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Effects of Oxygen Concentration on Hemoglobin Analog Production in Chironomidae Larvae

Abstract

This experiment was conducted to test whether varying the oxygen content of a Chironomidae larvae's environment would result in a color change of the larvae, signifying a change in hemoglobin analog concentration. Three environmental conditions were tested: a hypoxic environment, a high oxygen environment, and a control environment of open gas exchange. 100 larvae were placed in each environment and were left in their containers for five days. Results were recorded by crushing 20 of the specimens, diluting them in water, centrifuging the mixture, and measuring the absorbance of the solution in a spectrophotometer. The findings showed that the Chironomidae larvae from the high oxygen environment were in fact lighter than the others, and the larvae from the low oxygen environment were the darkest. This data supports the hypothesis that varied oxygen concentration results in color change in Chironomidae larvae.