

Name Brand vs. Off Brand - Is It Worth the Extra Buck?

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Introduction

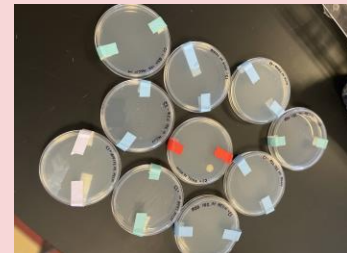
With the arise of worldwide pandemics such as the spread of coronavirus and influenza, individuals must take bigger precautions and measurements to contain these viruses. Disinfecting wipes are used in various environments to prevent odor and bacteria growth. Brands such as Great Value and Clorox claim to kill 99.9% of viruses and bacteria; however, Clorox wipes are 1.59 times the price of Great Value wipes. The development of the project aims to study which brand of wipes are more effective. Is the low price of Great Value hindering its quality? Does Clorox wipes remove more bacterial colonies than Great Value? HA: The experiment leads to the hypothesis that Clorox wipes are more effective at removing bacterial colonies than Great Value wipes. H0: The brand of disinfectant wipes have no impact on the number of bacterial colonies after treatment.

Materials and Methods

The design of the experiment overviewed three experimental treatments: untreated, Clorox, and Great Value wipes. The independent variable is the brand of the disinfectant wipe being used, the dependent variable are the number of bacterial colonies that remained after treatment, and the control is no treatment. The experimenters used a total of five tables overall, splitting each table into six sections. Two out of six sections were labelled according to their experimental treatments. The first experimenter would leave one section untreated, wipe down another section with the Clorox wipes for approximately five seconds, and wipe down the last section with Great Value wipes for approximately five seconds. This was repeated nine more times. After the surface was dry, the second experimenter would dip a swab in DI water, wipe the swab in the labeled section, and wipe the swab on a petri dish in a back-and-forth motion for five times before closing and sealing the labeled lids. After one week of growth, the bacterial colonies were analyzed.



Control Group - Untreated



Experimental Group - Clorox Wipes

Results

Effectiveness of Name Brand vs. Off-Brand Cleaning Products



The correlation coefficient for the untreated with the Cl wipes in regard to eliminating bacteria was 0.91, indicating a strong relationship between the Cl wipes and the amount of bacterial colonies remaining after treatment. The correlation coefficient between the untreated and the GV wipes, although less than Cl, was still very high at 0.85, again indicating a strong relationship between the GV wipes and the amount of bacterial colonies present.

Different Treatment Options	P-Value
Untreated vs Clorox	0.04176818135
Untreated vs Great Value	0.04719172798
Clorox vs Great Value	0.2860193464

The critical range value for this experiment was 0.1. Using a T-Test, the P-Value for the untreated vs. both the Cl and GV fell within that critical value; however the Cl and GV did not, showing no statistical significance between the two cleaning agents.

Conclusion

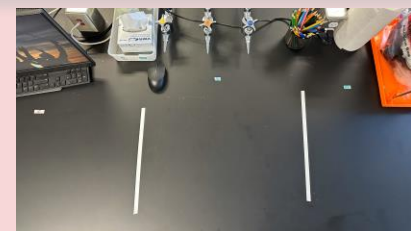
Based on the data, the null hypothesis cannot be rejected. Although there were fewer bacterial colonies present in the Cl treatment than in the GV, there was not enough of a difference to support the alternative hypothesis statistically, as shown in our T-Tests. This information is beneficial to the everyday consumer. Since the evidence supports that both products are equally effective of removing bacterial colonies, shoppers can save a pretty penny when purchasing their cleaning supplies. A possible limitation of this experiment would be the untreated surfaces not being truly untreated. This experiment took place in a lab, where students are instructed to clean their tables after they leave, so the data could have been skewed when it comes to the colonies found on those surfaces.

Literature Cited

Gonzalez, E. A., Nandy, P., Lucas, A. D., & Hitchins, V. M. (2015). Ability of cleaning-disinfecting wipes to remove bacteria from medical device surfaces. *American Journal of Infection Control*, 43(12), 1331-1335.



Petri dishes of the three experimental treatments



Each table was split into three labeled sections