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|  | | |  | Abstract  Rate of Respiration  Schulze, Karl  2426 Crestline rd. Pleasanton, CA 94566  Amador Valley High School, CA  The issue of Pressure vs. Quantity is addressed in nearly all aspects of science. For each application there is a point of at which the most through put can be achieved. Examples of this include a kitchen faucet, in which the faucet is a certain diameter and you can adjust the pressure to increase throughput. Another example lies in electricity distribution in which the pressure (current) is exchanged for pressure (voltage). In each case the pressure vs. voltage constants were adapted to best fit the median of transport, namely the pipes or wire.  This project is attempting to discover if this concept applies to the respiration of yeast through the concentration of Sucrose. Namely if the concentration of sucrose is increased and therefore the net food supply, does the rate of respiration of yeast increase, or is it simply limited by the availability of a given food source.  To test this concept 0.75 grams of yeast were subjected to 30 ml of varying concentrations of sucrose within a test tube. The pressure of the test tube was continuously sampled via a computer and was interpreted in order to determine the rates of respiration of each sample. In all 46,195 samples were recorded.  These results led to the conclusion that the availability of sucrose does in fact affect the rate of respiration and thus the concept of throughput does apply. The greater the concentration of sucrose in the water, the faster the yeast respires anaerobically, giving off CO2 and increasing the ambient pressure. | |
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