



Electrophoresis Experiment

Worksheet

AgriBiotechnology
Research & Development

Interval 1
Segment 2

The objective of this experiment is to orient you with the basic protocol for performing electrophoresis. You will ultimately determine whether different molecules can be separated using agarose gel electrophoresis. You will follow the scientific method and take notes throughout this experiment that can be used when writing a comprehensive lab report at the end of this procedure.

Question/Problem

Can agarose gel electrophoresis be used to separate molecules of different size, shape, and charge?

Research

In some of the following segments, you will be learning some background information that is relevant to the electrophoretic theory.

Hypothesis

The hypothesis is an **educated** guess of what you think the outcome of the experiment will be. The hypothesis should be made **AFTER** you are finished with your research segments; otherwise, your guess will not be educated. State your hypothesis below.

Experiment

The experiment is the procedure or method you go through to answer the question and find out if the hypothesis is right or wrong. You must keep a detailed report of the procedure that you are instructed to follow.

Equipment and Materials

List all materials and equipment used during the experiment; this can be compiled as steps are completed.

Preparing the Gel Bed

Record the procedure you followed when preparing the gel bed.



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Casting the Gel

Record all steps in gel preparation and end with the storing of the solidified gel.



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Preparing the Electrophoresis Chamber

Record the procedure from the point of obtaining the stored gel through just before loading samples.

Loading Samples

Record the procedure you followed to properly load samples into the wells of the gel.



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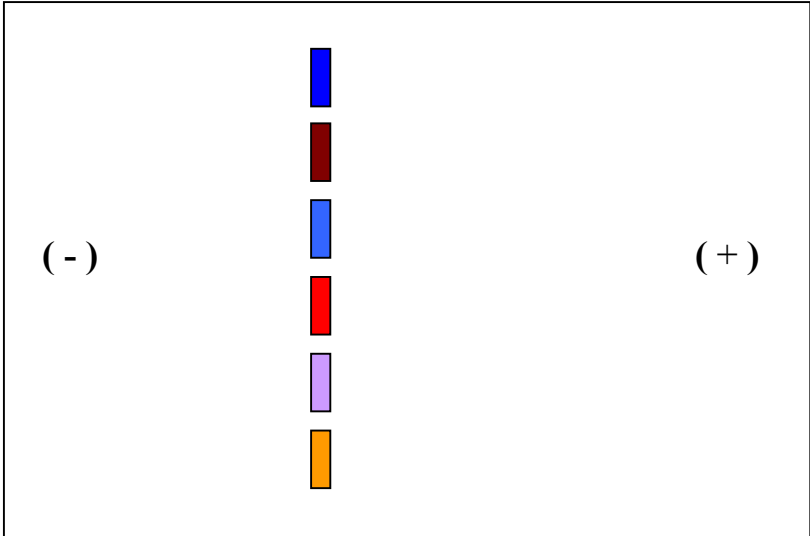
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Running the Gel

Record the procedure you followed from just after loading all of the samples to disconnecting, cleanup, and storage of the apparatus.

Collect and Analyze Data

Data is usually collected in some type of data table or chart and then graphed for easier interpretation if possible. Identify which components of each dye were separated and their relative positions in the gel after electrophoresis.

1 2 3 4 4 5 6	(-) 	(+) <table border="1" style="margin: auto;"><thead><tr><th><u>LANE</u></th><th><u>TUBE</u></th></tr></thead><tbody><tr><td>1</td><td>A</td></tr><tr><td>2</td><td>B</td></tr><tr><td>3</td><td>C</td></tr><tr><td>4</td><td>D</td></tr><tr><td>5</td><td>E</td></tr><tr><td>6</td><td>F</td></tr></tbody></table> <p>A = ORANGE B = PURPLE C = RED D = BLUE 1 E = DYE MIX F = BLUE MIX</p>	<u>LANE</u>	<u>TUBE</u>	1	A	2	B	3	C	4	D	5	E	6	F
<u>LANE</u>	<u>TUBE</u>															
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Results

After the data has been analyzed, simply describe what happened in the experiment.

Conclusion

Give your interpretations of the data collected during the experiment and relate them to the question posed in the introduction. Draw some conclusions, supporting them with your data. State if the hypothesis was right or wrong, the significance of your findings, and if you feel that other studies might be necessary in order to clear up discrepancies or ambiguities in your results.