Filtering E. coli with Common Homemade Filters

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Escherichia coli (E. coli) is one of the main contaminants in water, resulting in deaths all around the world. Easily made water filters made from common materials are needed to filter out E. coli. With the use of filters water can be cleaned, death rates can be reduced, and many lives can be saved every year. In this experiment contaminated water from a duck pond in Bloomington Hills St. George, Utah was ran through two common filters (slow sand filter and xylem filter) to provide results of which filter, filters the most E. coli out of the water. The goal was to find the filter that put forth the water with the least amount of E. coli, and could be easily made by different communities throughout the world. The hypothesis for this experiment was that the slow sand filter would provide the cleanest looking water, and the water sample with the lowest count of E. coli. This filter was made of materials easily found by people all around, making it the best resource for cleaning contaminated water of E. coli. After running a two sample t-test it was concluded that there is no significant difference between the filters when filtering out E.coli. Although there was no significant difference between the filters, the difference between the controls count of E. coli and the filtered waters count of E. coli shows an extreme difference in terms of E. coli. Both the sand filter and xylem filters are both very efficient when it comes to filtering E. coli. Although both filters work in filtering E. coli, the sand filter is the more reliable filter qualitatively, because it is much quicker and provides more water at once.

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