

Microbiology Lab Experiment Changes

Experiment #: 7-2

Title: Antimicrobial Susceptibility Test (Kirby-Bauer Method)

Live Organisms: *E. coli*, *S. aureus*, *B. cereus*

Changes: Procedure (work in groups)

1. Obtain 3 TSA plates and label them *E. coli*, *S. aureus*, and *B. cereus*.
2. Using a sterile swab, inoculate the entire surface of the plate thoroughly with a different organism. Each student in the group can swab a plate with one of the organisms.
3. Apply the antibiotic discs (instructor will demonstrate) to each plate. We are using Penicillin, Tetracycline, and Streptomycin or Chloramphenicol.
4. Using a sterile loop or flamed forceps, gently press the disks onto the agar to make sure they stick.
5. Wait several minutes then invert and incubate plates at 37°C.
6. Next lab period you will measure the diameter of the zone of inhibition surrounding each disk and use Table 7-2 to determine antibiotic resistance.

Take Home Lesson: The Kirby-Bauer antibiotic sensitivity method is an in vitro method used to determine the potential effectiveness of an antibiotic against specific bacteria. Note that even though there is a zone of inhibition surrounding a disk, this does not necessarily mean that the antibiotic will be effective in vivo. That is why you look at a chart. The factors affecting antibiotic effectiveness (see Lecture: Antimicrobials) account for the discrepancy between their in vitro vs. in vivo activity.

If given an antibiotic plate, a ruler and a chart of antibiotic resistance, you should be able to determine the resistance or susceptibility of an organism to a particular antibiotic.