

Antibiotics, antimicrobials and antifungals in waterways

June 9 2009

Antibiotics, antimicrobials and antifungals are seeping into the waterways of North America, Europe and East Asia, according to an investigation published in the peer-reviewed journal *Environmental Health Perspectives* (EHP). Authored by Université de Montréal and Environment Canada researchers, the review found that consumption of anti-infectives for human and agriculture use contributes to their release into the environment and even into drinking water.

"Anti-infectives are constantly discharged, at trace levels, in natural waters near urban centres and agricultural areas," says senior author Sébastien Sauvé, a Université de Montréal professor of environmental analytical chemistry. "Their potential contribution to the spread of anti-infective resistance in bacteria and other effects on aquatic biota is a cause for concern."

The research team compiled published data for three classes of [antibiotics](#) (macrolides, quinolones and sulfonamides) and the compound trimethoprim present in the urban wastewaters of East Asia, Europe and North America. The scientists found higher concentrations of these pharmaceuticals in raw wastewater compared to treated wastewater.

"Rivers, creeks, lakes, estuar-ies, basins, sea waters and wells have been reported to be contaminated by several of these compounds," says Dr. Sauvé, adding that a previous review by the scientific team also demonstrated that pharmaceuticals could promote microbial resistance when released in the environment.

This latest review warns the increased farm usage of anti-infectives may augment their levels in future agricultural wastewater. The investigation also predicts that vital urban water conservation strategies could produce harmful side-effects -- specifically less wastewater resulting in lower dilution and higher concentrations of anti-infectives in wastewater.

"Anti-infectives might have a greater impact in developing countries, where sewage infrastructure can be lacking, over-the-counter drugs more widely available and industrial emissions less strict," adds first author Pedro A. Segura, a Université de Montréal PhD student.

Source: University of Montreal ([news](#) : [web](#))

Citation: Antibiotics, antimicrobials and antifungals in waterways (2009, June 9) retrieved 18 April 2024 from <https://phys.org/news/2009-06-antibiotics-antimicrobials-antifungals-waterways.html>

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