

Growth Lab - Biofundamentals

Name:

Date:

LA section:

Experiment 1: Optimum growth temperature for *E. coli*:

In your write up, note the maximum and optimal growth temperature for *E. coli* under these conditions (+ or - 1°C)? (include your data).

Answer the questions

Q1: Since *E. coli* normally grows in your gut, speculate on why its optimal growth temperature is different from the commonly cited temperature of a normal healthy human - 37°C.

Q2: Given what is known about humans, why is it unlikely that a thermophile or a psychrophile would be a human pathogen?

Q3: How does lowering the temperature 15°C from the optimal growth temperature affect growth rate?

Q4: What type of organism is *E. coli* (in terms of temperature preference)? Why is your characterization of *E. coli* tentative? What kinds of data would lead you to modify your characterization?

Experiment 2: Viable bacteria as a function of time.

Determine the concentration of CFUs per ml as a function of time over a 96 hour period. (Include your data).

Answer the questions

Q1: How long does it take to reach the maximum CFU/ml?

Q2: What is the CFU/ml after 96 hours? How does that compare to the maximum CFU/ml.

Q3: Why does the CFU/ml drop? Propose an experiment to resolve whether death is random or whether bacteria with specific variations survive preferentially?