



# Technical Data

## MeReSa Agar Base

M1594

MeReSa Agar Base is recommended for the selection, isolation and identification of Methicillin Resistant *Staphylococcus aureus* from clinical specimens.

### Composition\*\*

Ingredients	Gms / Litre
Casein enzymic hydrolysate	10.000
Meat extract B #	5.000
Glycine	10.000
Sodium pyruvate	10.000
Lithium chloride	5.000
Mannitol	10.000
Sodium chloride	10.000
Indicator mixture	0.130
Agar	20.000
Final pH ( at 25°C)	7.1±0.2

\*\*Formula adjusted, standardized to suit performance parameters

# Equivalent to Beef extract

### Directions

Suspend 40.06 grams in 500 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C and aseptically add sterile rehydrated contents of 1 vial of MeReSa Selective Supplement (FD229) and Cefoxitin supplement (FD259) both in combination for more selectivity. Mix well and pour into sterile Petri plates.

### Principle And Interpretation

*Staphylococcus aureus* sometimes referred to as “Staph” is a common bacterium found on the skin of healthy people. It is responsible for infections ranging from superficial to systemic (1, 2). *Staphylococcus aureus* resistant to the antibiotic methicillin are referred to as Methicillin Resistant *Staphylococcus aureus* (MRSA) (3). Initially staphylococcal infections were treated using penicillin. But over the years, resistance to penicillin developed, so methicillin was the next drug of choice. Unfortunately certain strains (MRSA) have now developed resistance to methicillin also. Patients with breaks in their skin due to wounds, indwelling catheters or burns are those with certain risk of developing MRSA infection (4). Symptoms in serious cases may include fever, lethargy and headache. MRSA can cause UTI, pneumonia, toxic shock syndrome and even death. Spread of MRSA infections can be controlled to a great extent by maintaining personal hygiene after interaction with an MRSA infected person (3).

Methicillin-resistant strains of *Staphylococcus aureus* (MRSA) were recognized in 1980s as a major clinical and epidemiological problem. MRSA strains were heterogeneous in their expression of resistance to b-lactam agents, in that large differences in the degree of resistance were seen among the individual cells in a population. The basis of methicillin-resistance is the production of an additional penicillin-binding protein mediated by the mec A gene, an additional gene found in methicillin-resistant Staphylococci. MeReSa Agar Base was developed to detect the presence of the mec A gene in *S. aureus* i.e. methicillin-resistant *S. aureus*.

Casein enzymic hydrolysate and meat extract B provide nitrogenous compounds. Lithium chloride and methicillin inhibit most of the contaminating microflora except methicillin-resistant *S.aureus* (MRSA). Glycine and sodium pyruvate enhance the growth of *Staphylococcus* species. Colour of the colonies is due to the indicator mixture and mannitol used in the medium. Sodium chloride maintains the osmotic equilibrium of the medium as well as supports the growth of *Staphylococcus* species.

### Quality Control

#### Appearance

Please refer disclaimer Overleaf.

Cream to yellow homogeneous free flowing powder

### Gelling

Firm, comparable with 2.0% Agar gel.

### Colour and Clarity of prepared medium

Pale pink coloured clear to slightly opalescent gel forms in Petri plates

### Reaction

Reaction of 8.01% w/v aqueous solution at 25°C. pH : 7.1±0.2

### pH

6.90-7.30

### Cultural Response

Cultural characteristics observed with added MeReSa Selective Supplement(FD229) and Cefoxitin Supplement (FD259) both in combination after an incubation at 35-37°C for 18-48 hours.

### Cultural Response

Organism	Inoculum (CFU)	Growth/ FD229 & FD259	Recovery w/ FD229 & FD259	Colour of Colony
<b>Cultural Response</b>				
<i>Escherichia coli</i> ATCC 25922	>=10 <sup>3</sup>	inhibited	0%	
<i>Staphylococcus aureus</i> ATCC 25923	>=10 <sup>3</sup>	inhibited	0%	
<i>Staphylococcus aureus</i> (MRSA) ATCC 43300	50-100	good-luxuriant	>=50%	light pink
<i>Staphylococcus epidermidis</i> ATCC 12228	50-100	inhibited	0%	
<i>Staphylococcus gallinarum</i> MTCC 2992	50-100	inhibited	0%	
<i>Staphylococcus saprophyticus</i> ATCC 15305	50-100	inhibited	0%	

### Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

### Reference

- 1.Doyle, Beuchat and Montville, (Eds.), 1997, Food Microbiology Fundamentals and Frontiers. American Society for Microbiology, Washington, D.C.
- 2.Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Tenover F. C., (Ed.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.
- 3.Methicillin Resistant *Staphylococcus aureus*, Copyright © 1997-2005, Canadian Centre for Occupational Health and Safety, Sept 19th, 2005.
- 4.Dr. Alan Johnson, Methicillin resistant *Staphylococcus aureus* (MRSA) infection, The support group for MRSA sufferers and Dependents, AUG 1st, 2005.

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