Ready Prepared Media

Technical Information

Baird Parker Agar Plate

Product Code: PM 1043

Application: Recommended for the isolation and enumeration of coagulase positive Staphylococci from food and clinical sample .

Composition**

Ingredients	Gms / Litre
Tryptone	10.000
HM Peptone B#	5.000
Yeast extract	1.000
Glycine	12.000
Sodium puruvate	10.000
Lithium chloride	5.000
Agar	20.000
Egg Yolk Tel Emulsion (50 ml per vial) (MS2046L)	50.00 ml
Egg yolk	15ml
Sterile saline	32ml
Sterile 3.5%potassium tellurite solution	3ml
Final pH (at 25°C)	7.0±0.2

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

Principle & Interpretation

Baird Parker Agar was developed by Baird Parker (1,2) from the Tellurite-glycine formulation of Zebovitz et al (3) for isolation and enumeration of Staphylococci in food and other material since it allows a good differentiation of coagulase positive strains. A high correlation has been found between the coagulase test and the presence of clear zone of lipolysis in this medium, which is due to the lecithinase of Staphylococci that breakdown, the egg yolk. On the other hand, studies show that almost 100% of coagulase positive Staphylococci are capable of reducing tellurite, which produces black colonies,whereas other Staphylococci cannot always do so. The medium was found to be less inhibitory to *Staphylococcus aureus* than other media at the same time being more selective (4,5,6). Subsequently the use of Baird-Parker Agar was officially adopted by AOAC International (7) .For quantitative results select 20-200 colonies. Count *Staphylococcus aureus* like colonies and test them for coagulase reaction. Report *Staphylococcus aureus* per gram of food.

Tryptone, HM peptone B and yeast extract are sources of nitrogen, carbon, sulphur and vitamins. Sodium pyruvate not only protects injured cells and helps recovery but also stimulates *Staphylococcus aureus* growth without destroying selectivity. Lithium chloride and potassium tellurite inhibit most of the contaminating microflora except *Staphylococcus aureus*. The tellurite additive is toxic to egg yolk-clearing strains other than *S.aureus* and imparts a black colour to the colonies. Glycine, pyruvate enhances growth of Staphylococcus. With the addition of egg yolk, the medium becomes yellow, opaque. The egg yolk additive, in addition to provide enrichment, aids in the identification process by demonstrating lecithinase activity (egg yolk reaction). A clear zone and grey-black colonies on this medium are diagnostic for coagulase positive Staphylococci. Upon further incubation, an opaque zone is developed around colonies,which can be due to lipolytic activity. When testing the medium, inoculate the material to be examined (0.1 ml per plate of diameter 90-100 mm), incubate at 37°C and take the first reading after 24-26 hours. The colonies of *Staphylococcus aureus* are black and shiny, with a fine white rim, surrounded by a clear zone. Incubate at 37°C for another 24 hours and performthe coagulase test on the colonies with the above characteristics, which have developed during the further incubation period. Plates should be used on the same day of preparation or within 48 hours, to avoid the loss of definition in the precipitated zones. Colonies of some contaminating organisms may digest the coagulase halo reaction. Other bacteria may grow on this media but biochemical test will differentiate coagulase positive Staphylococci from the other organisms.

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Type of specimen

Clinical samples : Pus, wounds ; Food and dairy samples

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (8,9).For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (10,11,12).After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic use. For professional 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. Though the medium is recommended for detection of coagulase positive *Staphylococcus aureus,* other bacteria may grow.
2. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium .
3. 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.
4. Further biochemical test have to be performed for confirmation .

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 Baird Parker Agar Plate in 90 mm disposable plates with smooth surface and absence of black particles/cracks/ bubbles.
pH
6.80-7.20
Quantity of medium
25 ml of medium in 90 mm disposable plates
Colour of medium
Yellow coloured opaque medium
Sterility Test
Passes release criteria
Cultural Response
Cultural characteristics observed after an incubation at 35-37°C for 24-48 hours

Oragnism	Inoculum (CFU)	Growth	Recovery	Colour of Colony	Lecithinase
Staphylococcus aureussubsp. aureus ATCC 6538 (00032*)	50-100	luxuriant	>=50 %	grey- black shiny	Positive, opaque zone around the colony
Staphylococcus aureussubsp. aureus ATCC 25923 (00034*)	50-100	luxuriant	>=50 %	grey-black shiny	Positive, opaque zone around the colony
Proteus mirabilis ATCC25933	50-100	good-luxuriant	>=50 %	brown-black	Negative
Micrococcus luteus ATCC10240	50-100	poor-good	30-40 %	shades of brown black(very small)	Negative
Staphylococcus epidermidis ATCC 12228 (00036*)	50-100	poor-good	30-40%	black	Negative
Bacillus subtilis subsp. spizizenii ATCC 6633 (00003*)	50-100	none-poor	0-10%	dark-brown matt	Negative
Escherichia coli ATCC 8739(00012*)	50-100	none-poor	0-10 %	large-brown black	Negative
Escherichia coli ATCC 25922 (00013*)	50-100	none-poor	0-10 %	large-brown black	Negative
Escherichia coli NCTC 9002	50-100	none-poor	0-10 %	large-brown black	Negative

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 sample must be decontaminated and disposed of in accordance with current laboratory techniques (2,3).

Further Reading

1. Baird-Parker A. C., 1962, J. Appl. Bacteriol., 25:12.
2. Baird-Parker A. C. and Davenport E., 1965, J. Appl. Bacteriol., 28:390.
3. Zebovitz E., Evans J. B. and Niven C.F., 1955, J. Bacteriol., 70:686 .
4. Assoc. off. Anal. Chem., 1971, 54:401.
5. Baer, 1971, J. Assoc. Off. Anal. Chem., 54:732.
6. Tardio and Baer, 1971, J. Assoc. Off. Anal. Chem., 54:728.
7. Horwitz (Ed.), 2000, Official methods of analysis of AOAC International, 17th Ed., Vol. I., AOAC International,Gaithersburg, MD.
8. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
9. 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.
10. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.

11. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
12. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

Disclaimer :

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