

Researchers find 'sweet' solution to kill *E. coli* in drinking water

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Credit: York University

Paper strips laced with sugar could be the sweetest solution so far, literally, to kill *E. coli* in contaminated water. York University researcher

Sushanta Mitra says the "DipTreat" discovery will be key to developing a new generation of inexpensive and portable water treatment devices, with human health benefits in Canada and around the world.

DipTreat is the latest innovation by researchers at York's Lassonde School's Micro and Nano-scale Transport (MNT) Lab. The group has previously discovered new ways to detect *E. coli* in [contaminated water](#) using a Mobile Water Kit.

"Now with DipTreat, we have learned it will take less than two hours to fish, trap and kill *E. coli* in water," says Professor Mitra in the Lassonde School of Engineering, who heads up the lab. "We were able to efficiently remove almost 90 per cent of bacteria by dipping the special paper strip, DipTreat, in contaminated water samples."

While using porous [paper strips](#) to trap the bacterial cells, for killing, the researchers used an antimicrobial agent extracted from the seeds of moringa - commonly known as drumstick or horseradish tree. As a result, the DipTreat solution for water treatment uses only naturally available antimicrobial substances and sugar, with minimal environmental and health impact.

Currently, popular [water treatment](#) systems use silver nanoparticles and clays, whose long term impact on human health is yet to be fully understood, according Mitra. So far, DipTreat is effective for small quantities of water. For example, someone who is hiking can collect a glass of water and then dip the paper strips to purify it before drinking. Researchers believe that the invention could lead to a much greater impact.

"We expect this new approach to 'fish', 'trap', and 'kill' *E.coli* will seamlessly eliminate the harmful bacteria from [water](#)," says Mitra, explaining the impact it could have on the national and global health

scenario, from the far north of Canada to the remote villages of India, and around the world. Recognizing the global importance of [water purification technology](#), UNICEF has invited Mitra to showcase his team's work at a stakeholder meeting in Copenhagen on November 22.

Published as a [featured article](#) in the latest issue of the Royal Society of Chemistry journal *Environmental Science Water Research & Technology*, the study is co-authored by Mitra, Saumyadeb Dasgupta and Naga Siva Gunda.

Provided by York University

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