Complex microbial interactions affect colonization of cooling towers by *Legionella*

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Abstract

Cooling towers are home to unique ecosystems of microorganisms. While many are harmless, some are pathogenic. Cooling towers have been linked to many outbreaks of Legionnaires' disease, a severe pneumonia caused by Legionella bacteria. A new study sought to identify microorganisms associated with cooling tower colonization by Legionella. Researchers identified complex ecological networks highlighting the importance of other bacteria and primary producers. For example, the presence of Brevundimonas bacteria was associated with higher levels of Legionella. Brevundimonas is prey for a Legionella host species, Tetrahymena. But Brevundimonas also directly stimulated the growth of Legionella in laboratory experiments. This study suggests that the Legionella host community is not the only factor that leads to Legionella outbreaks. Entire groups of microorganisms and their interactions play complex roles. Future work is needed to better understand these networks and how they vary over time. Those insights could be used to manipulate cooling tower microbiomes to reduce the presence of Legionella.