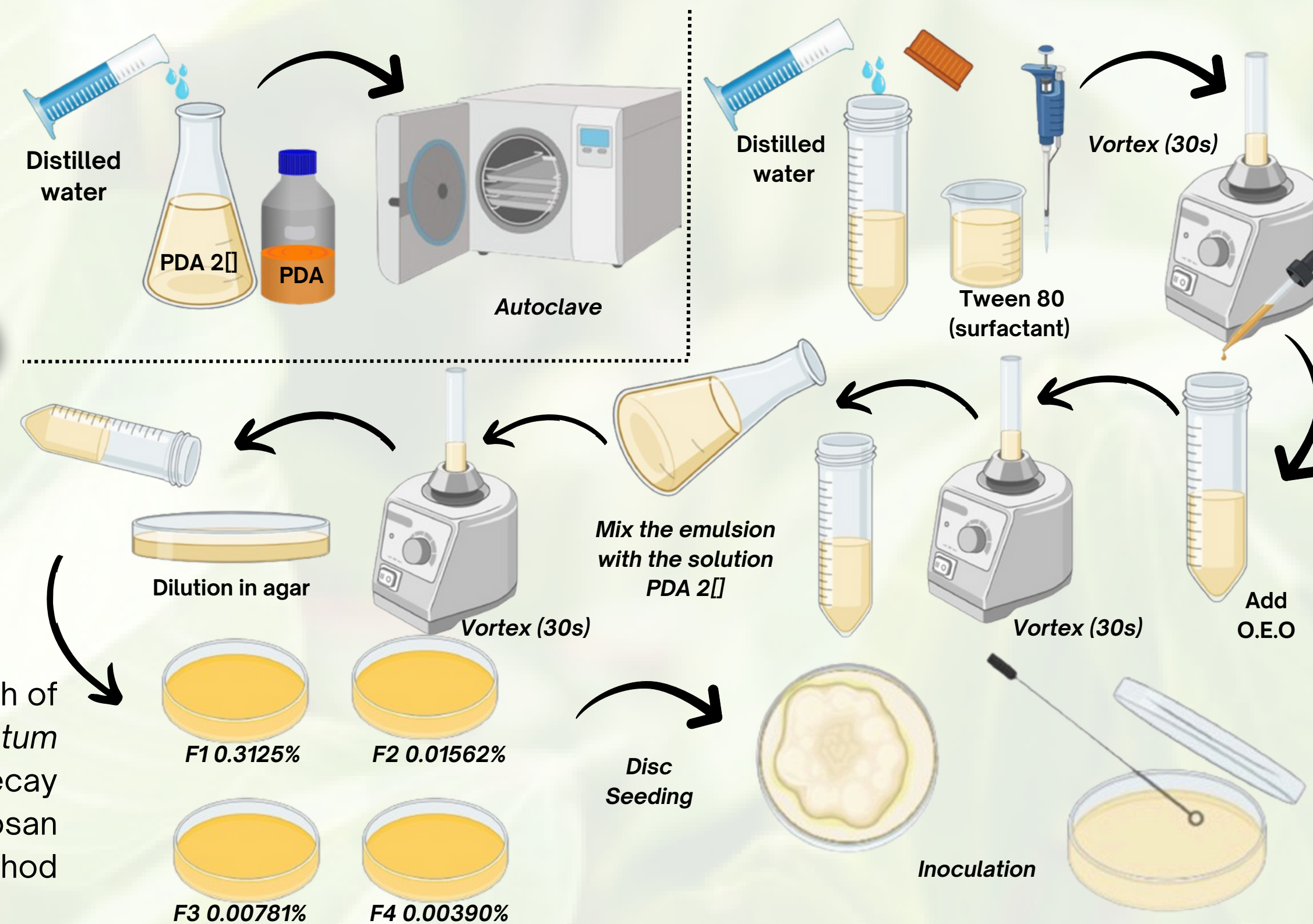
INTRODUCTION & AIM

In recent years, the production of tubers such as cassava and yam has become of fundamental importance for the food security and economy of many communities [1]. However, dry rot, caused by fungi, has become a growing problem for producers and marketers, especially in the Colombian Caribbean region. As fungi proliferate under inadequate storage conditions, the presence of mycotoxins in tubers represents a risk to both the quality of the products and the health of consumers [2].



