

Representative Kirby Bauer Plates



FIG. 1.

FIG. 1. Representative plate for *Serratia marcescens* strain 1. Antibiotics on this plate are: (center) kanamycin (K), (clockwise from upper right) penicillin (P 10), streptomycin (S 10), tetracycline (TE 30), and neomycin (N 30).

Note the resistant colonies around the edge of the zone of inhibition and in the center of the zone around the kanamycin disc. The zone around the tetracycline disc is small, with a diffuse area of growth that students might mismeasure. This photograph is distinct enough for students to measure when printed in black and white.

When students measured this plate, they measured a very small (7 mm) zone of inhibition for the streptomycin. On another replicate of this strain, the students measured a larger zone of inhibition for streptomycin.

TABLE 1. Zone of inhibition measurements for *S. marcescens* strain 1

Antibiotic	Zone of inhibition diameter (mm)	Interpretation
Kanamycin	25	Susceptible
Penicillin	0	Resistant
Streptomycin	0	Resistant
Tetracycline	9	Resistant
Neomycin	18	Susceptible



FIG. 2.

FIG. 2. Representative plate for *Serratia marcescens* strain 2, a pigmented strain. Note that this strain has a distinct white fringe around the zones of inhibition. Students should not include the fringe in their measurements. This figure will print in black and white clearly enough to be measured.

Antibiotics on this plate are: (center) neomycin (N 30), (clockwise from the top) tetracycline (TE 30), kanamycin (K), streptomycin (S 10), and penicillin (P 10).

TABLE 2. Zone of inhibition measurements for *S. marcescens* strain 2

Antibiotic	Zone of inhibition diameter (mm)	Interpretation
Neomycin	18	Susceptible
Tetracycline	14	Resistant
Kanamycin	33	Susceptible
Streptomycin	13	Intermediate
Penicillin	0	Resistant

Note that the student data indicates that the streptomycin zone was 22 mm, an incorrect measurement for this plate.



FIG. 3.

FIG. 3. Representative plate for *Serratia marcescens* strain 3. Antibiotics tested on this plate include: (center) streptomycin (S 10), (clockwise from upper right) penicillin (P 10), tetracycline (TE 30), kanamycin (K), and neomycin (N 30).

This photograph is suitable for students to measure when printed in color, but in black and white the edge of the tetracycline zone of inhibition is indistinct.

TABLE 3. Zone of inhibition measurements for *S. marcescens* strain 3

Antibiotic	Zone of inhibition measurement (mm)	Interpretation
Tetracycline	9	Resistant
Kanamycin	33	Susceptible
Penicillin	0	Resistant
Neomycin	23	Susceptible
Streptomycin	24	Susceptible



FIG. 4.

FIG. 4. Representative plate for *Serratia marcescens* strain 4. Antibiotics tested on this plate include: (clockwise from top) kanamycin (K), neomycin (N 30), tetracycline (TE 30), streptomycin (S 10), and penicillin (P 10).

Due to the ragged edges of the zones of inhibition around all but the penicillin disc, this photograph is not suitable for students to measure when printed in black and white.

TABLE 4. Zone of inhibition measurements for *S. marcescens* strain 4

Antibiotic	Zone of inhibition measurement (mm)	Interpretation
Kanamycin	29	Susceptible
Neomycin	17	Susceptible
Tetracycline	9	Resistant
Streptomycin	17	Susceptible
Penicillin	0	Resistant



FIG. 5.

FIG. 5. Representative plate for *Serratia marcescens* strain 5. This highly pigmented strain of *S. marcescens* produces nonpigmented white edges around most of the zones of inhibition. Because of the white zone edges, this plate is difficult to measure when printed in black and white. Antibiotics tested on this plate include: (center) neomycin (N 30), (clockwise from top right) tetracycline (TE 30), kanamycin (K), penicillin (P 10), and streptomycin (S 10).

TABLE 5. Zone of inhibition measurements for *S. marcescens* strain 5

Antibiotic	Zone of inhibition measurement (mm)	Interpretation
Neomycin	19	Susceptible
Tetracycline	11	Resistant
Kanamycin	30	Susceptible
Penicillin	0	Resistant
Streptomycin	9	Resistant



FIG. 6.

FIG. 6. Representative plate for *Pseudomonas aeruginosa* strain 1. Antibiotics on this plate are: (center) penicillin (P 10), (clockwise from top) streptomycin (S 10), kanamycin (K), tetracycline (TE 30), and neomycin (N 30). This figure will print in black and white clearly enough to be measured.

