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Is That a Banana in Your Water?

This story is part of a National Geographic News series on global water issues.

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Banana peels are no longer just for composting or comedy shows: New science shows they can pull heavy metal contamination from river water.

Metals such as lead and copper are introduced to waterways from a variety of sources, including agricultural runoff and industrial wastes. Once there, heavy metals can contaminate soils and pose health risks to humans and other species. Lead is known to affect the brain and nervous system.

Traditionally, water quality engineers have used silica, cellulose, and aluminum oxide to extract heavy metals from water, but these remediation strategies come with high price tags and potentially toxic side effects of their own. They work as extractors due to the presence of acids such as those found in the carboxylic and phenolic groups, which attract metal ions.

Bananas, on the other hand, appear to be a safe solution. Banana peels also outperform the competition, says Gustavo Castro, a researcher at the Biosciences Institute at Botucatu, Brazil, and a coauthor of a new study on this new use of the fruit's peel.

For the study, Castro and his team dried and ground banana peels, then combined them in flasks of water with known concentrations of metals. They also built water filters out of peels and pushed water through them.

In both scenarios, "the metal was removed from the water and remained bonded to the banana peels," Castro said, adding that the extraction capacity of banana peels exceeded that of other materials used to remove heavy metals.

Previous work has shown that other plant parts—including apple and sugar cane wastes, coconut fibers, and peanut shells—can remove potential toxins from water.

<u>Don't Try This at Home</u>

Castro doesn't advise the use of banana peels for home water purification. For starters, the concentration of heavy metals in tap water is usually negligible. Also, while putting banana peels in contact with water will likely remove some metals, the average person isn't likely to be able to measure success.

Castro said his study findings are most likely to be useful in industrial settings.