

W362 - Antibiotic resistance genes in onsite wastewater treatment systems

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Abstract Content

Wastewater treatment systems are important point sources of micropollutants, such as antibiotics and toxic metals. Continuous exposure to these substances may cause microorganisms to develop antibiotic resistance, which can spread among bacterial pathogens with the help of mobile genetic elements. Onsite wastewater treatment systems treating the wastewater of a single or a few households provide alternative solutions to centralized systems and are becoming increasingly popular. Domestic wastewater, however, may contain antibiotics and other drivers of antibiotic resistance, and while little is known about their performance, on-site treatment systems can essentially act as a source of antibiotic resistant genes and bacteria. In our study, we have analysed the chemical and microbiological composition of raw and treated wastewaters from on-site wastewater treatment systems to assess the presence and removal of micropollutants and antibiotic resistance genes. We have found that though composition of raw wastewater as well as the performance of these systems differed, pharmaceutical compounds as well as antibiotic resistance genes were present in OWTS. Although more analyses are needed to draw conclusion regarding factors driving the selection of resistance genes in these environments, our results highlight the importance of monitoring small domestic wastewater treatment systems.