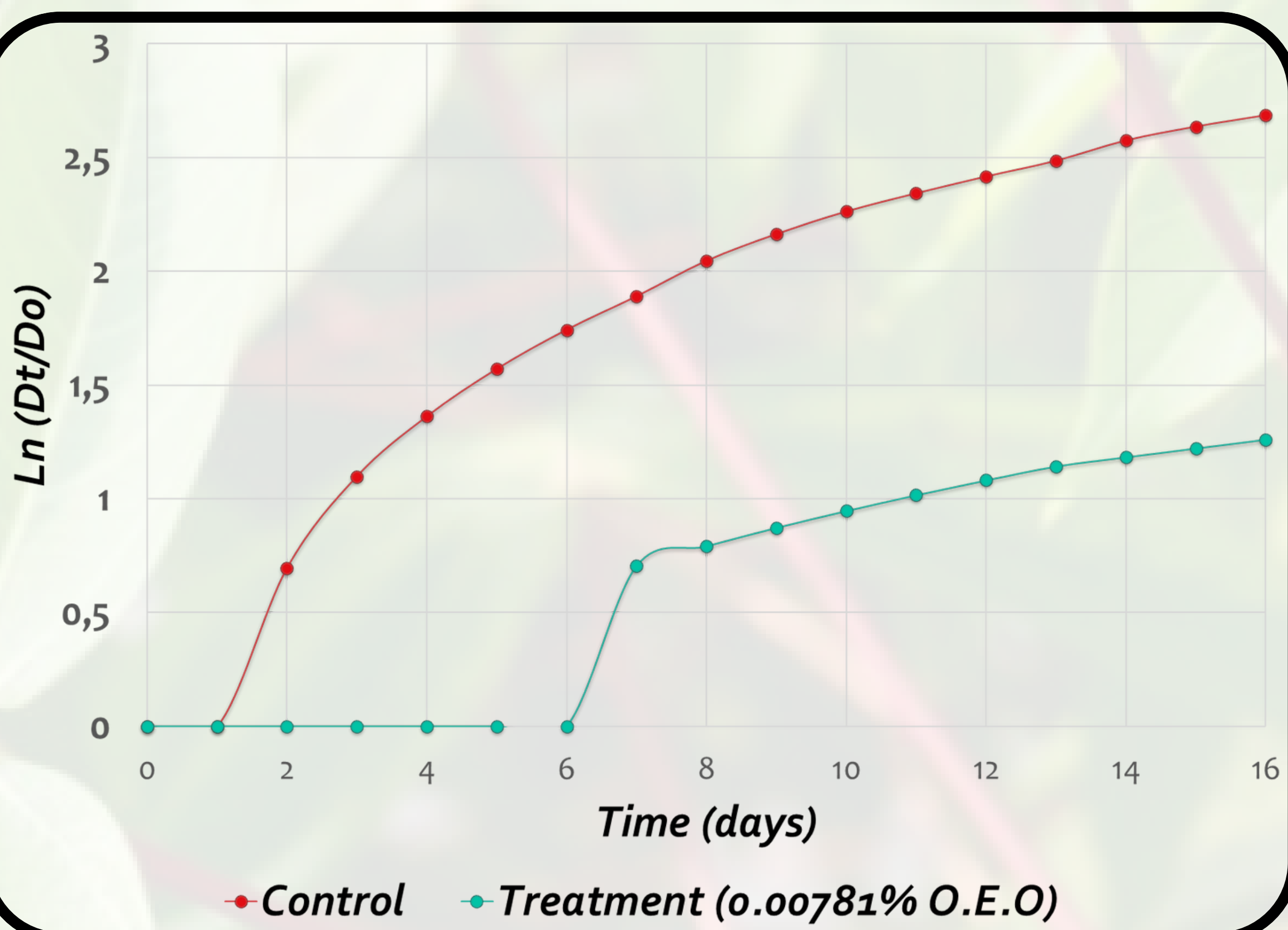
Therefore, this research focuses on evaluating the impact of oregano essential oil on the growth of the mycelium of the fungus *P. brevicompactum* through growth dynamics and reducing the decay and attack of phytopathogenic fungi using chitosan and essential oil coatings. of oregano as a method for postharvest stability of cassava and yam.

