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2025 SEA Symposium Abstract

Mesa Community College Dobson Campus

Mesa AZ

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Discovery and Characterization of Environmental Bacteriophages from Arizona Soil

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In collaboration with the SEA-PHAGES program and the Howard Hughes Medical Institute, we investigated bacteriophage diversity in Arizona’s desert soils using Arthrobacter globiformis as a host. Our research aimed to address the underrepresentation of genomically characterized bacteriophages, currently numbering under 3,000, by isolating and studying novel environmental phages. Soil samples were collected from 3 different Arizona sites: Flagstaff, Black Canyon Lake, and the Mesa Community College Arboretum. Using enriched isolation techniques, we successfully isolated and purified 3 different phages via serial dilutions and plaque assays, followed by amplification in plate lysates. Select isolates undergo electron microscopy and molecular characterization. This research contributes to the growing understanding of phage diversity, their potential role in microbial ecology, and future applications in combating antibiotic-resistant bacteria, supporting CRISPR innovation, and exploring novel biotechnological uses.