

Problem

- Highly touched surfaces in your home can get dirty with bacteria
- Both natural and chemical cleaners can be used to disinfect surfaces
- It is unclear if one type of cleaner is superior
- We hypothesized that a natural vinegar-based cleaner will kill bacteria on household surfaces as well as chemical cleaners

Methods

- Three highly touched surfaces were identified including a kitchen sink tap, a common bathroom sink tap and a single user bathroom sink tap.
- The chemical cleaner chosen was Lysol disinfecting wipes® which has dimethyl benzyl ammonium chloride as its main anti-bacterial agent. The natural cleaner chosen was Allen's Cleaning Vinegar which has 10% acetic acid as its main cleaning agent (Figure 1).
- Sterile cotton swabs were dipped into sterile saline and used to swab the tap surfaces before and after each cleaner. Swabs were then swiped on agar plates and grown overnight in a bacterial incubator at 37°C. Individual colonies were identified and counted. Experiments were performed 1 week apart between cleaners.
- Bacterial colony counts were compared before and after each cleaner from each surface.

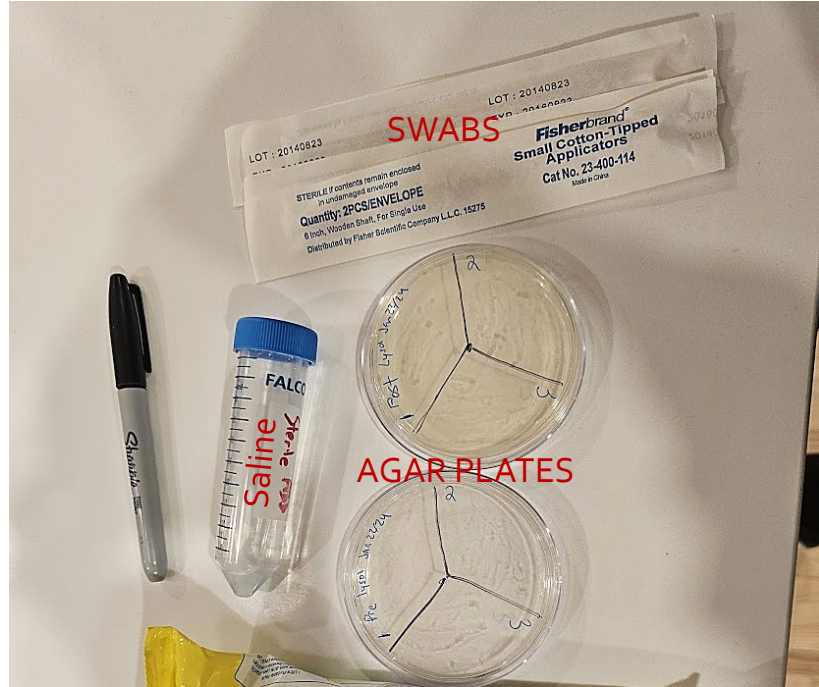


Figure 1. Materials used

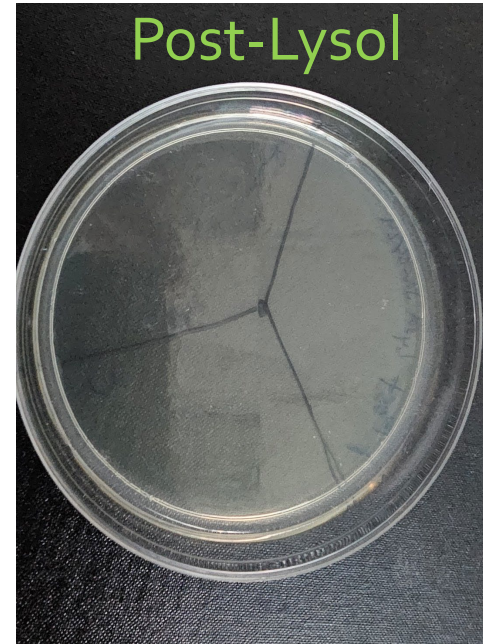
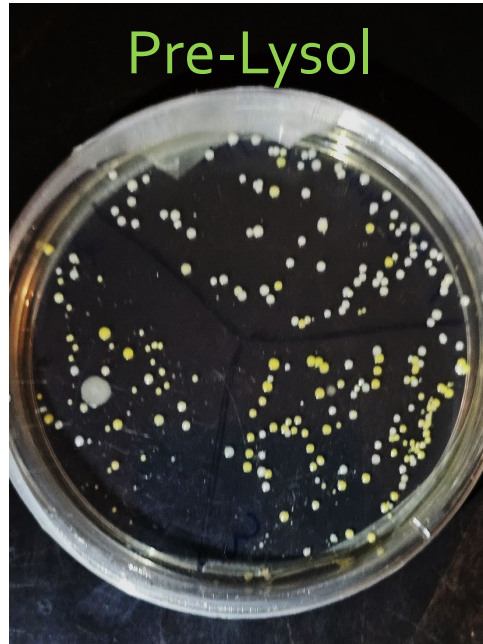


