Killer prey: Ecology reverses bacterial predation

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Résumé

Ecological variation influences the character of many biotic interactions, but examples of predator–prey reversal mediated by abiotic context are few. We show that the temperature at which prey grow before interacting with a bacterial predator can determine the very direction of predation, reversing predator and prey identities. While Pseudomonas fluorescens reared at 32∘C was extensively killed by the generalist predator Myxococcus xanthus, P. fluorescens reared at 22∘C became the predator, slaughtering M. xanthus to extinction and growing on its remains. Beyond M. xanthus, diffusible molecules in P. fluorescens supernatant also killed two other phylogenetically distant species among several examined. Our results suggest that the sign of lethal microbial antagonisms may often change across abiotic gradients in natural microbial communities, with important ecological and evolutionary implications. They also suggest that a larger proportion of microbial warfare results in predation-the killing and consumption of organisms-than is generally recognized.

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