A Study on the Kinetics of Thionin

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Light plays a pivotal role in an organism's life. Organisms are able to harness the energy light expels and use it for their benefit. The energy light expels is sometimes large enough to activate chemical reactions. This is the case for the Redox reaction, of a thionin solution. When intense light is shone onto the DNA dying solution, the chemical becomes reduced and clear. Yet, when the light is taken away, the chemical becomes oxidized and purple. The kinetics study was done to determine the rate order of the reduction reaction. To test the reaction, a 0.001 M thionin solution was created. With the solution at 4 degrees Celsius, 22 degrees Celsius, and 32 degrees Celsius, 600. nm of light was shown on the solution and the absorbance of the concentration was collected over 100 seconds. The resulting k-values for the experiment were 0.855, 2.802, and 12.63, respectively. Based on the results, it was determined that the rate at which the reaction takes place is 2nd order, and the activation energy was 67.5 kJ. By testing and determining the rate at which the reaction occurs, more trials can be run to continue to discover the capacity of thionin's capabilities.

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