TABLE 6. Zone of inhibition measurements for *P. aeruginosa* strain 1

Antibiotic	Zone of inhibition measurement (mm)	Interpretation
Penicillin	0	Resistant
Streptomycin	11	Resistant
Kanamycin	25	Susceptible
Tetracycline	10	Resistant
Neomycin	16	Intermediate



FIG. 7.

FIG. 7. Representative plate for *Pseudomonas aeruginosa* strain 2. Antibiotics tested on this strain include: (center) kanamycin (K), (clockwise from top) penicillin (P 10), streptomycin (S 10), tetracycline (TE 30), and neomycin (N 30). This photograph is distinct enough to measure when printed in black and white.

TABLE 7. Zone of inhibition measurements for *P. aeruginosa* strain 2

Antibiotic	Zone of inhibition measurement (mm)	Interpretation
Kanamycin	30	Susceptible
Penicillin	0	Resistant
Streptomycin	21	Susceptible
Tetracycline	12	Resistant
Neomycin	18	Susceptible



FIG. 8.

FIG. 8. Representative plate for *Pseudomonas aeruginosa* strain 3. Antibiotics on the plate include: (center) kanamycin (K), (clockwise from the right top) neomycin (N 30), penicillin (P 10), streptomycin (S 10), and tetracycline (TE 30). This figure will print in black and white clearly enough to be measured by students.

TABLE 8. Zone of inhibition measurements for *P. aeruginosa* strain 3

Antibiotic	Zone of inhibition measurement (mm)	Interpretation
Kanamycin	32	Susceptible
Neomycin	19	Susceptible
Penicillin	0	Resistant
Streptomycin	21	Susceptible
Tetracycline	9	Resistant



FIG. 9.

FIG. 9. Representative plate for *Escherichia coli* strain 1. Antibiotics tested on this strain include: (clockwise from top of figure) penicillin (P 10), streptomycin (S 10), neomycin (N 30), tetracycline (TE 30), and kanamycin (K). Students had difficulty in correctly measuring the diameter of the zone of inhibition around the streptomycin disc. The edges of the zones around the neomycin and kanamycin discs are also rough. This photograph is distinct enough to allow students to measure the zones of inhibition when printed in black and white.

TABLE 9. Zone of inhibition measurements for *E. coli* strain 1

Antibiotic	Zone of inhibition measurement (mm)	Interpretation
Penicillin	0	Resistant
Streptomycin	0	Resistant
Neomycin	21	Susceptible
Tetracycline	14	Resistant
Kanamycin	30	Susceptible



FIG. 10.

FIG. 10. Representative plate for *Escherichia coli* strain 2. Antibiotics tested on this plate include: (center) streptomycin (S 10), (clockwise from upper right) tetracycline (TE 30), kanamycin (K), neomycin (N 30), and penicillin (P 10). The kanamycin disc was probably moved after it touched the agar, leaving the asymmetric zone of inhibition. This photograph is distinct enough to allow students to measure the zones of inhibition when printed in black and white.

TABLE 10. Zone of inhibition measurements for *E. coli* strain 2

Antibiotic	Zone of inhibition measurement (mm)	Interpretation
Streptomycin	0	Resistant
Tetracycline	26	Susceptible
Kanamycin	30	Susceptible
Neomycin	19	Susceptible
Penicillin	0	Resistant



FIG. 11.

FIG. 11. Representative plate for *Escherichia coli* strain 3. Antibiotics tested on this strain include: (center) kanamycin (K), (clockwise from upper right) penicillin (P 10), streptomycin (S 10), neomycin (N 30), and tetracycline (TE 30). This photograph will not print clear enough in black and white to be measured.

Note the indistinct margins and lighter growth at the edges of the kanamycin, streptomycin, and neomycin zones.

TABLE 11. Zone of inhibition measurements for *E. coli* strain 3

Antibiotic	Zone of inhibition measurement (mm)	Interpretation
Tetracycline	30	Susceptible
Kanamycin	40	Susceptible
Penicillin	0	Resistant
Neomycin	21	Susceptible
Streptomycin	20	Susceptible



FIG. 12.

FIG. 12. Representative plate for *Escherichia coli* strain 4.

Antibiotics tested on this plate include: (clockwise from upper right disc) neomycin (N 30), tetracycline (TE 30), streptomycin (S 10), penicillin (P 10), and kanamycin (K). This photograph is not distinct enough for all the details to be evident when printed in black and white.

Note in the student data that the students measured a small zone of inhibition around the penicillin disc.

TABLE 12. Zone of inhibition measurements for *E. coli* strain 4

Antibiotic	Zone of inhibition measurement (mm)	Interpretation
Kanamycin	36	Susceptible
Neomycin	16	Intermediate
Tetracycline	22	Susceptible
Streptomycin	22	Susceptible
Penicillin	0	Resistant