Baird Parker Agar Plate

MP043

Intended Use:

Recommended for the isolation and enumeration of coagulase positive Staphylococci from food and other materials.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	10.000
Meat extract B#	5.000
Yeast extract	1.000
Glycine	12.000
Sodium puruvate	10.000
Lithium chloride	5.000
Agar	20.000
Egg Yolk Tellurite Emulsion	100.000

**Formula adjusted, standardized to suit performance parameters

Directions

Ready to use sterile poured plates of Baird Parker Agar Plate, requires no preparation of media & helps to obtain exact no. of the microorganisms.

These plates are very useful in detecting the presence of microorganisms by conventional inoculation method; also growth promotion test can be carried out by ISO 11130.

Or

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

Principle And 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 lypolysis 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) and is recommended in the USP for use in the performance of Microbial Limit Tests (8). Recently, ISO committee has also recommended this medium for the isolation and enumeration of Staphylococci (9).

The identity of *Staphylococcus aureus* isolated on Baird-Parker Agar must be confirmed with a coagulase reaction. Baird-Parker Agar can also be used to detect coagulase activity by adding fibrinogen plasma (11).

Fibrinogen Plasma Trypsin Inhibitor supplement (FD195) dissolved in 10 ml sterile distilled water added to 90 ml sterile molten media kept at 45-50°C. On this medium coagulase positive colonies appear white to grey-black surrounded by an opaque zone due to coagulase activity within 24-48 hours incubation at 35°C. Reduction in tellurite is necessary because of absence of egg yolk emulsion. This results in translucent agar and white to grey coloured colonies of Staphylococci. 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. Smith and Baird-Parker (10)found that the addition of 50 mg/l Sulphamethazine in the medium, suppresses the growth and swarming of Proteus species.

Casein enzymic hydrolysate, meat extract 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 perform the 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. The basal medium, without the egg yolk or the tellurite, is perfectly stable. 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.

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.

Performance and Evaluation

Performace 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 Baird Parker Agar in 90mm disposable plates.

Colour
Yellow coloured opaque medium

Quantity of medium
25ml of medium in disposable plate

Reaction
6.80- 7.20

Cultural response
Cultural characteristics observed after incubation at 35-37°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth	Lot value (CFU)	Colour of colony	Lecithinase	Recovery
Staphylococcus aureus ATCC 6538	50 -100	luxuriant	25 -100	grey-black shiny	Positive, opaque zone around the colony	>=50 %

Staphylococcus aureus ATCC 25923	50 -100	luxuriant	25 -100	grey-black shiny	Positive, opaque zone around the colony	>=50 %
Proteus mirabilis ATCC 25933	50 -100	good - luxuriant	50 -100	brown - black	Negative	>=50 %
Micrococcus luteus ATCC 10240	50 -100	poor - good	15 -40	shades of brown-black (very small)	Negative	30 -40 %
Staphylococcus epidermidis ATCC 12228	50 -100	poor - good	15 -40	black	Negative	30 -40 %
Bacillus subtilis ATCC 6633	50 -100	none - poor	0 -10	dark brown matt	Negative	0 -10 %
Escherichia coli ATCC 8739	50 -100	none- poor	0 -10	large brown black	Negative	0 -10 %
Escherichia coli ATCC 25922	50 -100	none- poor	0 -10	large brown black	Negative	0 -10 %
Escherichia coli NCTC 9002	50 -100	none- poor	0 -10	large brown black	Negative	0 -10 %

Sterility Check

Passes release criteria

Storage and Shelf Life

Store between 20-30°C. Use before expiry date on the label.

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 (6,7).

Reference

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11. Beckers N. J. et al, 1984, Can. J. Microbiol., 30:470.

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