Examining the effects of disinfection on the drinking water microbiome

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Abstract

Drinking water is essential for life, but drinking water distribution systems can contain hidden ecosystems. Complex microbial communities reside in water and the systems used for water storage and distribution. To manage these microbes and keep drinking water safe, water treatment plants often use disinfectants like chlorine. Unfortunately, disinfectants may affect the safety of drinking water by potentially boosting the formation of harmful disinfection byproducts. A recent study assessed the effect of disinfection treatment on microbial communities in drinking water. Using metagenomics, researchers compared the microbiomes of disinfected and non-disinfected drinking water distribution systems. The results suggested that disinfected drinking water contains a less diverse microbiome than non-disinfected water, and disinfection may select for microorganisms that can feed off of decaying microbes. Although further research is needed, the results suggest that disinfectant treatment consistently and systemically alters the drinking water microbiome, providing important insights on how to keep water safe to drink and stable during distribution.