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Introduction

Opportunistic fungal diseases have increased considerably around the world, the most prevalent fungus in opportunistic fungal diseases today is *Candida albicans*. Currently, antifungals have kept this type of disease under control, however, the presence of resistant fungi has been displacing these antifungals creating the need to seek new alternatives, including natural ones.

Objective

To evaluate the antifungal activity of ethanolic extracts of fresh and dried aerial part of Thyme (*Thymus vulgaris* L.) and fresh and dried leaves of Almond (*Terminalia catappa* L.) against *Candida albicans* strains ATCC 24433 and 14053.

Materials and methods

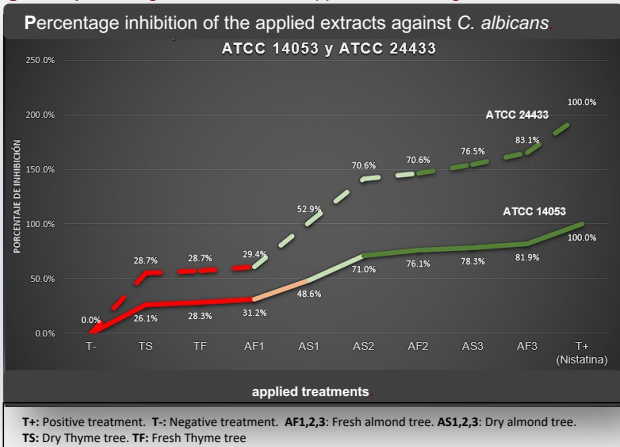
A total of 20 experimental units were used, with 5 replications per treatment group. Fresh Thyme extract: 125 g/500 mL. Fresh Almond extracts: 10 g/90 mL, 20 g/80 mL, and 30 g/70 mL. Dried Thyme extract: 125 g/500 mL. Dried Almond extracts: 10 g/90 mL, 20 g/80 mL, and 30 g/70 mL. Positive control: Nystatin at a concentration of 100,000 U/mL. Negative control: 0.9% saline solution.

Calculation of inhibition percentage with the formula proposed by Vázquez et al. in 2021

$$\text{percentage inhibition} = \frac{\text{sample diameter} - \text{control positive diameter}}{\text{control positive diameter}} \times 100$$

Results

Figure 1. percentage inhibition of the applied extracts against *C. albicans*.



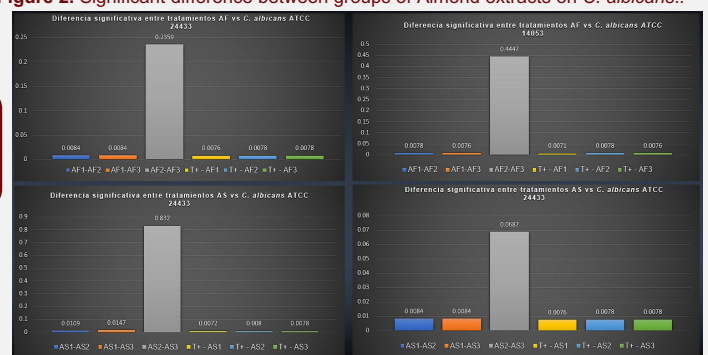
It was determined that the extract with the highest percentage of inhibition was AF3 with 83% in *C. albicans* ATCC 24433 and 81.9% in *C. albicans* strain ATCC 14053.

The AS1 treatments in both strains are considered not very active while the AS2 treatments were moderately active.

Treatments: AS1, AS2, AF2, AS3, AF3 had good activity in both strains.

Thyme extracts did have inhibition but were inactive.

Figure 2. Significant difference between groups of Almond extracts on *C. albicans*.



Among the groups of extracts with fresh (AS1, AS2 and AS3) and dry plant matter of the Almond tree (AF1, AF2 and AF3) there was a significant difference between all except between treatments AF2 and AF3.

This indicates that there is an increase in antifungal activity depending on the concentration used in both strains.

Discussion

The results obtained in the application of ethanolic extracts of Almond tree, in general, good activity was demonstrated against ATCC 24433 and 14053 of *C. albicans*. On the contrary, the ethanolic extracts of thyme were inactive.

Comparing the treatment groups in general (AF and AS), all registered p-values of less than 0.05, which indicates that there is a significant difference between the different treatments. For the above mentioned, a confidence interval of 95% is established to affirm the hypothesis.

Conclusion

Almond fresh (AF3) and dry (AS2 and AS3) concentrations were the most effective, having good inhibitory activity against ATCC 14053 and 24433 strains compared to Nystatin.

Based on the results, we can assert that in the ongoing search for alternatives to treat fungal infections, plants such as Almond and Thyme, which exhibit antifungal activity, stand out as a natural option to combat such infections.