

The Effects of House Cleaners on Keeping Ants In Their Environment

Rajiv Patel, Louis Hall, Harrison Field, Haydn Scherry

Abstract:

This experiment was designed to determine which household cleaner is most effective at providing a chemical barrier in which ants would not cross. The four household cleaners that were tested included a 50/50 mixture of bleach and water, Comet powder, 409 multipurpose cleaner, and Pinesol. These were individually placed into a spray bottle and sprayed in a line across the entire doorway. It was concluded that Comet was the most effective at only letting four ants into the house during the three day testing period. Pinesol was the second most effective with ten ants, bleach/water next with fourteen, and 409 last with twenty two ants. It was concluded that the active ingredients in the cleansers may have been what kept the ants out and Comet was the best one for this particular use (all numbers have been averaged and rounded up for practical purposes).

Keywords: Cleaners, ants, bleach, comet, repellent

Introduction:

Many individuals reach for common house cleaners upon noticing a ant or other insect in their home. The purpose of this experiment was to determine which common household cleaner would be best to prevent the entrance of these insects altogether.

Comet, Pinesol, bleach, and 409 have all been previously tested to kill ants when directly sprayed on them. All four cleaners are effective at this task but this is very different than using the chemicals to essentially repel the ants. Upon researching, Comet and Pinesol were two chemicals that

have not been recorded for use in an experiment similar to ours, while the bleach and 409 had unclear results.

Materials and Methods:

The experiment was conducted on the patio door of an apartment in the Woodlands of College Station on the intersection of Wellborn and Southwest Parkway. This location was watched over a two week period for the ant population and was the most vulnerable location for ants to enter due to the heavy shrubs and landscaping. To begin the experiment, twelve ounces of the Pinesol was placed into a spray bottle and sprayed in a line along the inside of the doorway. All twelve ounces were used. Three glue traps

with candy were then placed directly parallel to this line of Pinesol to trap any ants. These traps are meant to attract the ants while testing the chemical line in front of them. A timer was set for exactly seventy-two hours from when the traps were set. Once seventy-two hours had passed, the Pinesol was mopped up using an odor-free cleanser to help prevent the skewing of data. The traps were picked up and the number of ants were counted and recorded. This was repeated twice for all four chemicals to ensure the quality of data. This experiment was conducted over a two week period where the high temperature reached 90 degrees fahrenheit at the hottest and the low reached 55 with the humidity between 88-97%

Results:

The results of this experiment can be summarized in the table below:

	Pinesol	50% Bleach 50% Water	Comet	409
Trial 1	6	5	2	10
Trial 2	3	8	1	9

The temperature and humidity for trial 1 of Pinesol ranged from 55-86 degrees

fahrenheit, and an average humidity of 89%. Trial 2 for Pinesol ranged from 59-84

degrees fahrenheit, and an average humidity of 88%. Trial 1 for 50/50 bleach and water temperature ranged from 58-87 degrees fahrenheit, and the average humidity was 91%. Trial 2 had a temperature range of 59-84 degrees fahrenheit. Trial 1 for Comet temperature ranged from 63-90 degrees fahrenheit, with an average humidity of 95%. The trial 2 temperature range for Comet was 61-84 degrees fahrenheit, and the average humidity was 96%. Lastly, trial 1 for 409 had a temperature range of 68-89 degrees fahrenheit, with an average humidity of 98%. Trial 2 of 409 had a temperature range of 62-87 degrees fahrenheit, with an average humidity of 97%.

Discussion:

As the results depict, Comet was the most effective at repelling ants, followed by Pinesol, bleach, then 409. When sprayed directly onto ants, all chemicals have the same deadly effect. However, the active ingredients in both Comet and Pinesol were more effective in the prevention of ants entering the household compared to bleach and 409.

It should be noted that average daily temperature and humidity did increase during the two week period. However, the overall range in temperature was not drastic enough to offer much effect on the amount of ants present in the environment. Another possible effect is the decreased availability of ants in the environment due to testing. As the experiment was run and ants were caught, the amount of ants in the immediate environment decreased. However, the final two trials testing 409 yielded an average of 10 captured ants, which points to the availability of ants in the surrounding environment despite testing.