Figure 2. Pre and Post Lysol Cleaning

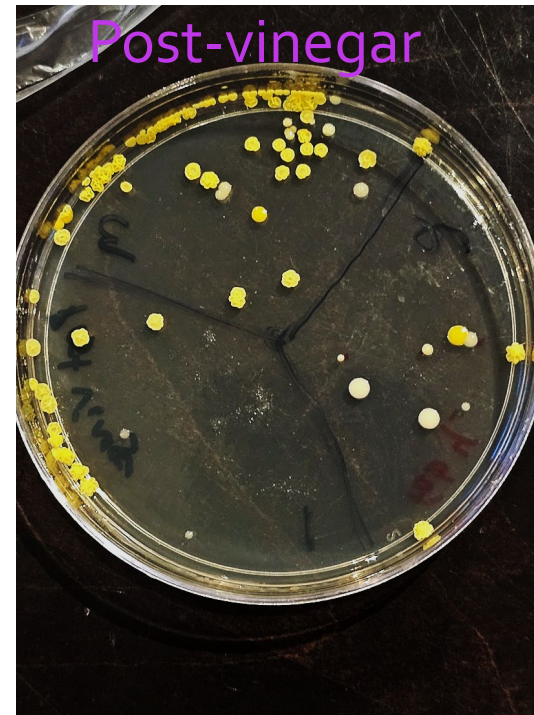


Figure 3. Pre and Post Vinegar Cleaning

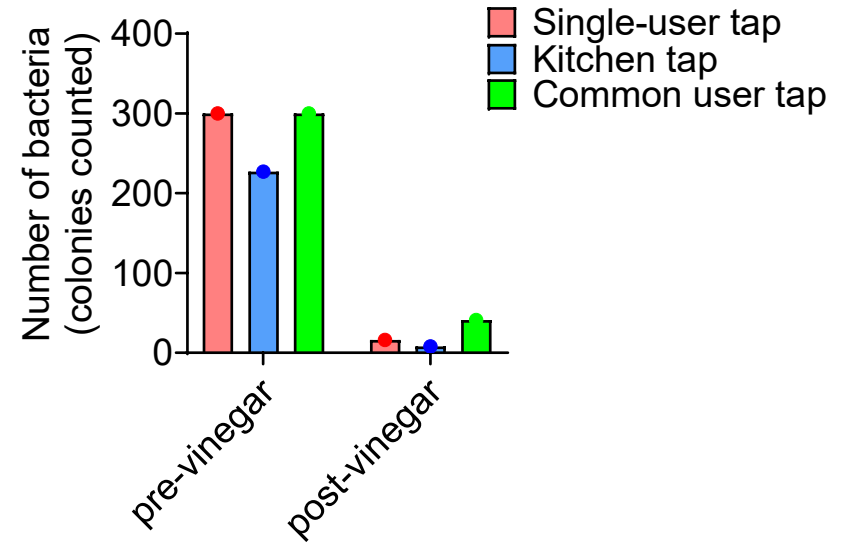
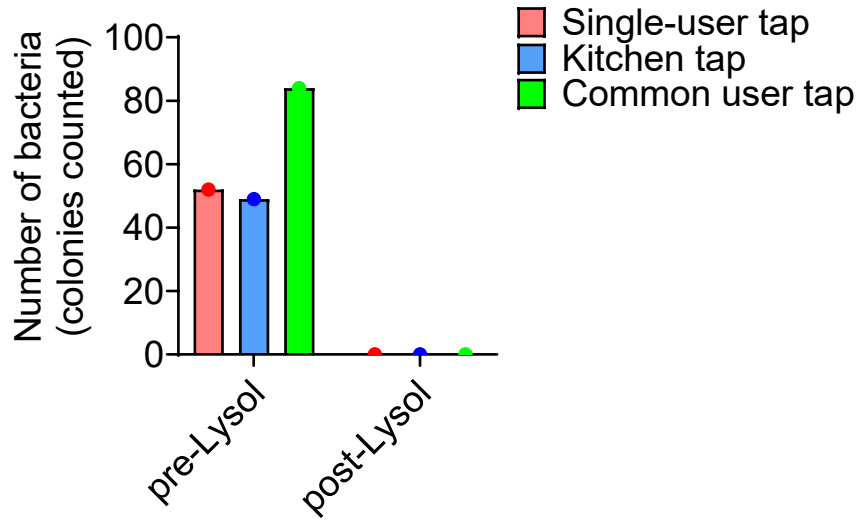


