Technical Information

Baird Parker Agar Base

Product Code: DM 1043M

Application: - Baird Parker Agar Medium is recommended for the selective isolation and enumeration of coagulase positive Staphylococci From food and other materials in accordance with Indian Pharmacopoeia.

Composition**

Ingredients	Gms / Litre
Pancreatic digest of casein	10.000
Beef extract	5.000
Yeast extract	1.000
Glycine	12.000
Sodium pyruvate	10.000
Lithium chloride	5.000
Agar	20.000
pH after sterilization	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Staphylococcus species are common contaminants in food, dairy, pharmaceutical and cosmetics related products [9]. Baird-Parker medium was developed by Baird-Parker [1, 2] from the Tellurite – glycine formulation of Zebovitz et.al. [3] for selective isolation of *Staphylococcus aureus* from foods. This medium is recommended for microbial limit tests and to detect *S.aureus* and found to be the best medium for detection of coagulase positive and enterotoxigenic *Staphylococcus* [4]. This medium was found to be less inhibitory to *S.aureus* than other media, at the same time being more selective [5, 6]. Subsequently it was officially adapted by the AOAC and is also recommended in Indian Pharmacopoeia for use in Microbial limit test [7, 8].

Beef extract, yeast extract and pancreatic digest of casein provides essential mineral, vitamin and other growth requirements. Sodium pyruvate protects injured cells and helps recovery. Lithium chloride and potassium tellurite inhibit most of contaminating microflora except *S.aureus* . Glycine, pyruvate enhances growth of *Staphylococcus*. With the addition of egg yolk the medium becomes yellow and opaque.

Proteolytic bacteria produce a clear zone around colony in egg yolk containing media also known as Lecithinase 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. Identity of *S.aureus* isolated on Baird-Parker Agar must be confirmed with a coagulase reaction. Growth of *Proteus* species can be inhibited by addition of sulphamethazene in this medium.

Methodology

Suspend 63 grams of powder media in 950 ml purified/ distilled water. Shake well &heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes or alternatively at. 10 lbs pressure (115°C) for 30 minutes. Cool to 50°C and add aseptically 50 ml concentrated Egg Yolk Emulsion (MS2045) and 10 ml sterile 1% Potassium Tellurite Solution (MS2052). Mix well before pouring into sterile Petriplates. Warning: Lithium Chloride is harmful. Avoid all bodily contact and inhalation of vapours. On contact with skin wash with plenty of water immediately.

Quality Control

Physical Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 2.0% agar gel

Colour and Clarity of prepared medium

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.

Reaction

After sterilization, reaction of 6.3% w/v aqueous solution. pH : 6.8±0.2

pH Range

6.60-7.00

Cultural Response/Characteristics

DM 1043M: Growth Promotion is carried out in accordance with IP. Cultural response was observed after an incubation at 30-35°C for 24-48 hours. Recovery rate is considered as 100% for bacteria growth on Soyabean Casein Digest Agar.

Organism	Inoculum (CFU)	Observed Lot value (CFU)	Recovery	Colour of Colony	Incubation temperature	Incubation period
Staphylococcus aureus *ATCC 6538*	50 -100	luxuriant	25 -100	>=50 %	grey-black shiny	Positive, opaque zone around the colony
Additional Microbiological testing						
Staphylococcus aureus *ATCC 25923*	50 -100	luxuriant	25 -100	>=50 %	grey-black shiny	Positive, opaque zone around the colony
Proteus mirabilis *ATCC 25933*	50 -100	good - luxuriant	50 -100	>=50 %	brown - black	Negative
Micrococcus luteus *ATCC 10240*	50 -100	poor - good	15 -40	30 -40 %	shades of brown-black (very small)	Negative
Staphylococcus epidermidis *ATCC 12228*	50 -100	poor - good	15 -40	30 -40 %	black	Negative
Bacillus subtilis *ATCC 6633*	50 -100	none - poor	0 -10	0 -10 %	dark brown matt	Negative
Escherichia coli *ATCC 8739*	50 -100	none - poor	0 -10	0 -10 %	large brown black	Negative
Escherichia coli *NCTC 9002*	50 -100	none- poor	0 -10	0 -10 %	large brown black	Negative
Escherichia coli *ATCC 25922*	50 -100	none- poor	0 -10	0 -10 %	large brown black	Negative

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1. Baird-Parker,A.C. 1962,J.Appl.Bact.,25: 12.
2. Baird-Parker,A.C. and Davenport,E., 1965,J.Appl.Bact.,28: 390.
3. Zebovitz, E., Evans J.B. & Niven C.F., (1955), J. Bact; 70:686.
4. Niskanean A and Aalto M, App. Env. Microbiol., 1978, 35:1233.
5. Tardio and Baer,1971,J.Assoc.Off. Anal. Chem.,54:728.
6. Baer,1971,J.Assoc. Off. Anal. Chem.,54:732.
7. Indian Pharmacopoeia, 1996, Govt. of India, Ministry of Health and Family Welfare, New Delhi, India.
8. J. Assoc. off. Anal. Chem, 1971, 54:401.
9. Bacteriological Analytical Manual, 8th Edition, Revision A, 1998. AOAC, Washington D.C.

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