

Chemistry report examples

[Literature](#), [Russian Literature](#)



Part 1

1.

1. Eye piece 5. Arm

2. Objective lens 6. Coarse adjustment knob

3. Stage 7. fine adjustment

4. Base

2. What is the procedure (step by step) which you followed to do gram staining? (20 points)

1. Obtain a tissue sample for the gram stain.

2. Two or three drops of the sample were placed on the glass slide.

3. Use the electric slide warmer, heat the smear. Alternatively, this can be done by quickly passing it over a flame. Although should be very quick to avoid distortion.

4. Add crystal violet to the smear.

5. Rinse off the violet crystal from the smear. This should be done using tap water.

6. Add a few drops of iodine on to the smear.

7. Rinse off the iodine from the smear using water.

8. Add acetone to the smear to decolorize the smear.

9. Wash off the excess acetone/ethanol using cold water.

10. Add safranin (counter stain) to stain the decolorized negative bacteria.

11. Wash off the excess safranin using water.

12. Dry the stain.

13. View the slide using a light microscope.

3. What is the step by step process for looking at your prepared gram stain

slide?

- i. The slide should be placed on the stage and held in position using the metal clips.
- ii. Bring the stage close to the objective lens to start viewing. The coarse adjustment knob is used to adjust the position of the stage.
- iii. Observe at the eye piece to view the image. Move the stage using the adjustment knobs to bring the image into clearer view.
- iv. The last step is to observe the image of the specimen. Sometimes dust particles may appear like the specimen. It is recommendable to move the stage to see whether what you are viewing also moves with the stage. If the image moves as the stage moves, then this confirms that it is the real image of the specimen that you are viewing.

4. What does Gram-positive tell you about the microorganism?

Positive test gram bacteria have more peptidoglycan layers and less lipopolysaccharide in their cell walls. This implies that the bacteria are able to retain the violet crystal.

5. What does Gram-negative tell you about the microorganism?

Negative gram test bacteria have less peptidoglycan layers and more lipopolysaccharide. This explains why they are unable to retain the violet crystal.

6. What color indicates positive?

Violet or blue color.

7. What color indicates negative.

Red or pink.

8. What is the name of the other staining technique we used?

9. What are the 5 Kingdoms of microorganisms? Give an example of each one.

Acid fast test is another technique. It classifies bacteria into groups. That is acid fast and non-acid fast bacteria.

- 1) Viruses e. g. Adenovirus
- 2) Bacteria e. g. Streptococcus
- 3) Protozoan e. g. entamoeba
- 4) Algae e. g. sytonema
- 5) Fungi e. g. zygomycota

Part 2

1. The minimal sample size that is most appropriate in this project is one liter of the pond water. The one liter is appropriate because with this sample size, all the test needed can be carried out efficiently. The sample size of one liter is also sufficient and enough to conduct a rerun of the experiment if need arises.

2. A box and whisker plot is essentially a statistical or mathematical method of numerical data representation that uses quartiles. The plot in a box and whisker plot usually extends from boxes, also known as whiskers, in a vertical manner. This is used to indicate the variability that is exhibited out of the upper quartile and the lower quartile.

0. 035 0. 038 0. 042 0. 046

3.

Mean= 0. 0429

Median = 0.042

Mode = 0.049

4.

Standard deviation = 0.004706

Variance = 2.215×10^{-5}

5. A null hypothesis can be defined as the statement written down in scientific research that is used to give an assertion of the status quo. The statement implies that any deviation or change from what is expected or what is perceived as true in the experiment, usually results from random errors incurred in the course of sampling.

On the other hand an alternate hypothesis which is actually the opposite of the null hypothesis implies that any difference that is manifested between the value that is expected and the value that is actually observed is existent in real life. Furthermore, this difference is not attributed to random errors in the experiment.

6.

Null hypothesis: The level of phosphorus concentration in this pond is 0.039mg/L

Null Hypothesis (H_0)

$H_0: \mu = 0.039$

Alternate hypothesis: The level of phosphorus concentration in the pond is not 0.039mg/L

Alternate hypothesis (H_a)

$H_a: \mu \neq 0.039$

References

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