Water study: Is colloidal silver necessary for bacteria removal?

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Heinley points out the presence of E. coli in a water sample.

(PhysOrg.com) -- Nicole Heinley, a graduate student at Missouri University of Science and Technology, traveled to Guatemala twice in the past year to conduct research on ceramic pot filters that are used locally to remove bacteria from water. Now, Heinley's findings are about to be published in the *Journal of Water Science and Technology.*

Ceramic pot filters, which are made out of sawdust and clay, have been around in poor countries for hundreds of years. The focus of Heinley's research is on the colloidal silver -- or lack of it -- that is typically used to line the filters. The silver mixture is thought to have disinfection properties -- but the actual disinfection mechanism of the silver is poorly understood.

Heinley wanted to find out if the colloidal silver, which is the most expensive part of the filters, is necessary at all. "It's the only material that has to be imported to manufacture the filters," she says. "The remaining materials -- sawdust and clay -- are available locally."

In the journal article, Heinley and Dr. Curt Elmore, associate professor of geological engineering at Missouri S&T, conclude that the silver may not be necessary to effectively remove bacteria from source water. In their study, filters not lined with silver removed a high rate of E. coli.

"Additional, long-term studies of filters without silver should be undertaken in order to further investigate the issue," Heinley says.

Heinley and Elmore traveled to Guatemala with students from a geological engineering class during winter break and spring break earlier this year. Heinley collected contaminated water samples from a little river in the city of Antigua and studied the structure of the ceramic pot filters available locally. Back at Missouri S&T, she continued the research.

More information: The article, "Bacteria Removal Effectiveness of Ceramic Pot Filters Not Applied with Colloidal Silver," was recently accepted for publication by the *Journal of Water Science and Technology*. The publication date is pending.

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