OFFICIAL ABSTRACT and CERTIFICATION

The Concentration of CaCl2 on Transforming Bacteria

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The purpose of this experiment is to research the effect that the concentration of CaCl2 has on transforming bacteria. The amounts of CaCl2 the transforming bacteria were exposed to in this experiment were 100 µl, 200 µl, and 300 µl. Two types of plasmid DNA were used in this experiment, called pPRL(purple) plasmid DNA and pGRN(green) plasmid DNA. The hypothesis for this experiment is that the 200 µl measurement of CaCl2 will yield the greatest amount of bacterial colonies, on average, in the Petri dishes. E. coli was transformed in this experiment, with the different amounts of CaCl2 in every three solutions. The average numbers of bacterial colonies for the purple plasmid DNA were 129.83, 197.33, and 130.33 in order of increasing concentration of CaCl2. The average numbers of bacterial colonies for the green plasmid DNA were 495, 314.33, and 380 in order of increasing concentration of CaCl2. The hypothesis was not supported. For the purple plasmid DNA Petri dishes, the highest number of bacterial colonies was in the 200 µl with an average of 197.33. But, for the green plasmid DNA Petri dishes, the highest number of bacterial colonies was in the 100 µl solutions, with an average of 495. So, when transforming E. coli, it is best to use 200 µl CaCl2 for purple plasmid DNA and 100 µl CaCl2 for green plasmid DNA.

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1. As a part of this research project, the student directly handled, manipulated, or interacted with (check ALL that apply):

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