

A new downside to coffee? It pollutes

February 3 2023, by Kat Kerlin



Credit: Unsplash/CC0 Public Domain

I love coffee. I love it so much that I don't even want to tell you this:

Caffeine is an emerging global pollutant. It enters our waterways through the wastewater system, and impacts water quality and marine life. And while [coffee grounds](#) are often used as a soil amendment, [caffeine](#) is a

killer for emerging seedlings.

There. I said it. I hate to be a buzz kill.

But there are things consumers can do to reduce the pollution; we list several of them below. And scientists are looking at innovative strategies for removing the contamination.

Decaffeinating coffee waste

Researchers at the University of California, Davis, and University of Alabama are investigating how caffeine-addicted bacteria may be used as a cleanup crew for caffeine. Such pollution stems not only from the production and consumption of caffeinated beverages, but also [pharmaceutical and nutritional supplements](#).

Some bacteria can grow on caffeine and break it down. Gabriel Subuyuj, a UC Davis graduate student of microbiology in the lab of professor Rebecca Parales, is [studying which genes are necessary](#) for bacteria to detect, regulate and break down caffeine.

"Once better understood, the bacteria may be able to work as a pollution sensor to detect caffeine. It could also be used as a probiotic of sorts—essentially decaffeinating [coffee](#) waste as it eats it," Subuyuj said.

The work is still in its beginning stages and years away from on-the-ground applications. In the meantime, Subuyuj says there are many ways people can reduce the [environmental pollution](#) that comes with their morning, and noon, and late afternoon) cup.

Five ways to clean up your caffeine habit

1. Stop drinking caffeinated beverages

Since at least 90% of adults drink coffee, tea or [energy drinks](#) regularly, I imagine some of you are laughing (or crying) right now. So consider reducing your consumption, and move on to No. 2.

2. Reuse and recycle

Some businesses, artists and engineers are finding [creative ways to reuse and recycle grounds](#). For example, companies in the United Kingdom are collecting coffee pulp and spent grounds to use in textiles, ink, aromatics, and biofuels. Coffee shops and manufacturers could partner with such companies to reuse their coffee waste.

3. Don't dump spent grounds or leftover drink down the sink

Compost or dispose of grounds in the trash rather than send caffeine down the drain and into the wastewater system.

4. Reduce plastic pollution, too

The plastic and disposable cups that often go with caffeine habits is a different but related type of pollution we can reduce. Remember to bring your own cup to the café, or use one of the many low-waste techniques of brewing at home.

5. Support government funding to update sewage facilities

"Investing in outdated treatment plants is how we can actually solve it,"

Subyuj said. "In the U.S., outdated water treatment plants, especially in bigger cities, is the main source of caffeine entering waterways. That would also reduce other contaminants to the environment, like heavy metals and microplastics."

Provided by University of California

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