

Abstract

In this research project, our team compared over-the-counter and holistic treatments to determine which are more effective for treating yeast infections. We hypothesized that over-the-counter (OTC) treatments would exhibit a higher zone of inhibition against the yeast. Our data indicated that OTC treatments were more effective than holistic treatments. This topic is important as it helps individuals choose the best treatments for yeast infections, potentially reducing the duration and severity of symptoms.

Introduction

Yeast infections, commonly caused by *Candida* species, present a persistent challenge in both medical and holistic contexts. With numerous treatment options currently available, understanding their relative effectiveness is crucial for successful management. In this experiment, we investigated the efficacy of seven different treatment methods, including both over-the-counter (OTC) and holistic remedies, by measuring the zone of inhibition around each treatment in a Petri dish inoculated with champagne yeast. The research question that our group hoped to answer was, "How do different holistic and over-the-counter anti-fungal treatments for vaginal yeast infections affect the zone of inhibition of the yeast?", while our group's hypothesis posited that OTC treatments would demonstrate a much more pronounced zone of inhibition as compared to holistic approaches.

Methods

Materials & Location

Petri dishes, DI water, champagne yeast, micro pipettor, sterilized glass beads, forceps, paper discs, 1% salt water, water, 1% hydrogen peroxide, 1% apple cider vinegar, 1% miconazole-3, 1% boric acid, 1% clotrimazole, rulers.

Procedure

Take 50 mL of DI water, mix with 1 packet of champagne yeast; stir. Label petri dishes. Add in 200 μm of the yeast. Inoculate the yeast by distributing yeast evenly by adding 6 sterilized beads and shaking them, toss beads once done. Using forceps, take the small paper discs, saturate them into each solution and place accordingly on petri dish making sure to push the discs slightly. Once done place lid back onto petri dish and place in incubator making sure to note the time. Using a ruler measure how many centimeters the treatment affected the zone of inhibition.

Discussion

The results of our experiment supported our original hypothesis: Over-the-counter (OTC) treatments had a greater zone of inhibition than the holistic treatments we chose to test. We replicated each treatment 16 times, including the OTC, holistic and control. By measuring the *zone of inhibition* (The area around the solution-coated disk where yeast did not grow) of each disk and calculating the average, we concluded that OTC treatments had a greater impact on preventing yeast growth than holistic treatments. The average zone of inhibition for OTC treatments is 0.9cm, compared to the 0.51cm for holistic treatments. For comparison, our control group (DI H2O) had an average of 0.42cm.

To maintain consistency within the replication of our experiment, all our over-the-counter and holistic treatments were diluted in water to a 1% concentration, to match the percentage of active ingredients of the clotrimazol paste. Sterilized disks were dipped into each solution then placed into a sectioned petri dish containing the inoculated yeast. There was a possibility for a larger quantity of clotrimazol to be transferred from the disk to the yeast because it was still in its original paste form, thus allowing for potential differences in the zones of inhibition between each treatment.

Holistic treatments for yeast infections are often depicted in the media as alternatives over antifungals or OTC treatments. Though prior studies (Mota, de Castro, de Arujo Oliveria, J., & de Oliveira Lima, 2015) have demonstrated the effectiveness of apple cider vinegar's antifungal properties, this data should not be used in place of advice from medical professionals and researchers.

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References/ Work Cited

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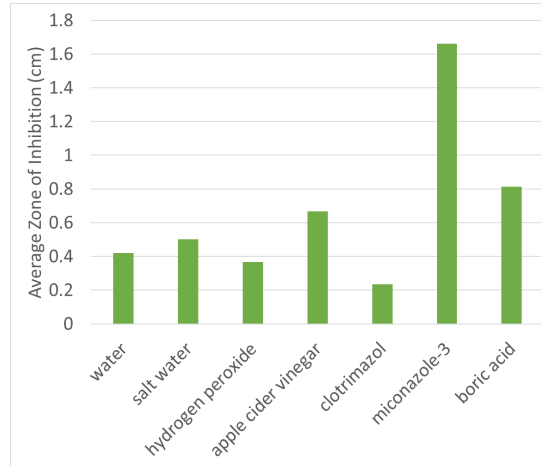


Figure 1. Average zone of inhibition, measured in centimeters, for each form of treatment and the control group.

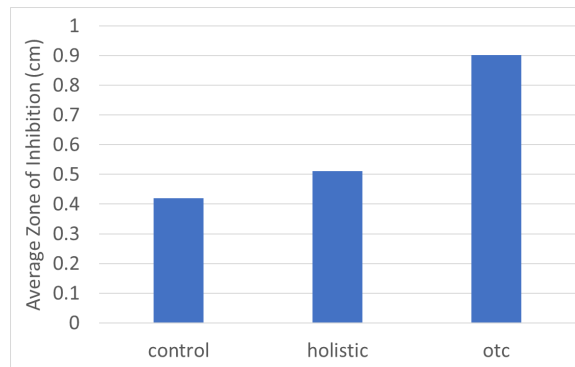
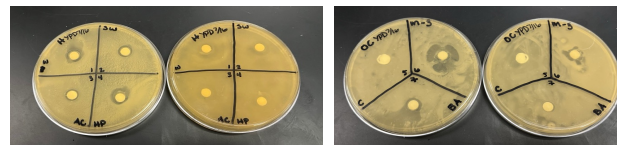


Figure 2. Average zone of inhibition, measured in centimeters, for the control group, holistic group, and over-the-counter group.



Figures 3 & 4. Examples of some of the holistic/control petri dishes (left) and OTC petri dishes (right) used to measure the zone of inhibitions.