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2025 SEA Symposium Abstract

University of Massachusetts Amherst

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Siphoviruses like the cold: The distribution of phage morphologies differs between fall and spring semesters

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This study investigates the hypothesis that phages with siphovirus morphology have a wider temperature tolerance than podoviruses. A statistical analysis was performed using data from 491 phages collected between 2019-2024 at UMass Amherst. This data was used to identify patterns in phage morphology distribution, with a focus on temperature differences. Results show that the distribution of phage morphologies at UMass Amherst shows a significant difference depending on whether the soil sample was collected in the Spring or Fall semester. In the Fall, the distribution is approximately 50/50 for both morphologies. However, in the Spring, 15% of the phages found were podoviruses and 85% were siphoviruses. Average temperature ranges during the Spring were between -18°C and 12°C, and Fall temperatures ranged from 10°C to 34°C. Future experiments could include manipulating incubation temperatures when isolating phages to see if temperature has a direct impact on phage growth.