

LABORATORY ACTIVITY

Recourse Person : Julia Hartati
 Subject : Identification of coccus gram positive and bacil gram negative
 Department : Microbiology

A					Sequent				
	I	Introduction			:	30 Minutes			
	II	Pre-test			:	10 Minutes			
	III	Lab. Activities			:	60 Minutes			
	IV	Post test (nggak ada post test)			:	10 Minutes			
B					Topic				
		1. Identification of Gram positive bacteria 2. Identification of Gram negative bacteria 3. Performed Gram staining and culture to plate media (no. 3 nggak ada)			:	15 Minutes 15 Minutes 30 Minutes			
C					Venue				
					Biomedical Laboratory, Faculty of Medicine, Unisba, Jl. Tamansari No.22 Bandung 40116				
1	Identification of Gram positive bacteria	1. Slide of Streptococcus pneumoniae 2. Streptococcus pneumoniae colony on blood agar media 3. Staphylococcus aureus colony on blood agar media 4. S. aureus and S. Pneumoniae colony on Mueller Hinton slide media 5. Coagulase test tube from S. aureus and S. Pneumoniae reaction 6. Optochin test on S.pneumoniae and S.viridans colony on blood agar 7. Inulin test on S.pneumoniae and S.viridans 8. Light bright microscope 9. Immersion oil 10. Filter paper 11. Ether alcohol							
2	Identification of Gram negative bacteria	Equipment 1. Slide of Klebsiella pneumoniae							

	<ol style="list-style-type: none"> 2. Klebsiella pneumoniae colony on MacConkey media 3. Salmonella enterica ser.typhi colony on MacConkey media 4. KIA media with K.pneumoniae, E.coli, S.enterica ser.typhi, and S.dysenteriae 5. Motility test from K.pneumoniae, E.coli, S.enterica ser.typhi, and S.dysenteriae 6. Urease and indol test from K.pneumoniae, E.coli, S.enterica ser.typhi, and S.dysenteriae 7. Light bright microscope 8. Immersion oil 9. Filter paper 10. Ether alcohol
E	Pre-requisite/Pre-test
	<p>Note: If the pre-test score less than 50, the student can't allow to do lab. Activities</p>
F	Lab. Activities
	<ol style="list-style-type: none"> 1. The Students were divided into six group 2. Each group do lab. Activities accompanied by tutor
	<p>Lab. Ac1: Identification of Gram Positive Cocci (e.g. Streptococcus viridans)</p> <p>The sample provided was obtained from sputum</p> <ol style="list-style-type: none"> 1. What is the first thing you are going to do with your culture? 2. How would you describe the colony?

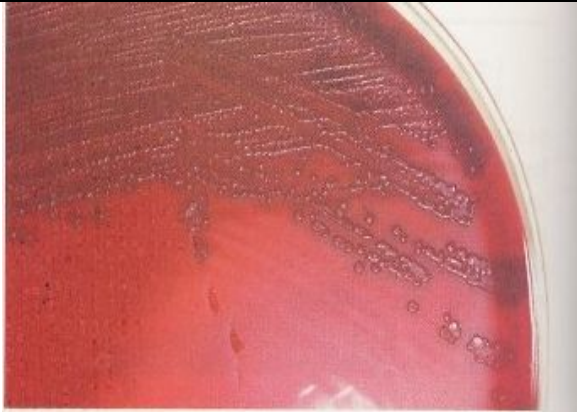
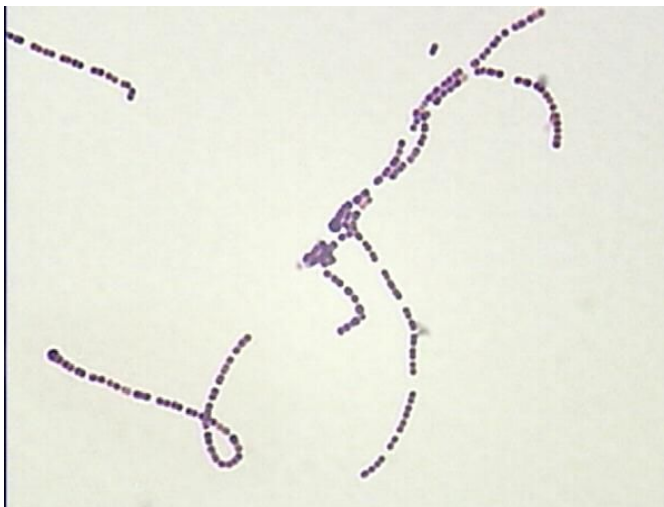


Figure 11-4 _____
An α -hemolytic streptococcal colony on blood agar.



