Brand vs. Natural

Mock, Madison (School: Trenton High School)

Can natural disinfectants, such as essential oils, be as effective as more potent, commonly used disinfectants? The goal of this experiment is to compare the effectiveness and safety of commonly used cleaners with natural disinfectants. It is hypothesized that the most effective disinfectant may not be very safe, especially in large quantities. Harsher disinfectants that may be used, such as bleach or ammonia, are probably the most effective. Staphylococcus Epidermidis culture was swabbed onto four petri dishes, and the same for Escherichia coli. 5 brand disinfectants, and 5 natural disinfectants were used on sterile paper tabs, then placed on separate petri dishes, 6 tabs per dish, one being the control. In total there are eight petri dishes, four with natural disinfectants, and four with brand disinfectants. All of the substances have shown to have disinfecting properties, but some performed much better than others. It is clear that the brand disinfectants outperformed the natural disinfectants overall, but some of the safer substances seemed to be almost as effective as the common disinfectants. Overall, the most effective were brand #3, a generic brand which contained four variants of ammonium chloride, brand #5, that contained many variants of ammonium chloride and citric acid, Hydrogen peroxide, and peppermint oil. Out of the natural disinfectants, peppermint oil and hydrogen peroxide were very effective. They seemed to work better than most of the brand mixtures, when saturated. The disinfectants that seemed to be the least effective were tea tree oil, vinegar, lemon juice, and brand #4 which was meant to be a more botanical disinfecting spray that contained substances like essential oils, citric acid, and an active ingredient of thymol.

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