ABSTRACT

TITLE:	Water for the World, Testing the Effectiveness of Homemade Water Filters at Removing Disease Causing Bacteria
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PRESENTED AT:	4th Annual Natural & Behavioral Sciences Undergraduate Research Symposium, Fort Lewis College

ABSTRACT: Bacterially contaminated water is a common source of infection in developing countries for various diarrheal diseases which infect millions annually. Therefore water filtration that is both cheap and effective has recently gained attention for its importance in preventing these diseases. The purpose of this study was to examine how effective homemade ceramic filters and sari cloth might be at removing bacteria. The study uses E. coli specifically because of the current lack of research on how effective these cheap filters might be at removing it. Ceramic filters were made using equal part terracotta and coffee grounds, and firing until the coffee burned away; a silk sari cloth was used. Nutrient broth was inoculated with non-pathogenic E. coli to a McFarland standard of 5. The filters were then sterilized and 10 ml of broth was run through each of the filters, another 10 ml was given no filtration. The filtered broth was then pipetted onto 15 nutrient plates for each treatment. The nutrient plates were then incubated and the colony numbers recorded. The ceramic filters resulted in significantly less growth than both the control and the sari cloth, $p < .01$. The sari cloth resulted in significantly less growth than the control, $p < .03$. The ceramic filter resulted in approximately 58% less colony growth than the control, and the sari cloth filter resulted in 6.6% less colony growth.