Figure 4. Bacterial Colony Counts

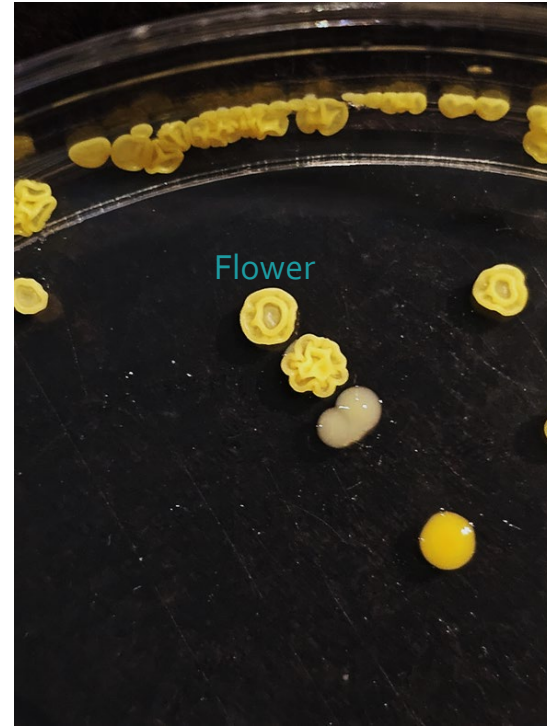


Figure 5. Different Bacterial Colonies

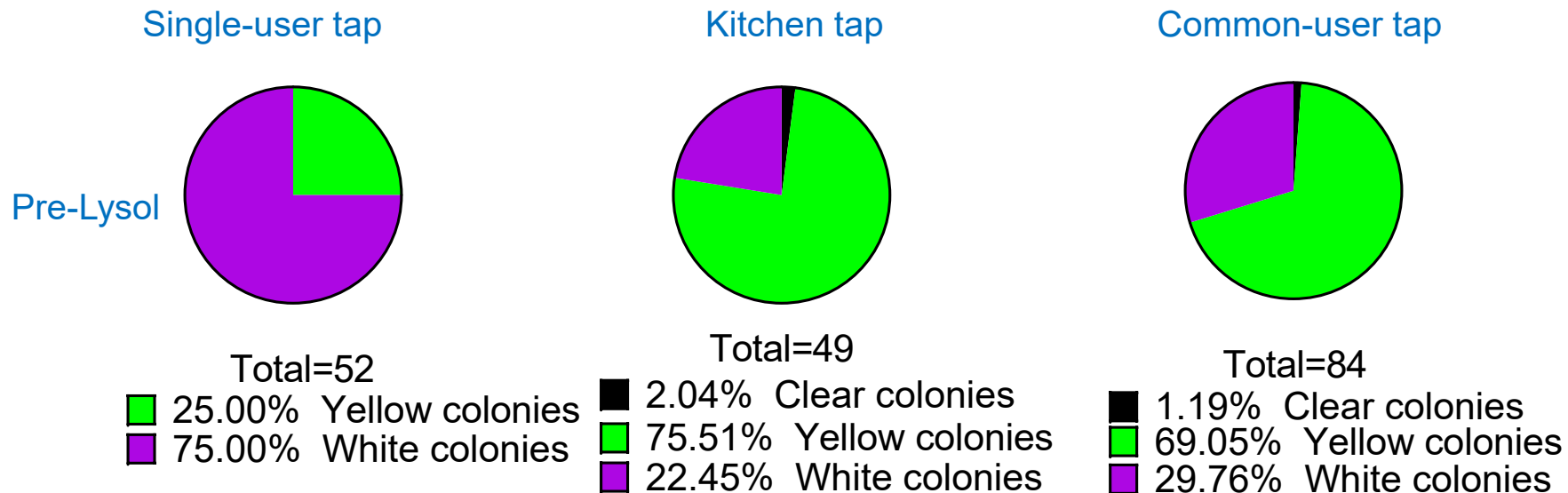


Figure 6. Pre-Lysol Different Bacteria Percentage

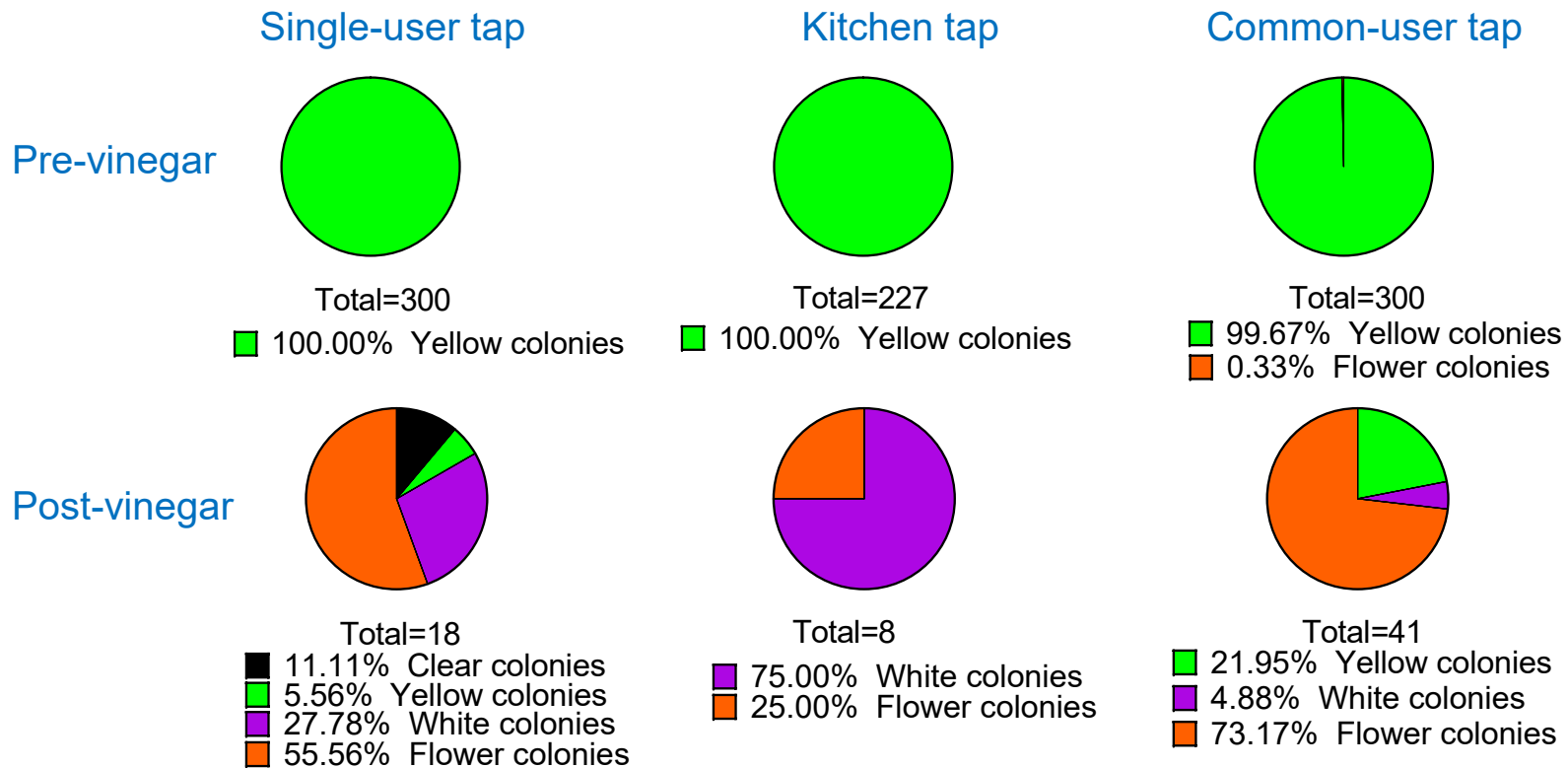


Figure 7. Pre and Post Vinegar Different Bacteria Percentage

Results

- Both Lysol and natural cleaners killed bacteria on all surfaces tested
- Different types of bacteria were found on different surfaces
- A new bacteria was grown after vinegar treatment

Conclusions

- We accept the hypothesis that natural vinegar-based cleaners killed bacteria like Lysol
- Based on environmental considerations, natural-vinegar based cleaners could be considered as good household cleaners
- For the vinegar experiments, a larger group of people had been using the common bathroom taps and may have altered the numbers and types of bacteria

Acknowledgments

- The materials and the bacterial incubator used was donated by the Yipp lab at the University of Calgary.