MeReSa Agar Plate

MP1594

Intended use

Recommended for the selection, isolation and identification of Methicillin Resistant *Staphylococcus aureus* from clinical specimens.

Composition**

Ingredients	g / L
Tryptone	10.000
HM peptone 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
MeRS Selective Supplement (FD229) - 2 vials	
Methicillin (2.0 mgx2)	4.000mg
CF Selective Supplement II (FD259) - 2 vials	
Cefoxitin (3.0 mgx2)	6.000mg
Final pH (at 25°C)	7.1±0.2

**Formula adjusted, standardized to suit performance parameters
Equivalent to Beef extract

Directions

Either streak, inoculate or surface spread the test inoculum (50-100 CFU) aseptically on the plate.

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*.

Tryptone and HM peptone B provide nitrogenous and carbonaceous compounds, long chain amino acids, vitamins and other essential nutrients. 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.

Type of specimen

Clinical samples : Tissue samples, wound swab , nasal swab.

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (5,6).
After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic use only. Read the label before opening the container. Wear protective gloves/protective clothing/ eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. MRSA intermediate strains may show poor growth due to nutritional variations and resistance to methicillin / cefoxitin.
2. Slight colour variation may be observed depending upon the utilization of the substrate by the organism.
3. Other methicillin resistant *Staphylococcus* species may grow. Further biochemical tests must be carried out to differentiate between resistant strains.
4. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium
5. Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users to validate the medium for any specific microorganism other than mentioned in the COA based on the user's unique requirement.
6. Further biochemical tests must be carried out for further identification

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Sterile MeReSa Agar in 90 mm disposable plates with smooth surface and absence of black particles/cracks/bubbles.

Colour

Pale pink coloured medium

Quantity of medium

25 ml of medium in 90 mm disposable plate

pH

6.90 - 7.30

Sterility check

Passes release criteria

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of Colony
Escherichia coli ATCC 25922 (00013*)	>=10^3	inhibited	0%	
Staphylococcus aureus subsp. *aureus* ATCC 25923 (00034*)	>=10^3	inhibited	0%	
Staphylococcus aureus (MRSA) ATCC 43300	50-100	good-luxuriant	>=50%	light pink
Staphylococcus epidermidis ATCC 12228 (00036*)	>=10^3	inhibited	0%	
Staphylococcus gallinarum MTCC 2992	>=10^3	inhibited	0%	
Staphylococcus saprophyticus subsp. *saprophyticus* ATCC 15305 (00159*)	>=10^3	inhibited	0%	

Key : *Corresponding WDCM numbers.

Storage and Shelf Life

On receipt store between 2-8°C Use before expiry date on the label. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (5,6).

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 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.

5.Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.

6.Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

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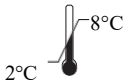
IVD ***In vitro* diagnostic medical device**



Storage temperature

EC REP CEpartner4U, Esdoornlaan 13,
3951DB Maarn, NL
www.cepartner4u.eu

CE Marking

Do not use if package is damaged

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