How Effective are Expired Antibiotics in Killing Escherichia coli?

Gayapa, Gabrielle (School: South Pacific Academy)

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.

Awards Won: