Ready Prepared Media

Technical Information

MeReSa Agar Plate

Product Code: PM 2594

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

Composition**

Ingredients	Gms / Litre
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
MeReSa Selective Supplement (MS2229) - 2 vials	
Methicillin (2.0 mgx2)	4.000mg
Cefoxitin Supplement (MS2259) - 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

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 (1,5). *Staphylococcus aureus* resistant to the antibiotic methicillin are referred to as Methicillin Resistant *Staphylococcus aureus* (MRSA) (6). 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 (2). 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 (6).

Methicillin-resistant strains of *Staphylococcus aureus* (MRSA) were recognized in 1980 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.

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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 (3,4). 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. 5 QOG intermediate strains may show poor growth due to nutritional variations and resistance to methicillin / cefoxitin.
2. 5 light 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.

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.

Methodology

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

Quality Control

Appearance
Sterile MeReSa Agar Agar in 90mm disposable plate.
Colour
Light amber coloured medium
Quantity
25 ml of medium in 90mm 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 w/ MS2229 & MD2259	Recovery w/ MS2229 & MD2259	Colour of Colony
Escherichia coli ATCC 25922 (00013*)	>=10^4	Inhibited	0%	
Staphylococcus aureus subsp. aureus ATCC 25923 (00034*)	>=10^4	Inhibited	0%	
Staphylococcus aureus (MRSA) ATCC 43300	50-100	good-luxuriant	>=50%	Light pink
Staphylococcus epidermidis ATCC 12228 (00036*)	50-100	Inhibited	0%	
Staphylococcus gallinarum MTCC 2992	50-100	Inhibited	0%	
Staphylococcus saprophyticus subsp. saprophyticus ATCC 15305 (00159*)	50-100	Inhibited	0%	

(*) - 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 sample must be decontaminated and disposed of in accordance with current laboratory techniques (3,4).

Further Reading

1. Dr. Alan Johnson, methicillin resistant staphylococcus aureus (MRSA) infection. The Support group for MSRA sufferers and Dependents, Aug 1st , 2005.
2. DWorkin M et. al 2006. The Prokaryotes (a Handbook on the Biology of Bacteria) 3rd ed, Vol. 2, page 345.
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
4. 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.
5. Methicillin Resistant *Staphylococcus aureus* Copyright ã 1997-2005 Canadian Centre for Occupational Health and Safety,

Disclaimer :

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