Jonathan Quang 10/12/14

Biology

Lab #4

3. The ideal conditions for optimum catalase activity is around room temperature and at about a pH of 10. Catalase activity is measured by how quickly the oxygen produced causes the paper disk to rise. At room temperature (23 degrees Celsius), the disk rose at an average of 24.27 seconds compared to about 20 seconds in cold water and about 12.4 in warm water. When the hydrogen peroxide has a pH of 9, the disk takes an average of about 17.78 seconds to rise, which according to the line graph, is the lowest point.

4. At the pH of 2, the enzyme was finally in a solution that was not too acidic to stop almost all complete function. Some enzymes were not denatured enough, so enzyme activity resumed. At a pH of one, however, the enzyme structure's ionic bonds have been disturbed enough that the enzyme can barely form correct bonds.

5. My data, especially for pH, does not agree with my expectations. The line graph is supposed to resemble a parabola, but it has several bumps instead. This might be because the yeast samples could have different genes, producing an enzyme that is slightly different. Those enzymes may perform better or worse at certain levels of pH. This experiment could be improved if the yeast samples all came from one sample and were tested as quickly as possible to avoid contamination and the effects of aging. More trails would have also helped. Some setup errors could be improper storage of the yeast, varying amounts of substrate and enzymes, and contamination from improperly washed forceps.