The Effects of Temperature on Ampicillin Resistant E. coli: A Case Study on the Degradation of Biodiversity

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With global temperatures on the rise due to Climate Change, decreases in Biodiversity and the increase in temperature sensitive illnesses demand further study to see how increases in temperatures relate to these aspects of Biology. Using Ampicillin resistant E. coli, the effects of increased temperature on antibiotic resistant bacterium were analyzed. Two groups of Ampicillin resistant E. coli were tested: a 37-degree Celsius and 39-degree Celsius group. The two plates were inoculated with a dilution containing Ampicillin resistant E. coli. Over the course of four days the two group's growths were taken, and the percentage of the plate covered by the bacteria was measured. The data showed that on the fourth day the 37-degree plate was 50.739 % covered and the 39-degree plate was 32.137% covered. After calculating the standard error of the mean, it was shown that the two had a significant difference in results with a 95% confidence. The data showed that my initial hypothesis, which stated that the 39-degree plate would have a higher growth rate and percent, was rejected. Upon further research, it was found that the likely cause was the degradation of the cell walls of the E. coli. The results of my research show correlation between increase in temperature to decrease in growth rate. This is indicative of the effects of increased global temperatures in relation to decreased biodiversity.

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