Materials

5 grams yeast

200 ml distilled water

5 grams glucose

pressure sensor

serial A/D device

computer w/ custom logging software

2 pressure chambers (test tubes)

scale

2 100 ml graduated cylinders

Procedure

1. Configure Equipment
   1. Turn on computer
   2. Connect A/D device to the pressure sensor and the computer

                                                              i.      Positive probe on meter attaches to the signal out on the pressure sensor

                                                            ii.      Ground probe attaches to the battery ground.

                                                          iii.      Pressure sensor ground attaches to the battery ground.

                                                           iv.      Pressure sensor positive attaches to the battery positive terminal.

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* 1. Initialize the data logging software on the computer

                                                              i.      Run the program. Go to Start->Programs->ScopeView->Scopeview

                                                            ii.      Click ok at the startup screen and then select the power button.

                                                          iii.      Once data begins to display in the voltage box select the logger box.

                                                           iv.      Select Record and type in a filename / choose an appropriate directory to save the log file.

                                                             v.      Once you have selected the log file location click the run box to begin saving data.

* 1. Attach test tube covers to pressure sensor.

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1. Prepare glucose solution
   1. Place 100 ml of 105 degree Fahrenheit distilled water into a graduated cylinder.
   2. Add appropriate quantities of glucose based on table below and concurrent run number.

                                                              i.      Weigh each amount using the digital scale; insure that you offset your measurement for the appropriate container housing the glucose.

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| Run Number | Glucose Concentration | Grams of Glucose per 100 ml of water |
| 1 | 0.05% | 0.05 grams |
| 2 | 0.10% | 0.10 grams |
| 3 | 0.20% | 0.20 grams |
| 4 | 0.25% | 0.25 grams |
| 5 | 0.50% | 0.50 grams |

* 1. Mix the glucose into the 100 ml of water very carefully and thoroughly, insure that all the glucose is dissolved before moving on.

1. Put 30 ml of the glucose solution in the experimental tube, and 30 ml of the glucose in the control tube.
2. Secure the sealing cap on the control tube and place insulation around the tube.
3. Carefully measure 0.75 grams of yeast.
4. Quickly place the yeast into the experimental tube and secure the top. Insure that the fastening device is all the way in place such that the pressure does not force the stopper out.
5. Leave the experiment alone until either the voltage exceeds the 5.6volt maximum of the measuring device, or the voltage no longer changes.
6. Once complete simply stop recording and **clean up**.
7. Repeat procedure several times, each time changing to the next glucose concentration, and logging the data under a different filename.