

How Effective are Expired Antibiotics in Killing *Escherichia coli*?

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This experiment was conducted to determine if antibiotics are still effective after their expiration date. The experiment used four antibiotics - Penicillin, Cephalexin, Cefdinir, and Amoxicillin - tested on *Escherichia coli*. There were 3 sets of the four antibiotics, 12 in total. The first set was expired for 2 months (opened on October 14), the second set was expired for 1 month (opened on November 6), and the third set was the control (opened on November 27). The antibiotics were tested on the *Escherichia coli* by mixing the *Escherichia coli* with a normal saline solution to stabilize the bacteria, applying the *Escherichia coli* onto the Mueller Hinton agar dish, and adding one drop of the antibiotic onto the plate for every antibiotic. The agar dishes were placed in the incubator for 2 days. The Cephalexin, Cefdinir, and the Amoxicillin all were effective until the 2-month mark, showing signs of clearance against the *Escherichia coli*. Penicillin, however, was showing weak signs of effectivity and did not show any clearance in the 2-month mark. It was hypothesized that all the antibiotics will slowly lose its effectiveness over time and at 2 months, the antibiotics will not have clearance in the *Escherichia coli*. The first hypothesis was supported by the experiment while the second hypothesis was not.