

Lettuce Seed Dose/Response Bioassay Data Form

Name _____

Date _____

Chemical tested _____

100% concentration _____ mg/L

Length of experiment _____ days

Constants (such as temperature and light) _____

Table 2a. Seed Germination Data

Concentration (%)	Concentration (mg/L)	# Seeds Germinated/Dish			Average # Seeds Germinated
Control					
0.001%					
0.01%					
0.1%					
1%					
10%					
100%					

Table 2b. Radicle Length Data

Concentration (%)	Radicle Length (mm)												Average Length (mm)	
Control														
0.001%														
0.01%														
0.1%														
1%														
10%														
100%														

Make bar graphs of the averages you calculated in Tables 1a and 1b:

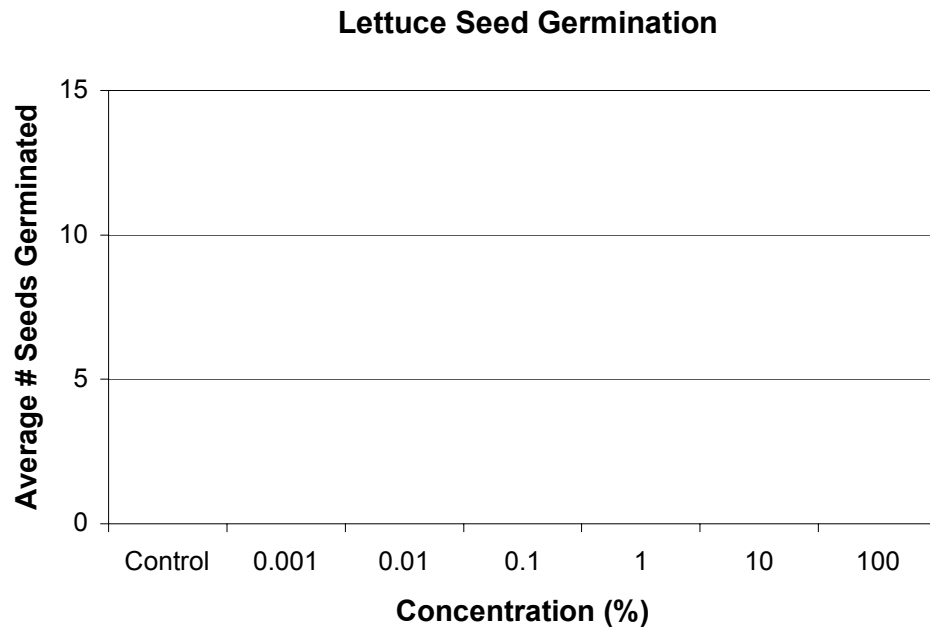
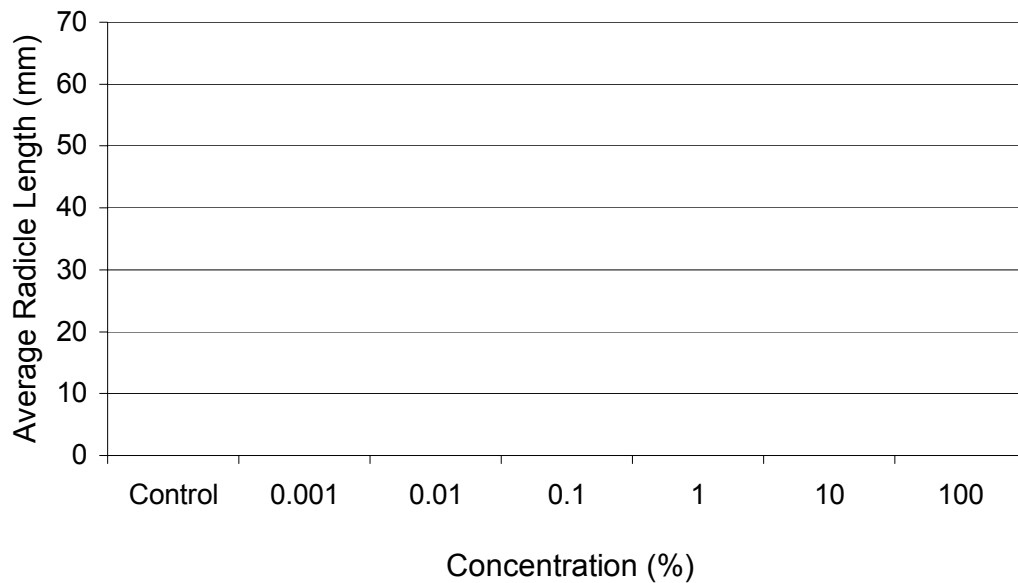


Figure 2b. Lettuce Seed Radicle Length



Name _____

Some questions to consider: (Please answer using full sentences.)

1. Did at least 80% of the seeds in the control dishes germinate? If not, what would you recommend doing differently next time to try to get a better germination rate?

2. Did lettuce seed germination respond in a predictable way to concentration? Describe any trends you observed.

3. Do any of your data not fit the trends you observed? If so, can you think of any reasons why these data might lie outside the range you would expect?

4. What is your estimate of the TC50 based on your lettuce seed germination data?

TC50 = ____

What is your estimate of the TC50 based on your radicle length data?

TC50 = ____

Which shows a greater response to the chemical you tested: germination rate or radicle length? Describe any similarities or differences that you noticed in trends between these two indicators of toxicity.

5. What can you conclude about the toxicity of the substance you tested? Is this what you expected? Was your hypothesis supported by the data?

6. If other students carried out a dose/response experiment using the same chemical, did their data follow the same trends as yours?

7. Based on this experiment, would you say that lettuce seed germination or root length would provide a useful bioassay for water samples from the environment? Why or why not?

8. If you were going to repeat this experiment, what would you do differently? How might you improve the experimental design to reduce the variability of your data or lead to more reliable results?