METHODOLOGY



RESULTS & DISCUSSION

Modified Gompertz model



MIC for *P. brevicompactum*

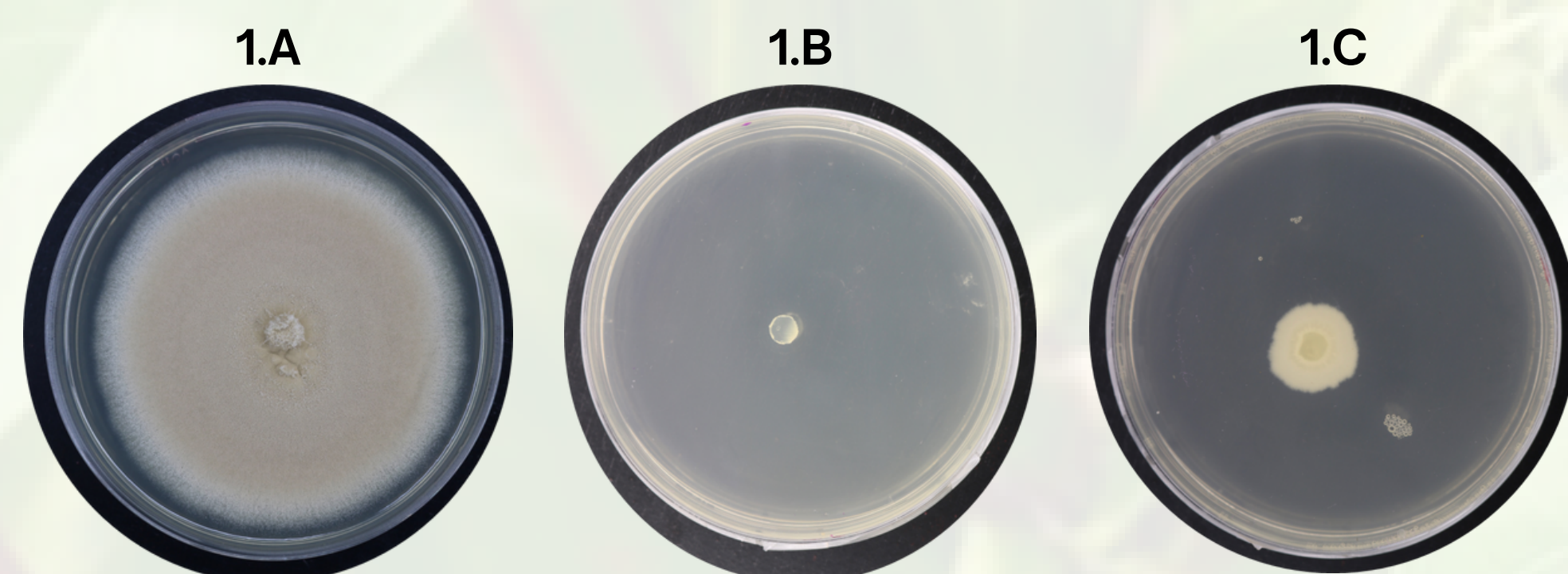
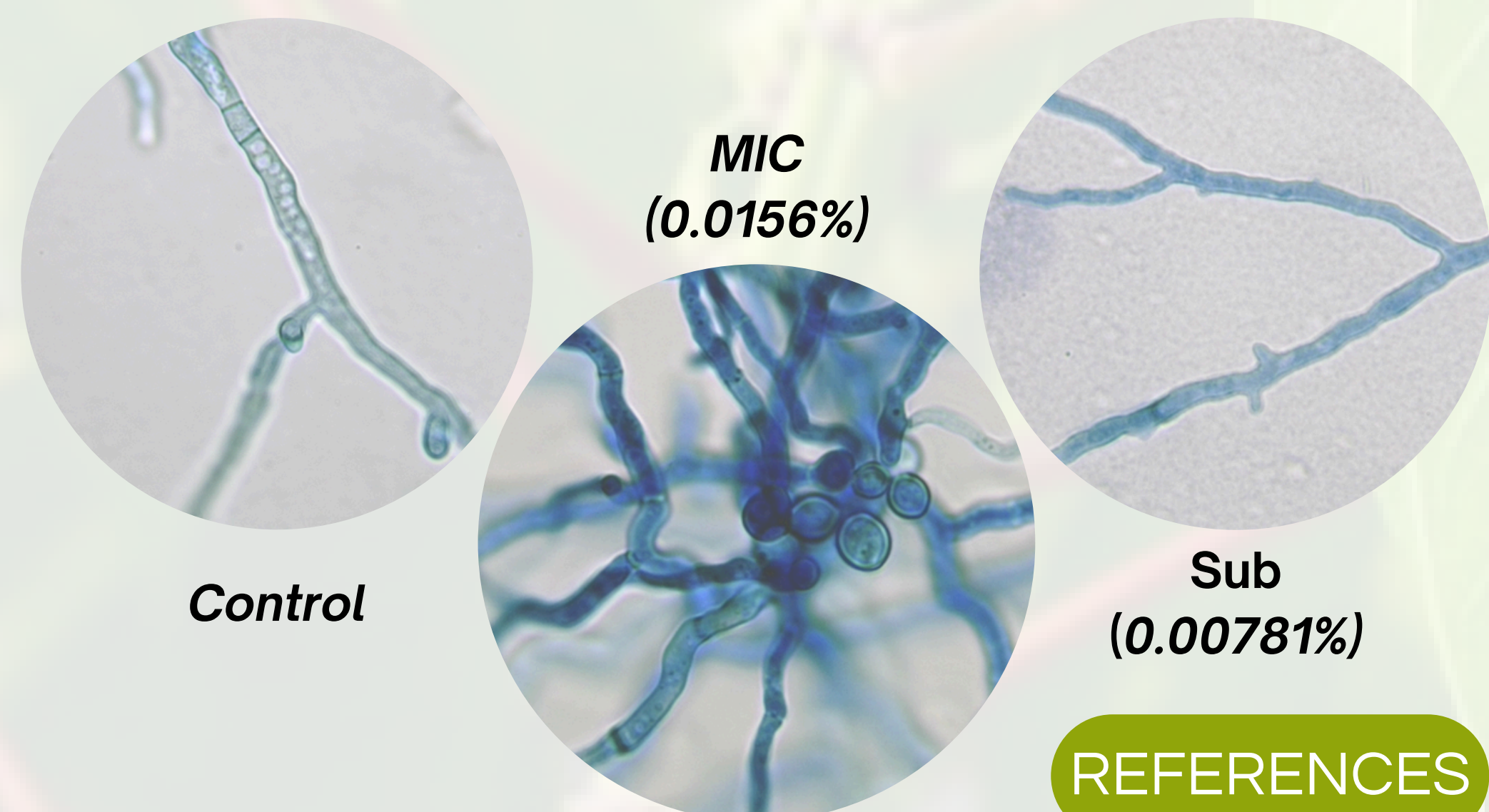


