TM 943 – BAIRD PARKER AGAR BASE W/ SULPHA

INTENDED USE

For isolation and enumeration of coagulase positive Staphylococci from food and other products.

PRODUCT SUMMARY AND EXPLANATION

Baird Parker Agar was developed by Baird Parker from the Tellurite-glycine formulation of Zebovitz et al 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. Subsequently the use of Baird-Parker Agar was officially adopted by AOAC International and is recommended in the USP for use in the performance of Microbial Limit Tests. Recently, ISO committee has also recommended this medium for the isolation and enumeration of Staphylococci. 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. Fibrinogen Plasma Trypsin Inhibitor supplement 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 of 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 found that the addition of 50 mg/l Sulphamethazine in the medium, suppresses the growth and swarming of Proteus species.

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. The basal medium, without the egg yolk or the tellurite, is perfectly stable.

COMPOSITION

Ingredients	Gms / Ltr
Tryptone	10.000
Beef extract	5.000
Yeast extract	1.000
Glycine	12.000
Sodium pyruvate	10.000
Lithium chloride	5.000
Sulphamethazine	0.050
Agar	20.000

PRINCIPLE

Tryptone, beef extract 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 color to the colonies. Glycine, pyruvate enhances growth of *Staphylococcus*.

INSTRUCTION FOR USE

- Dissolve 63.05 grams in 950 ml purified / distilled water.
- Heat to boiling to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.
- Cool to 50°C and aseptically add 50 ml concentrated Egg Yolk Emulsion and 3 ml sterile 3.5% Potassium Tellurite solution or 50 ml Egg Yolk Tellurite Emulsion.
- Mix well and pour into sterile Petri plates.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Cream to yellow homogeneous free flowing powder.

Appearance of prepared medium : Basal medium: Light amber coloured clear to slightly opalescent gel. After addition of Egg Yolk Tellurite Emulsion: Yellow coloured opaque gel forms in Petri plates.

pH (at 25°C) : 7.0±0.2

INTERPRETATION

Cultural characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Lecithinase activity	Colour of colony	Incubation Temperature	Incubation Period
Bacillus subtilis subsp. spizizenii	6633	50-100	None-poor	0-10%	Negative	-	35-37°C	24-48 Hours
Escherichia coli	25922	50-100	None-poor	0-10%	Negative	Large brown black	35-37°C	24-48 Hours
Micrococcus luteus	10240	50-100	Fair-good	20-40%	Negative	Very small, brown-black	35-37°C	24-48 Hours
Proteus mirabilis	25933	50-100	None-poor	0-10%	Negative	Brown-black w/ o swarming	35-37°C	24-48 Hours
Staphylococcus aureus subsp.aureus	25923	50-100	Good-luxuriant	>=50%	Positive, halo or clear zone around the colony	Grey-black shiny	35-37°C	24-48 Hours
Staphylococcus epidermidis	12228	50-100	Fair-good	20-40%	Negative	Black	35-37°C	24-48 Hours

PACKAGING:

In pack size of 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

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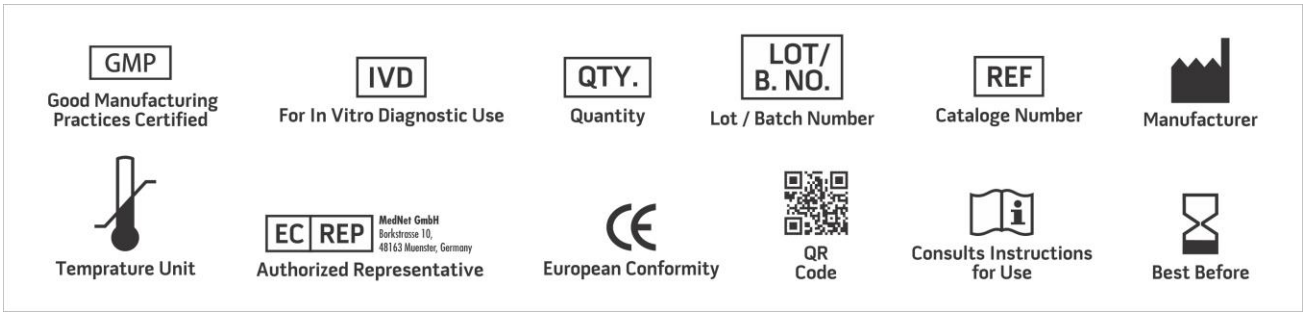

NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**

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