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UP54 The isolation and characterization of the bacteriophage Erock

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Abstract

Bacteriophages are a type of virus that infects bacteria. Bacteriophages have multiple uses in research and medical fields such as vectors for moving genes and alternative treatment for antibiotic resistant bacteria. In this project, a novel bacteriophage Erock was isolated from a soil sample by enrichment with *Mycobacterium smegmatis*. The gDNA was extracted from the high titer lysate, followed by restriction enzyme digest. The morphology of Erock was studied with uranyl acetate staining and transmission electron microscopy. The lysogen of Erock was isolated with an extended spot test and confirmed with a patch test. Plates were set up to measure virus efficiency on its host by seeding different amounts of bacteria on phage-coated plates. The phage morphology was observed to be more lytic. The restriction digest analysis shows that Erock contains multiple sites for the enzymes *BamH I*, *EcoR I*, *Cla I*, and *Hae III*. The TEM image indicates the capsid is 86nm in diameter and the tail 400nm long. The virus efficiency is estimated to be 20%-30%. Due to the high survival rate of the host, Erock would not make a suitable candidate for antibiotic replacement. However, Erock could be a tool to study gene transfer.