3. What will you do next with the colony?
4. What does this Gram stain show



5. Does this mean the bacteria must be streptococci?
6. What test do you do next?
7. What does this result mean?

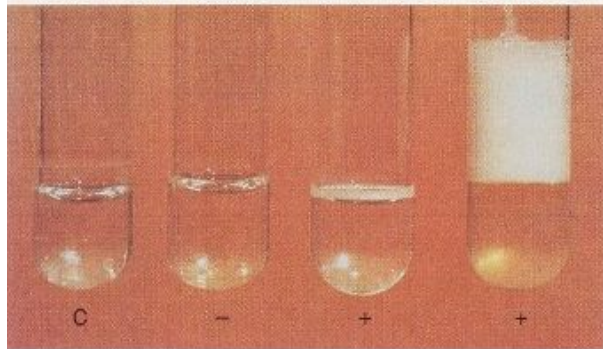


Figure 22-4
Catalase test.

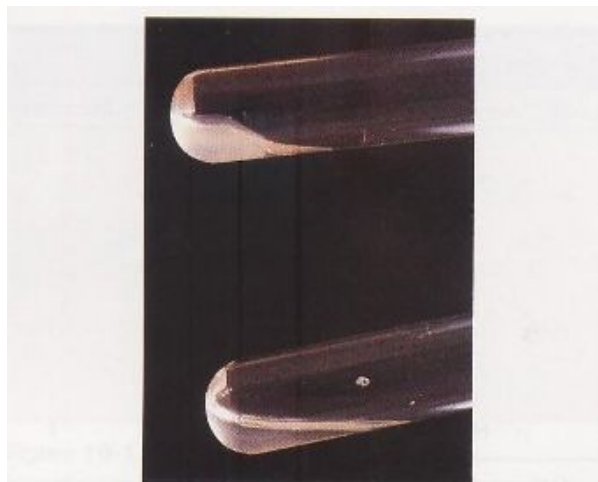
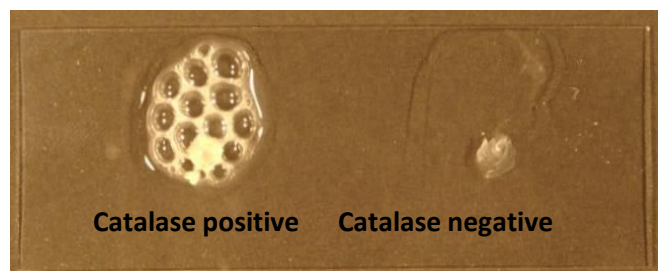
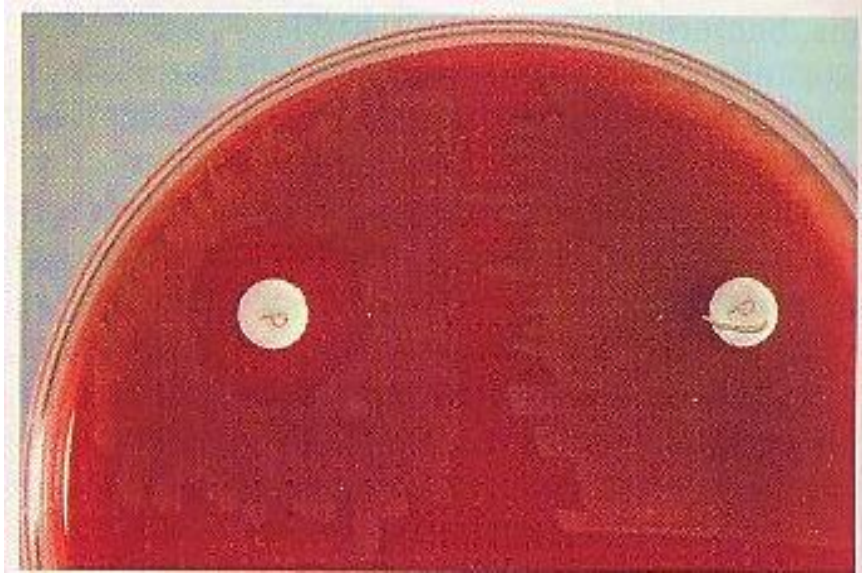


