Angela Nelson & Sidney Carter

Can I Drink That?

The purpose of this experiment was to test whether sunlight could be used to disinfect water to make it safe enough to drink. We hypothesized that if you expose intentionally contaminated water to direct sunlight for different periods of time and levels of opacity, the bacterial levels will drop. The experiment involved putting 10 µL Klebsiellia pneumoniae culture into sterile bottles of 100 mL water. The bottles were covered with various layers of colored cling wrap to vary opacity. The bottles were then exposed to 6 hours of sunlight and 100 µL was plated onto Eosin Methylene Blue (EMB) plates from each bottle. The data collected did support our hypothesis with the exception of our bottles with 0 and 1 layer(s). Our bottle with no layers ended up having 1 colony whereas the bottle with 1 layer ended up with 0. When comparing the amount of bacteria from the positive control to what was grown from the exposed bottles, we feel that most of the bacteria was killed by the UV exposure and that the amounts plated were random and there happened to be a surviving bacteria in the sample from the 0 layer and in the random sample from the 1 layer bottle no organisms in the sample removed survived. These findings lead us to believe that sunlight can kill bacteria if exposed long enough. The best results are found when using a clear glass or plastic bottle and with the lowest level of opacity.