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2023 SEA Symposium Abstract

University of Central Oklahoma

Edmond OK

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Isolation and characterization of Microbacterium paraoxydansNWU1 phage: Dr. Worm

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Antibiotic resistance has driven an increased interest in bacteriophage research during the past decade. Throughout Fall 2022 and spring 2023, a bacteriophage was isolated from a soil sample collected in Edmond and named DrWorm. After being purified, DrWorm was extensively characterized. We tested the host range and temperature stability of our virus. The phage particle was visualized using transmission electron microscopy. The phage genomic DNA was extracted using PCI method. The extracted DNA was subjected to restriction digest using EcoRI, HaeIII, HindIII, SacII, SalI, and NspI. DrWorm has Siphoviridae morphology with a long flexible tail. Our assay confirms that the virus is a lytic virus and does not become a prophage. DrWorm has a very narrow host range as it can only infect Microbacterium paraoxydans. The phage is stable and retains its infectivity up to 60C. at 65C the phage is inactivated. Our restriction digest analysis shows that the phage genome has multiple restriction sites for HaeIII and SacII. Our future work will involve testing the pH stability and sequencing our phage genome.