Figure 10-5
Tube coagulase test detects extracellular enzyme "free coagulase." Top tube is coagulase positive.

8. What test do you do next?



9. What does this result mean?

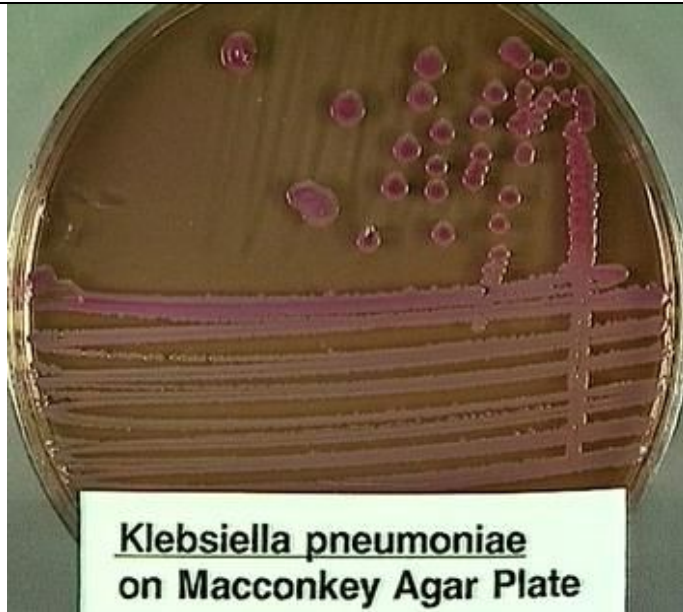
Student task:

1. Answer the questions above
2. Prepare the light microscope (The students have to skill using a light microscope)
3. Take a slide & observe with light microscope with 1000x magnification
4. Draw morphology of Gram positive bacteria
5. Identify coloni of blood agar
6. Intepret test for Gram positive bacteria identification (catalase, coagulase & disk test)

Lab. Ac2

Identification of Gram Negative Rod (e.g. *Klebsiellapneumoniae*)

- 1. What is the first thing you are going to do with your culture?**
- 2. What is the significance of the colony?**



3. What will you do next with the colony?

4. What does this Gram stain show?



5. What test do you do next?

6. What does this result mean?

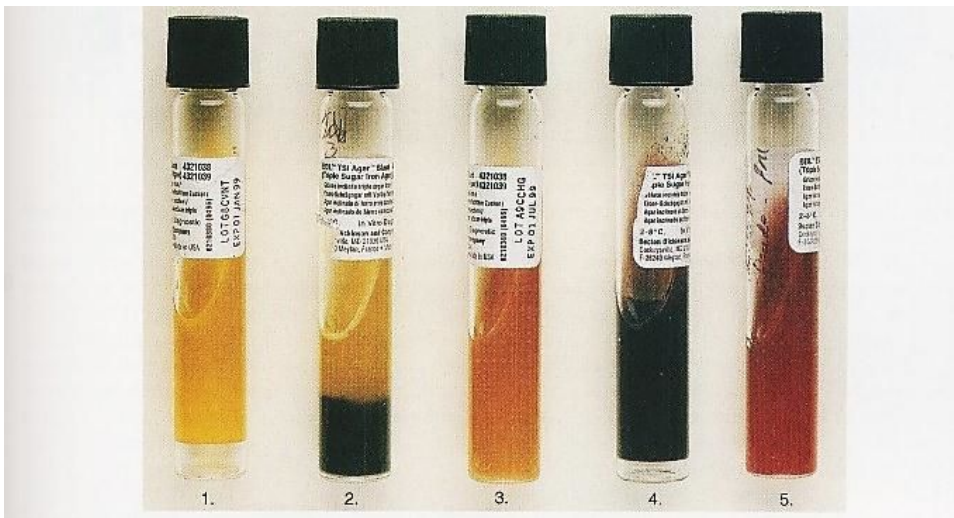


Figure 16-13 Triple sugar iron agar reactions of Enterobacteriaceae. *Left to right:* Tube 1, A/A gas; tube 2, A/A H₂S; tube 3, K/A; tube 4, K/A H₂S; tube 5, K/K.

