

## EXPERIMENT 7: DIVERSITY OF BACTERIA

### Course Learning Outcome:

Solve problems related to transport system processes, mechanisms for adaptations in living things, ecological and environmental issues in biology.

(C4, PLO 2, MQF LOC ii)

### Learning Outcomes:

At the end of this lesson, students should be able to:

- i. Differentiate Gram-positive and Gram-negative bacteria.
- ii. Identify the different shapes of bacteria.
- iii. Identify the functions of chemical used in Gram staining process.

### Student Learning Time:

Face-to-face	Non face-to-face
1 hour	1 hour

Direction: Read over the lab manual and then answer the following questions.



### Check this out:

NEWS f <

## Health Ministry identifies salmonella strain behind laksa deaths



**Bernama**  
Published 22 Oct 2018, 10:56 am • Modified 22 Oct 2018, 11:05 am

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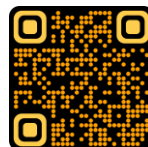
For further details related to the above headline, do click URL below:

Bernama online news: <https://www.malaysiakini.com/news/448379>

Want to know more about *Salmonella*?

<https://www.youtube.com/watch?v=xOamez79hLA>

Gram staining : <https://biologydictionary.net/gram-positive-vs-gram-negative/>



**Introduction:**

1. State **TWO** ways to show the diversity of bacteria.

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2. What is Gram staining?

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3. What are the differences between Gram-positive bacteria and Gram-negative bacteria in term of cell wall?

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**Experiment:**

1. State the variables for this experiment:

Constant variable : \_\_\_\_\_

Manipulated variable : \_\_\_\_\_

Responding variable : \_\_\_\_\_

2. Why it is important to heat-fixing the bacteria?

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3. Why gram-positive bacteria stained purple crystal violet?

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4. Why do we add iodine?

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5. What is the purpose of alcohol?

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6. What is the effect of adding safranin to the positive and negative Gram staining bacteria?

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7. Which is the most crucial step in Gram stain?

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8. State the shape of each bacterium.

- i. *Escherichia coli* : \_\_\_\_\_
- ii. *Staphylococcus aureus* : \_\_\_\_\_
- iii. *Lactobacillus acidophilus* : \_\_\_\_\_
- iv. *Vibrio cholera* : \_\_\_\_\_
- v. *Leptospira interrogans* : \_\_\_\_\_

9. List **THREE** precaution steps for the experiment.

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