Troubleshooting Figures

These figures illustrate some of the details, errors, or problems seen on Kirby-Bauer plates. Other figures in this group illustrate some of the different zones of inhibition that students may observe.

FIG. 1. The center filter paper disc (S10) containing streptomycin has been pushed into the agar, breaking the surface. Since a zone of inhibition was visible, the students were still able to use data from this plate.

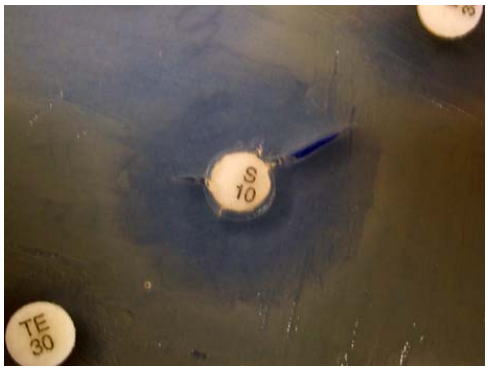

FIG. 2. Penicillin (P10) and neomycin (N30) antibiotic discs were placed too close to each other on the plate. Data was obtained only because penicillin was ineffective against this organism.

FIG. 3. Penicillin (P10) is ineffective against this gram-negative bacteria, *Serratia marcescens*. The red color on the disc comes from the bacterial pigment, prodigiosin.

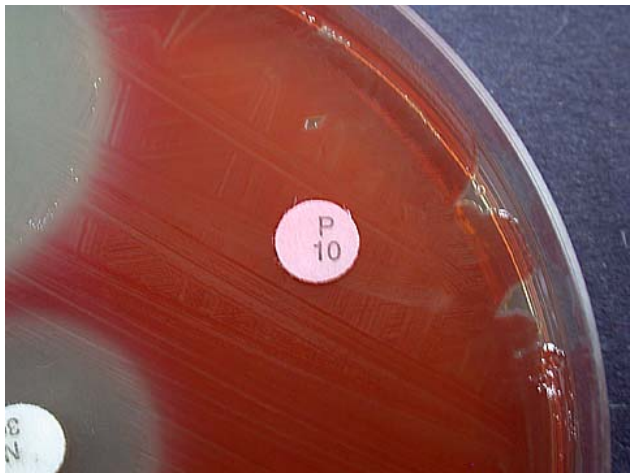

FIG. 4. The kanamycin (K) antibiotic disc was placed too close to the edge of the petri plate. However, students could still acquire useable data from this plate by measuring the radius of the zone of inhibition and doubling the radius measurement to obtain the diameter.

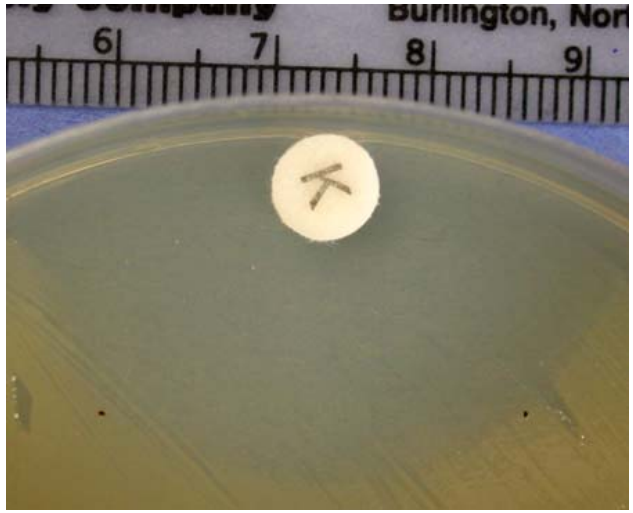

FIG. 5. These kanamycin (K) and neomycin (N30) antibiotic discs were placed too close to each other. Their zones of inhibition have merged. However, the diameter of each zone of inhibition can still be measured.

FIG. 6. This figure illustrates that some organisms have altered appearance when exposed to antibiotics. Students must make sure to measure the region of no growth, rather than from red edge to red edge. The antibiotic disc here is streptomycin (S10).

FIG. 7. There is a clear demarcation between the area of growth and the inhibited region around this tetracycline (TE 30) disc.

FIG. 8. The bacterial growth is less dense close to the tetracycline (TE 30) disc. Students may not realize that there is no measurable zone of inhibition, since there is slight bacterial growth up to the disc itself.

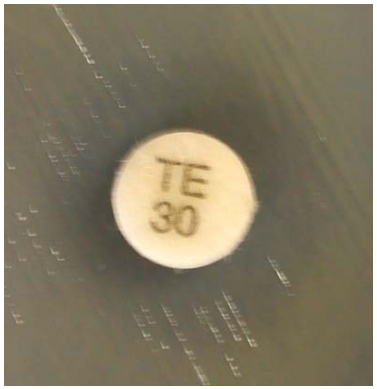

FIG. 9. This neomycin (N30) antibiotic disc is marked with an X, indicating it is the last disc in the antibiotic cartridge.

FIG. 10. A high proportion of cells of this bacterial strain are resistant to the streptomycin (S10) disc on the right. This results in a clear zone of inhibition with many resistant bacteria growing inside the rim. The edge of the zone of inhibition around the neomycin (N30) disc (on the left) is also ragged, again indicating that the population of bacteria contains some cells which are less resistant than others.

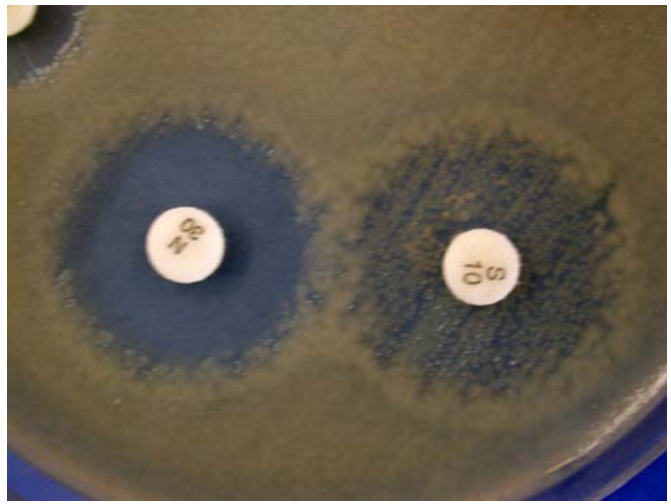

FIG. 11– 13. Each of these figures shows an antibiotic disc that was moved after it touched the agar. Enough antibiotic transferred to the agar even in the brief moment before the disc was moved to create (11) the clear area next to this neomycin (N30) disc and (12, 13) the asymmetric zones of inhibition.

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