Fig 1. (A): The growth of the inoculated control in PDA agar is observed, (B): MIC at an O.E.O concentration of 0.156 μL/mL and (C): Concentration at which the fungus showed growth 0.078 μL/mL.

Effect on the cell wall for *P. brevicompactum*



Control

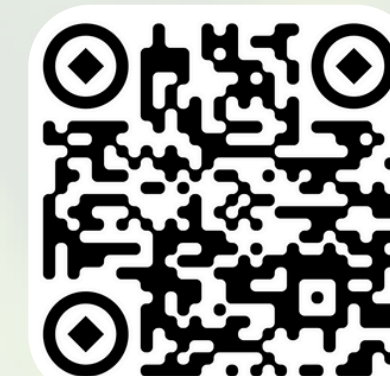
A = 2.576 ± 0.015 (cm)A
m = 0.325 ± 0.021 (1/días)A
λ = 0.209 ± 0.083 (días)A

Treatment (0.00781%) O.E.O

A = 1.032 ± 0.168 (cm)B
m = 0.498 ± 0.258 (1/días)A
λ = 5.736 ± 0.405 (días)B

CONCLUSION

REFERENCES



When evaluating the in vitro inhibitory capacity of the coating based on chitosan and O.E.O against the fungus *P. brevicompactum*, it was found that the minimum inhibitory concentration (MIC) corresponds to 0.1562 μL/mL and the sublethal concentration of OEO, resulted in an inhibition percentage of 82.5% ± 1% at a concentration of 0.0781 μL/mL demonstrating that there was a decrease in the growth of the microorganism. The hypothesis test performed on the kinetic analysis parameters for the growth of the fungus from the modified Gompertz model showed a significant difference within the 95% confidence interval.