

Cilantro, that favorite salsa ingredient, purifies drinking water

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Hints that a favorite ingredient in Mexican, Southeast Asian and other spicy cuisine may be an inexpensive new way of purifying drinking water are on the menu today at the 246th National Meeting & Exposition of the American Chemical Society.

The meeting, which began Sunday and ends today, included almost 7,000 reports on new discoveries in science and other topics.

Reporting on research done by undergraduate students at a community college, Douglas Schauer, Ph.D., said that cilantro—also known as coriander and Thai parsley—shows promise as a much-needed new "biosorbent" for removing lead and other potentially toxic [heavy metals](#) from contaminated water.

"Cilantro may seem too pricey for use in decontaminating large amounts of water for drinking and cooking," Schauer said. "However, cilantro grows wild in vast amounts in countries that have problems with heavy-metal water pollution. It is readily available, inexpensive and shows promise in removing certain metals, such as lead, copper and mercury, that can be harmful to human health."

Conventional methods for removing heavy metals from water such as treatment with activated carbon (used in the filters in home water purification pitchers) or more advanced technology like ion-exchange resins are very effective. However, they can be too expensive for use in developing countries, especially in rural areas. The need for lower-cost,

sustainable alternatives has fostered research on biosorbents. These natural materials, which range from microbes to plants, latch on to heavy metals in ways that include both absorption and adsorption.

"Our goal is to find biosorbents that people in developing countries could obtain for nothing," Schauer explained. "When the filter in a water purification pitcher needs to be changed, they could go outside, gather a handful of cilantro or some other plant, and presto, there's a new filter ready to purify the water."

Schauer, who is with Ivy Tech Community College here, enlisted his students in that quest, and they worked with scientists at the Universidad Politécnica de Francisco I. Madero in Hidalgo. Mexico does not have a system to filter out heavy metals, said Schauer, noting that cilantro grows wild there. Their small-scale experiments suggested that cilantro may be more effective than activated carbon in removing heavy metals such as lead.

Cilantro's secret may lie in the structure of the outer walls of the microscopic cells that make up the plant. They have an architecture ideal for sorption of heavy metals. Other plants, including cilantro's cousins, parsley and culantro, have similar features and could potentially work as biosorbents, he added. Schauer thinks that biosorbents like [cilantro](#) could be packed into tea-bag-like packets, reusable [water](#) filter cartridges or even tea infuser balls and used to remove heavy metals.

More information: Abstract

Studies on the use of cilantro for the biosorption of heavy metals in wastewater

Although a variety of methods currently exist to treat polluted organic matter in water, an inexpensive method to extract dangerous heavy

metals from wastewater is still being researched. Wastewater sampling on drainage water from Mexico City has been performed by scientists at Universidad Politecnica de Francisco I. Madero, and it has been determined that many toxic metals such as copper, lead, chromium, and nickel are present in large quantities in the water that is used for irrigation and as drinking water around the Tule Valley area. Samples of various indigenous species of biomass were obtained from the university campus and tested for biosorption. A preliminary screening of species was performed in Mexico at the campus of Universidad Politecnica de Francisco I. Madero. One of the species that absorbed the metals well was cilantro. With this research, cilantro will be further tested to include a particle size study, a time study, and the determination of a Q max.

Provided by American Chemical Society

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