CONSIDER FOR TALK

2023 SEA Symposium Abstract

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Mycobacteriophage Isolation and Characterization from local soils in Long Island

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SUNY Old Westbury joined the 10th Cohort of HHMI SEA-PHAGES in 2017. The phage discovery component was the objective of the general Biology I Laboratory (BS2401). We are reporting the results of the Phage Discovery component from Fall 2022. The course enrolled 11 students, and we isolated and characterized 11 novel viruses. Two of them were isolated using direct isolation and 11 through enriched isolations, using Mycobacterium smegmatis mc2155. The soil samples were collected by the students from Nassau or Suffolk counties soils. The phages were isolated through several cycles of purification and amplification. We prepared TEM grids that were processed at the BNL Center for Functional Nanomaterials. Nine of the phages are Siphoviridae, seven of them with an icosahedral head and two with a hot-dog shaped head. The other two were Myoviridae. We extracted their DNA to be processed for sequencing. We are reporting the annotation of one of these isolates, Matsumoto isolated from Garden soil from Old Westbury, NY. Matsumoto is a lytic phage, with Myoviridae morphotype, and belongs to the C1 cluster. It forms small, circular, clear plaques of approximately one millimeter in diameter. It was sequenced at the Pittsburgh Bacteriophage Institute using an Illumina platform with approxiamtely 629 shotgun coverage. Matsumoto’s genome is 154,995 bp, circularly permuted and 64.7% GC content and 230 genes, only six of them coded on the reverse strand.