CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)

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Project Number

35313

Project Title

Which Bacteriophage Is Better at Killing Bacteria?

Abstract

Objectives/Goals

This experiment studied which bacteriophage strain (T4r+, phiX174, or P1) would lyse a larger area of various Escherichia coli strains (B, C, K-12, and K-12 pilus forming) when compared to the titer of the phage in the solution added.

Methods/Materials

0.25-mL of the bacterial culture was micropipetted into a vial containing 3-mL of soft agar and 0.1-mL of a dilution of a strain of bacteriophage. The mixture was distributed evenly on an agar plate and the process was repeated for all of the other combinations of bacterial strain, phage strain, and phage dilution. The number of plaques was recorded at 12 and 36 hours for all of the plates.

Results

P1 lysed less area of the bacterial lawn than phiX174, but it also had a lower titer and was therefore slightly more efficient. T4r+ did far better than either of them in virtually all of the trials.

Conclusions/Discussion

The results indicate that T4r+ would be most efficient at lysing E. coli. Also, it would appear that the accuracy of the phage is not as important as its speed in lysing the cell since the way the different strains performed directly correlated to their speed in lysing their host cell.

Summary Statement

This experiment tested which bacteriophage was more efficient at lysing E. coli cells.

Help Received

Preliminary