

BIO 201 Lab 8

Experiment 23 Results

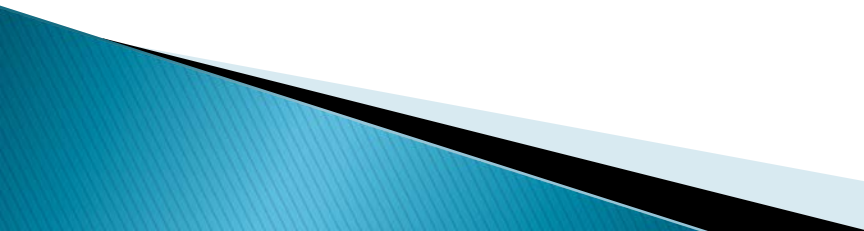
Professor Diane Hilker



Overview

- I. **Exp. 23: Transformation of *E. coli***

I. **Exp. 23: Transformation of *E. coli***

- ▶ **Purpose:** To genetically transform *E. coli* so that it is resistant to the antibiotic ampicillin
 - ▶ Refer to Study Guide Handout to be given in class
 - ▶ Examine the Control 1, Control 2 and DNA plates for growth.
 - ▶ How many colonies have been transformed and are now resistant to ampicillin?
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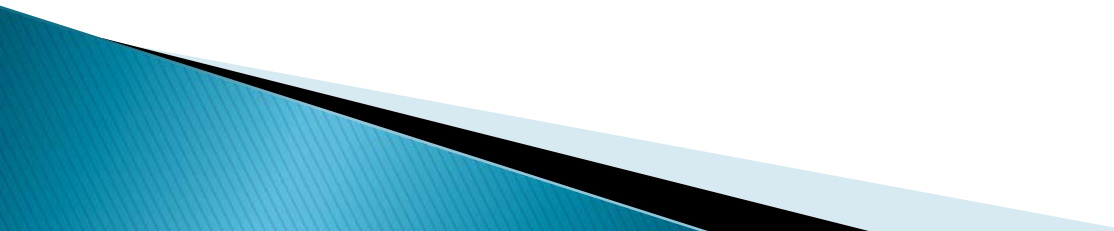
BIO 201 Lab 8

Experiments 13,14, 17, & 18

Professor Diane Hilker



Overview

- I. **Exp. 13: Evaluation of Antimicrobial Agents**
 - II. **Exp. 14: Evaluation of Antibiotics**
 - III. **Exp. 17: Skin Flora–*Staphylococcus***
 - IV. **Exp. 18: Throat Flora**
- 

I. Exp. 13: Antimicrobial Agents

- ▶ **Purpose:** To determine the effects of antiseptics, disinfectants & food preservative compounds on microbial growth.

- **Disinfectant:** chemicals that reduce the number of microbes on **inanimate objects** or **fomites**

- What disinfectants do you use at home?



I. Exp. 13: Antimicrobial Agents

- **Antiseptic:** chemicals that reduce the number of microbes on **living tissue or mucous membranes**

- What antiseptics do you use?



I. Exp. 13: Antimicrobial Agents

- **Zone of Inhibition:** area that shows no microbial growth
 - Larger the Zone → More effective the chemical



I. Exp. 13: Antimicrobial Agents

- **Refer to Table 7**
- **Instructor will demonstrate and explain the experiment**

Overview

- I. Exp. 13: Evaluation Antimicrobial Agents
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II. Exp. 14: Antibiotics

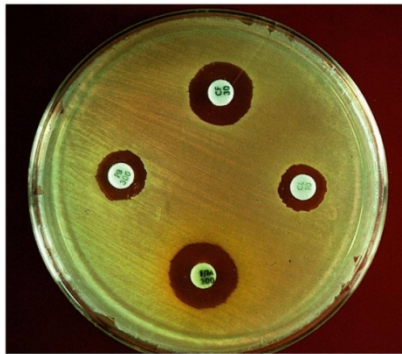
▶ **Purpose:** To determine the effects of antibiotics on certain microorganisms.

- **Defn:** chemicals that are produced by microbes (bacteria or molds) or chemically synthesized and they are either microbicide or microbiostatic



II. Exp. 14: Antibiotics

- ▶ Broad Spectrum vs. Narrow Spectrum Antibiotics
- ▶ In-vitro vs. In-vivo testing



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II. Exp. 14: Antibiotics

- **Refer to Table 8**
- **Instructor will demonstrate and explain experiment**

Overview

- I. Exp. 13: Evaluation Antimicrobial Agents
- II. Exp. 14: Evaluation of Antibiotics
- III. Exp. 17: Skin Flora–*Staphylococcus*
- IV. Exp. 18: Throat Flora

III. Exp. 17: Skin Flora

- ▶ **Purpose:** To investigate & isolate microbes from the skin. To understand how selective & differential culture medias can be used to identify microorganisms.
- ***Staphylococcus epidermidis***-most prevalent microbe of the skin
- ***Staphylococcus aureus*** –pathogenic microbe that can cause boils, skin infections and food poisoning

III. Exp. 17: Skin Flora

3 Types of Culture Media To Be Used

1. Enrichment Media

- **Nutrient Agar (NA)**—supports the growth of most microbes

2. Selective Media—selecting for halophile

- ***Staph 110**
- ***Mannitol Salt Agar (MSA)**
 - Both contain 7.5% NaCl
 - *S. epidermidis* & *S. aureus* will grow

