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The Isolation and Characterization of a Temperate Phage Cogvinedu using Arthrobacter sp. KY3901

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Bacteriophages are viruses that infect and replicate only in bacterial cells. They are abundant in the environment and the human gut. They are species/strain-specific with potential application in treating human bacterial infections. In this study, we sought to find bacteriophage that would infect the bacteria Arthrobacter sp. KY3901 from Oklahoma soil. The experiments were conducted as part of the Fall 2020 Virology course at the University of Central Oklahoma, an HHMI SEA-PHAGES program member. We were able to isolate and purify a phage that we named Cogvinedu. We extracted the DNA, performed the restriction digest, and image the virion particle using TEM. We also determined if our phage was lytic or a temperate phage using a spot test. Our results indicate that our phage has a Siphoviridae morphology and is a temperate phage. The genome did not contain any restriction sites for BamHI and Clal enzymes. Our phage information was entered into the Actinobacteriophage database, and our phage has been archived. Our future research will include creating a lysogen and performing immunity assays with other Arthrobacteriophages isolated in our class.