Cellulosic Fermentation Challenge C. Kohn, Agricultural Sciences - Waterford WI

Name: Hour Date: Group #

Date Assignment is due:  Why late? Score: + ✓ -  
 Day of Week Date If your project was late, describe why

**Directions**: In this project, you will be working with your assigned group develop a method to create ethanol from a cellulosic feedstock. Using the questions below as a guide, you will design an experiment to test your method, record data and observations, and form a conclusion about whether or not your method was effective.

Your objective is a) create a method to obtain ethanol from a cellulosic feedstock, b) arrange for all necessary items for your method from your instructor (including the feedstock, materials, enzymes, and resources needed), c) conduct your method to produce cellulosic ethanol, and d) develop and implement a test to confirm that your method worked.

1. Ask your instructor when this assignment is due. Then add this information to the blank on the top left.
2. Summarize all of the items needed to produce ethanol from cellulosic feedstocks:
3. Briefly address each of the following:
   1. What will be your feedstock?
   2. How will you prepare your feedstock before pretreatment and hydrolysis?
   3. How will your pretreatment work (be sure to include specifics including amounts, temperatures, etc.):
   4. How will your hydrolysis work (be sure to include specifics including amounts, temperatures, etc.):
   5. How will your fermentation work (be sure to include specifics including amounts, temperatures, etc.):
4. What materials will you need to do this experiment? Think of everything you will need from beginning to end to make this experiment work. Materials are divided by categories below. Fill in the blanks.   
     
   Materials needed for preparation of the feedstock:   
     
   Materials needed for pretreatment of the feedstock:   
     
   Materials needed for hydrolysis of the feedstock:   
     
   Materials needed for fermentation of the feedstock:
5. Provide all of the steps needed to make your procedure happen. Be sure to ask yourself, “*If I gave this to another person that is not in my group, could they create the exact same experiment with the exact same results?*”  
     
   You may not need all of the steps below. It is ok to leave them blank if you do not need them, but make sure you are not missing any important details!!! HINT: Start a rough draft on a separate sheet of paper before writing your steps below.   
     
   Step 1:   
     
      
     
   Step 2:   
     
   Step 3:   
     
      
     
   Step 4:   
     
   Step 5:   
     
      
     
   Step 6:   
     
   Step 7:   
     
      
     
   Step 8:
6. How will you confirm that you actually produced ethanol? Summarize below:
7. How will you know that you don’t have false positives or false negatives?