III. Exp. 17: Skin Flora

3 Types of Culture Media To Be Used

3. Differential Media : differences to be observed

- **Mannitol Salt Agar (MSA)**–can tell the difference between *S. epidermidis* & *S. aureus*
 - How? pH indicators

III. Exp. 17: Skin Flora

- pH indicators: chemicals that change color as a result of a pH change
 - Used to determine if a microbe can ferment a compound if it's added to culture media

Example: Phenol Red

- Red/orange: pH 6.8–8.4
- Yellow: below pH 6.8
- Magenta or purple: above pH 8.4

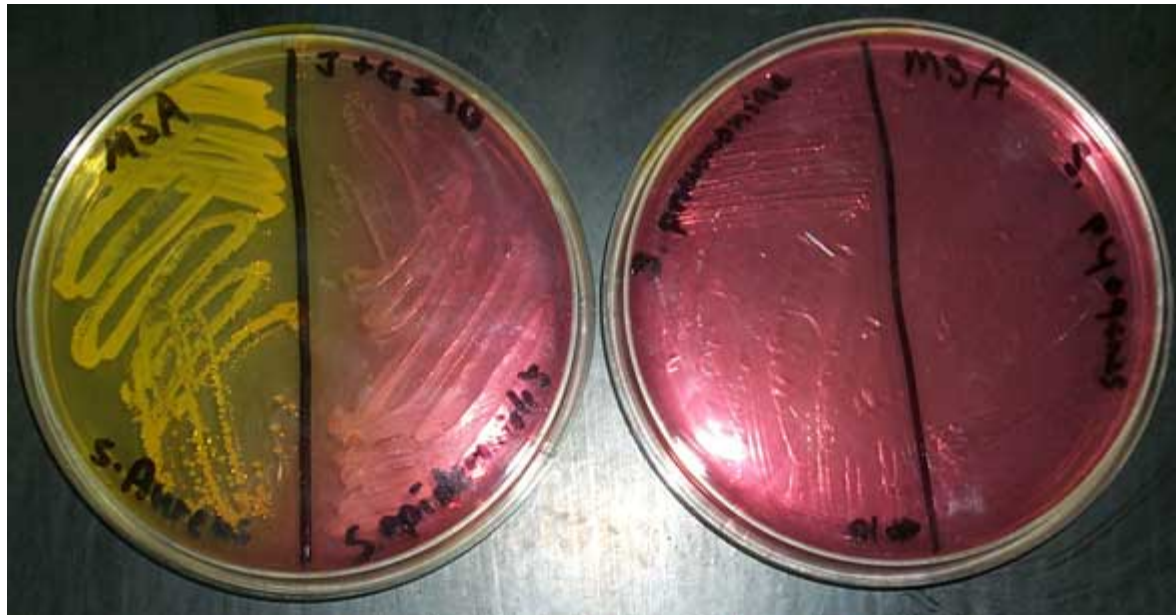


III. Exp. 17: Skin Flora

- **Mannitol Salt Agar (MSA)**–can tell the difference between *S. epidermidis* & *S. aureus*
 - MSA contains: mannitol, NaCl, phenol red
 - If a microbe ferments mannitol:
Mannitol → [H⁺] produced which lowers pH
 - Phenol red goes from pink to yellow
 - *S. aureus* ferments mannitol (yellow plate)
 - *S. epidermidis* does not ferment mannitol (pink plate)

III. Exp. 17: Skin Flora

- Mannitol Salt Agar (MSA)



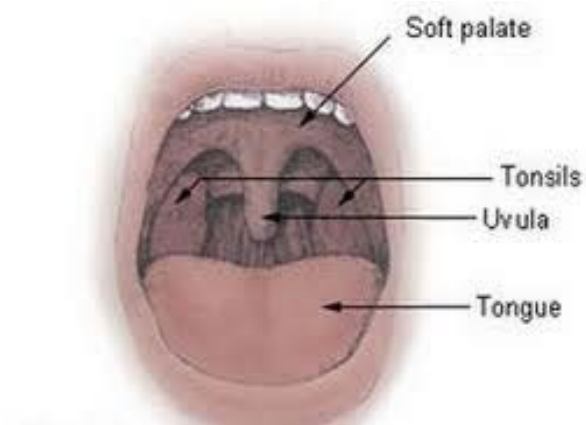
- Instructor will demonstrate and explain what areas of the body will be tested on which plates

Overview

- I. Exp. 13: Evaluation Antimicrobial Agents
- II. Exp. 14: Evaluation of Antibiotics
- III. Exp. 17: Skin Flora–*Staphylococcus*
- IV. Exp. 18: Throat Flora

IV. Exp. 18: Throat Flora

- ▶ **Purpose:** To isolate & examine microbes obtained from the throat & to observe the three different types of hemolytic reactions.



IV. Exp. 18: Throat Flora

- ▶ Use another type of Differential Culture Media
- ▶ **Blood Agar Plates (BAP)**– 3 different types of hemolysis. Will be explained in the next lab.

IV. Exp. 18: Throat Flora

- ▶ Throat swab to be streaked on a Blood Agar Plate (BAP)
- ▶ Instructor will explain and demonstrate