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Baird Parker Agar Base

Baird Parker Agar Base is used for the selective isolation and accurate enumeration of coagulase-positive Staphylococcus species

REF: BS.1/NZ01.100.0100	100 Gram	REF: BS.1/NZ01.250.0250	250 Gram
REF: BS.1/NZ01.500.0500	500 Gram		

PRINCIPLE AND INTERPERTATION :

Baird Parker Agar Base was originally 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 strong correlation has been observed between the coagulase test and the appearance of a clear zone of lipolysis on this medium, attributed to the lecithinase enzyme produced by staphylococci, which hydrolyzes the egg yolk components. 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. BairdParker Agar can also be used to detect coagulase activity by adding fibrinogen plasma (10). FPT Inhibitor (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 (11) found that the addition of 50 mg/l Sulphamethazine in the medium, suppresses the growth and swarming of Proteus species. 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 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.

Item	Formula per liter of medium
Tryptone	10.00 gm
HM Peptone B#	5.00 gm
Yeast extract	1.00 gm
Glycine	12.00 gm
Sodium puruvate	10.00 gm
Lithium chloride	5.00 gm
Agar	20.00 gm

MEDIA COMPOSITION

Final pH (at 25°C) 7.0 ± 0.2 ** Formula adjusted, standardized to suit performance parameters.

PREPARATION

Suspend 63.0 grams in 950 ml purified/ distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 50°C and aseptically add 50 ml concentrated Egg Yolk Emulsion (FD045) and 3 ml sterile PTe 3.5% Selective Supplement (1 ml per vial) (FD047) or 50 ml Egg Yolk Tel Emulsion (100 ml per vial) (FD046). For additional selectivity, if desired add rehydrated contents of 1 vial of BP S Selective Supplement (FD069). Alternatively 1 vial of FPT Inhibitor (FD195) may be used per 90 ml medium in place of Egg Yolk Tel Emulsion (100 ml per vial) (FD046) for identification of coagulase, positive Stapylococci. Mix well and pour into sterile Petri plates.

PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves, glasses,).
- Do not pipette by mouth.
- In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries; seek medical advice immediately.
- Respect country requirement for waste disposal.
  S56: dispose of this material and its container at hazardous or special waste collection point.
  S57: use appropriate container to avoid environmental contamination.
  S61: avoid release in environment.

For further information, refer to Baird Parker Agar Base material safety data sheet.

STORAGE AND STABILITY

BioScien Baird Parker Agar should be stored between 10-30°C in a tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Product performance is best if used within stated expiry period.

Deterioration

The color of ***BioScien*** Baird Parker Agar Cream to yellow homogeneous free flowing powder.Basal medium: Yellow coloured clear to slightly opalescent gel. After addition of Egg Yolk Emulsion and Tellurite Emulsion: Yellow coloured opaque gel forms in Petri plates.

EQUIPMENT REQUIRED NOT PROVIDED

- Sterile petri dishes
- Incubator
- Autoclave

PERFORMANCE CHARACTERISTICS

Cultural response was observed after an incubation at 35-37°C for 24-48 hours. Recovery rate is considered as 100% for bacteria growth on Soyabean Casein Digest Agar.

Organisms (ATCC)	Inoculum (CFU)	Growth	Colour of colony	Lecithinase
Staphylococcus aureus subsp. aureus ATCC 6538 (00032)*	50-100	luxuriant	grey-black shiny	Positive, opaque zone around the colony
Staphylococcus aureus subsp. aureus ATCC 25923 (00034)*	50-100	luxuriant	grey-black shiny	Positive, opaque zone around the colony
Proteus mirabilis ATCC 25933	50-100	good-luxuriant	brown - black	Negative
Staphylococcus epidermidis ATCC 12228 (00036)*	50-100	fair-good	black	Negative
Escherichia coli ATCC 8739 (00012)*	50-100	none-poor	large brown black	Negative

QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control still out of range please contact ***BioScien*** technical support.

SYMBOLS IN PRODUCT LABELLING

IVD	For in-vitro diagnostic use	Σ	Number of <n> test in the pack
LOT	Batch Code/Lot number		Caution
REF	Catalogue Number		Do not use if package is damaged
	Temperature Limitation		Consult Instruction for use
	Expiration Date		
	Manufactured by		

REFERENCE

(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.