The Effect of Circulation Rate on Bacteria within Library Books

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Library books are handled by many different people and are often left in sometimes warm or damp environments. This experiment investigates how the rate of checkout (circulation rate) affects the bacteria found in library books. Library books were divided into four categories: those checked out zero, one, two, or three times. Every book tested had been put in circulation on or after August 1, 2016. Three books were swabbed from each category. For each book, bacteria was cultured on two Nutrient Agar and two Eosin Methylene Blue petri dishes. The number of colony forming units per milliliter sample (CFU/mL) was then averaged for each book and category. Analysis of the data indicated that the total number of circulations appeared to have little effect on the number of CFU's found. However, the date of last return did have an effect. Books that had been returned nearer to the day of experimentation had more colony-forming units than those returned earlier. It should be noted that seven of the twelve books tested contained zero CFU's. In addition, none of the books tested contained E. coli. These findings are important to society because they illustrate how circulation rate affects bacteria within library books. The last return date of a book affects the amount of bacteria within books more than the total number of times a book has circulated. This suggests that most types of bacteria are unable to survive for more than a few weeks within books.

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