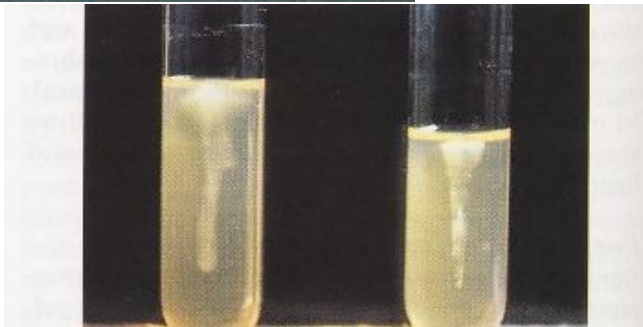
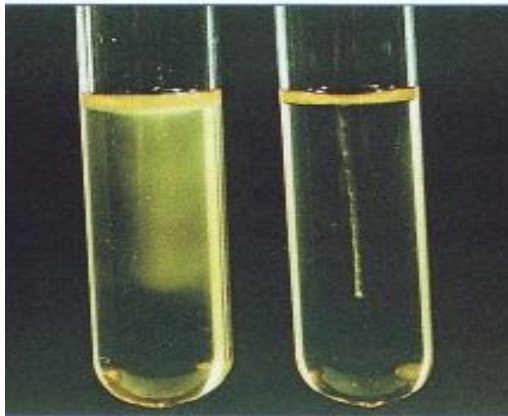


Figure 12-5
 Umbrella motility: *Listeria*. Motility test for *Listeria monocytogenes* showing the typical “umbrella” pattern, which occurs towards the surface of the medium, when this organism is incubated at room temperature. Tube on the left is positive. Tube on right is negative control.

Motility



Indole

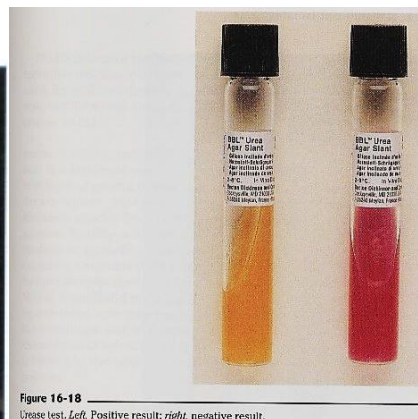


Figure 16-18
 Urease test. *Left*, Positive result; *right*, negative result.

Urease



7. What does this result mean?

Students task:

1. Answer the questions above
2. Prepare the light microscope (The students have to skill using a light microscope)
3. Take a slide & observe with light microscope with 1000x magnification
4. Draw morphology of Gram negative bacteria
5. Identify coloni of blood agar
6. Intepret test for Gram negative bacteria identification (KIA. MIU & citrate test)

F. REFERENCES

1. Problem-Based Microbiology, Elsevier Saunders, 2006
2. Medical microbiology, 5th edition, Elsevier Mosby, Philadelphia, 2005
3. Clinical Bacteriology, Manson Publishing, 2003
4. Jawetz, Melnick, &Adelberg's Medical Microbiology, 23rd Edition, The McGraw-Hill Companies, 2006

G. HOMEWORK

Homework assignment:

READ THE LABORATORY MANUAL !

- A. Explain about principle of Gram staining
- B. Describe various shape and formation from gram staining
- C. Describe interpretation of blood agar media
- D. Describe interpretation of MacConkey media
- E. Describe positive results from catalase test, coagulase test, optochin test, and inulin test
- F. Describe positive results from KIA media, Motility test, Urease test, indole test and citrate test

