

# BIO 201 Lab 5

## Experiment 6 Results

Professor Diane Hilker



# Overview

## I. **Exp. 6: Standard Plate Counts**

# I. Exp. 6: Standard Plate Count

- ▶ **Purpose:** To determine the number of bacteria in a sample (quantitative procedure).
- ▶ **Looking for a Countable Plate:** 30–300 bacterial colonies
  - **TNTC (Too Numerous To Count):** more than 300 colonies
  - **TFTC (Too Few To Count):** less than 30 colonies



# I. Exp. 6: Standard Plate Count

- ▶ To assist in counting use a **Quebec Colony Counter**
  - Select the plate that has between 30–300 colonies
  - Each colony counted
  - Use a wax marking pencil to divide the plate into quarters
  - Based on the number of colonies and the dilution, **determine the number of bacteria in the original sample.**



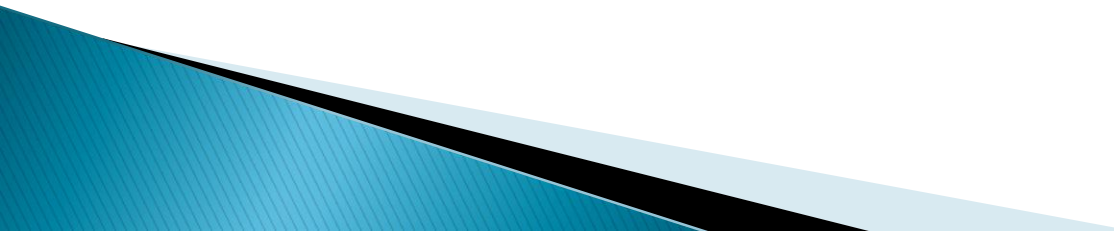
# **I. Exp. 6: Standard Plate Count**

- ▶ For example:  $10^{-4}$  plate appears to have between 30–300 colonies. It is counted and contains 78 colonies. How many bacteria are in the original 1 ml sample of sponge water?
  - $78 \text{ colonies} \times 10^{+4} = 780,000$  bacteria in original 1 ml
- ▶ Based on this number how many microbes would you anticipate to visualize in the other plates?
  - Remember: You didn't count the  $10^0$ – $10^{-3}$  plates because they appeared TNTC & the  $10^{-5}$ – $10^{-6}$  plates appeared TFTC

# I. Exp. 6: Standard Plate Count

- ▶ **\* $78 \times 10^{+4} = 780,000$  bacteria in original 1 ml**
  - **$10^0 = 780,000$  bacteria: TNTC**
  - **$10^{-1} = 78,000$  bacteria: TNTC**
  - **$10^{-2} = 7,800$  bacteria: TNTC**
  - **$10^{-3} = 780$  bacteria: TNTC**
  - **\* $10^{-4} = 78$  bacteria: Countable plate**
  - **$10^{-5} = 7$  or  $8$ : TFTC**
  - **$10^{-6} = 0$ : TFTC**
- ▶ *Note: Your calculated result should be the same as the  $10^0$  (if a liquid) or  $10^{-1}$  (if a solid)*

# **I. Exp. 6: Standard Plate Count**

- ▶ Instructor will demonstrate how to count colonies
  - ▶ Calculate the number of bacteria in the original 1 ml sponge water sample or rinsed bagged lettuce salad
  - ▶ Calculate the number of bacteria in the original 10 grams of ground raw turkey meat.
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# BIO 201 Lab 5

## Experiment 7 & 8

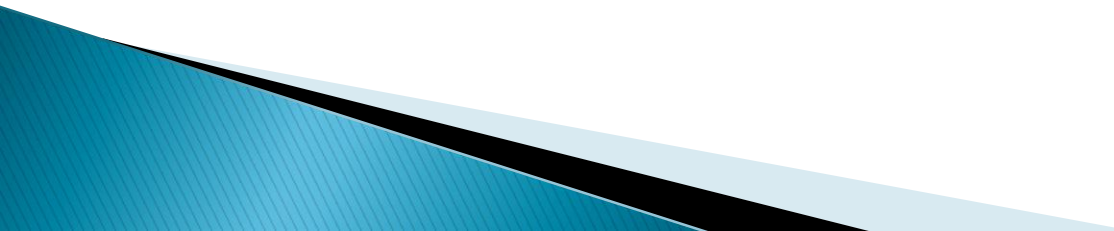
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# Overview

- I. **Exp. 7: Temperature Requirements for Growth**
- II. **Exp. 8: Lethal Effect of Heating on Microbes**

# I. Exp. 7: Temp. & Growth

- ▶ **Purpose:** To determine the effects of temperature on microbial growth.
  - ▶ You will be working with a partner and doing either Exp. 7 **OR** Exp. 8
  - ▶ Theory to be discussed in the next lab
  - ▶ Refer to Table 1
  - ▶ Instructor will demonstrate and explain the experiment
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# Overview

- I. Exp. 7: Temperature Requirements for Growth
- II. Exp. 8: Lethal Effect of Heating on Microbes

## **II. Exp. 8: Lethal Effects of Heat**

- ▶ **Purpose:** To determine the time & temperature it takes to kill certain microbes.
  - ▶ Theory to be discussed in the next lab
  - ▶ Refer to Table 2
  - ▶ Instructor will demonstrate and explain the experiment
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