Technical Information

MeReSa Agar Base

Product Code: DM 2594

Application: - MeReSa Agar Base is used 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

Principle & 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 prevents 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 helps to maintain the osmotic equilibrium of the medium as well as supports the growth of *Staphylococcus* species.

Methodology

Suspend 40.06 grams of dehydrated powder media in 500 ml distilled water. Mix thoroughly & heat to boil 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 (MS2229) and Cefoxitin supplement (MS2259) both in combination for more selectivity. Shake well before pour into sterile Petri plates.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 2.0% Agar gel.

Colour and Clarity

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 Range

6.90-7.30

Cultural Response

DM2594: Cultural characteristics observed with added MeReSa Selective Supplement (MS2229) and Cefoxitin Supplement (MS2259) both in combination after an incubation at 35-37°C for 18-48 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth MS2229 & MS2259	Recovery w/ MS2229 & MS2259	Colour of Colony
Cultural Response				
Escherichia coli ATCC25922	>=10^3	inhibited	0%	-
Staphylococcus aureus ATCC25923	>=10^3	inhibited	0%	-
Staphylococcus aureus(MRSA) ATCC 43300	50-100	good-luxuriant	>=50%	light pink
Staphylococcus epidermidisATCC 12228	>=10^3	inhibited	0%	-
Staphylococcus gallinarumMTCC 2992	>=10^3	inhibited	0%	-
Staphylococcus saprophyticus ATCC 15305	>=10^3	inhibited	0%	-

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.
Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

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 Yolken R. H., (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.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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