

MASTITIS ANTIBIOTIC SUSCEPTIBILITY TEST COMPARISON CHART

Feature	MASTIK	Kirby-Bauer Disc Test With Mueller-Hinton Agar	Kirby-Bauer Disc Test On Blood Agar*	MIC Microdilution Test
Easy to Run	Yes	Yes, with Training	Yes, with Training	Yes, with Hardware
Turnaround Time for Results	Usually 12-24 Hours	36-48 Hours (Longer if Sent Out)	Minimum of 18-36 Hours if Milk is Swabbed without culturing first	18-36 Hours Plus Transit Time to Lab and Back
Culture Media	Milk Based (Antibiotics Behave Differently in Milk)	Mueller-Hinton Agar + Blood Agar	Blood Agar	Mueller-Hinton Based Agar
Application	Lactose Fermenting Bacteria Causing Mastitis in the Bovine	Most Bacteria	Most Bacteria	Most Bacteria
Materials for Performing Test	Reagent, plate, plastic seal, pipette, incubator	Blood agar plate, Mueller-Hinton agar plate, loop, flame, discs, disc dispenser, calipers, incubator, reagents, etc. for ID, and Prompt test or MacFarland standard	Blood agar plates, loop, swab, discs, disc dispenser, incubator, reagents, etc. for ID	Plate, pipettor, incubator, hardware
Culture and ID Required First	No	Yes	Yes, Unless Milk is Swabbed directly on plate	Yes
Type of Results	Quantitative and Qualitative	Qualitative	Crudely Qualitative	Quantitative and Qualitative
Antibiotic Concentrates	Bovine Milk: 2 Levels	Human Serum - 1 Level	No Correlation	Human Serum - Several Levels
Conc. Of Bacteria Tested	Varies in Proportion to the Actual Conc. In Each Cow Tested	Standard Number in All Cases	Standard Number if Organism is Cultured First	Standard Number in All Cases
Interpretation of Results	Color Changes	Measure Zone Diameters and Refer to chart for Each Antibiotic	Look at Zones and Estimate Efficaciousness	Automated Reader Prints out MIC
Accuracy	Very Good	Good	Poor	Good
Storage	Plate - Room Temp Reagent - Refrig	Refrigeration	Refrigeration	Variable - Room Temp., Refrig., or Frozen
Shelf Life	Plate - 1 Year Reagent - 1 Year	2 Years for Discs 4 + Days Agar	2 Years - Discs 4+ Days - Agar	Variable
Cost	\$4.80 - \$7.20 / Test	About \$5+ / Test \$5 - \$8 / Test	\$3 - \$5 / Test	About \$25 for Culture and Sensitivity
Can Be Run at office/farm	Yes	Yes	Yes	No - Expensive
Time to Run Test	3-4 Minutes	15-30 Minutes	5-10 Minutes	Send out to Lab

* Kirby-Bauer Test on Blood Agar - can be run two different ways:

- Culture milk on blood agar. Swab a standardized suspension of colonies from another blood agar plate onto plate – rarely done this way.
- More commonly, a technician simply swabs milk directly onto blood agar plate and places discs on the same plate. The organism may or may not grow over the entire plate, as required to interpret the test.