Filtering Turbidity Using Sediment Filters versus Balfourianae Filters

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In many developing countries, average citizens do not have access to clean drinking water. By building types of cheap, easily built filters, these citizens may have access to water that is less contaminated than previously. This experiment aims to improve the quality of water that these citizens have access to. The types of filters tested in this experiment were a sediment filter made of sandstone, limestone, and lava rock, and a wood filter made of Balfourianae (bristlecone pine) wood. The hypothesis was that the bristlecone pine filter would be more effective than the sediment filter. The original water came from Sand Hollow Reservoir, which is a primary water source in St. George, Utah. The water was tested for level of turbidity, which is described as the cloudiness or haziness of water. Turbidity is tested by running a laser through water and recording how much of the laser's light comes through the water sample. Samples of the original water, water filtered with the sediment filter, water filtered with the wood filter, and water filtered with a control filter were tested. Several ANOVA tests were ran after the turbidity levels were measured, and the hypothesis was correct. The p-value (<0.0001) was lower than Alpha, which was set at a 0.01 level of significance. This means that the bristlecone pine filter works significantly better than the sediment filter, and would therefore be the better filter option for developing countries.

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