

# Discarded cigarette ashes could go to good use—removing arsenic from water

October 15 2014

---

Arsenic, a well-known poison, can be taken out of drinking water using sophisticated treatment methods. But in places that lack the equipment or technical know-how required to remove it, it still laces drinking water and makes people sick. To tackle this problem, scientists have come up with a new low-cost, simple way to remove arsenic using leftovers from another known health threat—cigarettes. They report their method in ACS' journal *Industrial & Engineering Chemistry Research*.

Jiaxing Li and colleagues explain that naturally occurring and industry-related [arsenic](#) contaminates groundwater at high levels in many countries, including Chile, China, Hungary and Mexico. The odorless, tasteless element can cause skin discoloration, stomach pain, partial paralysis and a range of other serious health problems. While the technology for removing arsenic from [water](#) exists and is in widespread use in industrialized areas, it is expensive and impractical for rural and developing regions. Scientists have been exploring the use of natural waste materials such as banana peels and rice hulls for removing arsenic from water, but these so far have shown limited efficiency. Recognizing that the porous structure of cigarette ash could be better suited to this purpose, Li's team decided to test it.

In a simple, inexpensive, one-step method, the researchers prepared cigarette ash with a coating of aluminum oxide. When they tested the material with contaminated ground water, they found it removed more than 96 percent of the arsenic, reducing its levels to below the standard set by the World Health Organization. Because cigarette ashes are

discarded in countries around the world and can be easily collected in places where public smoking is allowed, it could be part of a low-cost solution for a serious public health issue, they say.

**More information:** *Ind. Eng. Chem. Res.*, 2014, 53 (41), pp 16051–16060 [DOI: 10.1021/ie503057g](https://doi.org/10.1021/ie503057g)

Provided by American Chemical Society

Citation: Discarded cigarette ashes could go to good use—removing arsenic from water (2014, October 15) retrieved 24 April 2024 from <https://phys.org/news/2014-10-discarded-cigarette-ashes-good-useremoving.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.