BAIRD-PARKER AGAR

-For in vitro use only- Catalogue No. PB20

Our Baird-Parker Agar is used for the selective isolation and differentiation of coagulase-positive staphylococci from food and other non-clinical sources.

In 1962, Baird-Parker developed his own medium based on Zebovitz's tellurite-glycine formulation, and subsequently demonstrated its superior performance for isolating coagulase-positive staphylococci from foods.

Pancreatic digest of casein, yeast extract, and beef extract supply the organisms with amino acids, vitamins and other complex nitrogenous components, which are essential for growth. Egg yolk tellurite emulsion contains lecithin and protein allowing for differentiation based on the organism's lecithinase and proteolytic activity. Potassium tellurite, contained in the emulsion, is inhibitory to most organisms, but organisms capable of reducing potassium tellurite are able to grow on the medium. Lithium chloride and glycine are also incorporated into the medium to improve the general selectivity of the agar. The presence of sodium pyruvate helps to protect damaged cells and stimulate their growth; Baird-Parker and Davenport showed that recovery of damaged staphylococci on Baird-Parker Agar was better than other recovery media.

Formula per Litre of Medium

Pancreatic Digest of Casein	10.0 g
Beef Extract	5.0 g
Yeast Extract	1.0 g
Lithium Chloride	5.0 g
Agar	17.0 g
Glycine	12.0 g
Sodium Pyruvate	10.0 g
Egg Yolk Tellurite Emulsion	50.0 mL

pH 6.8 ± 0.2

Recommended Procedure

General Technique for Testing Foods

(Please consult appropriate referencing for detailed testing protocols)

1. Prepare dilutions of samples as indicated by standard procedures.
2. Allow medium to reach room temperature.
3. Transfer 1 mL of each dilution to separate Baird-Parker Agar plates.
4. Using a glass spreader distribute the inoculum evenly over the agar surface. Let the inoculated plates air dry for 15-20 minutes before inverting them.
5. Incubate aerobically at 35°C and examine after 24 hours.
6. For enumeration purposes re-incubate plates for an additional 24 hours. Only enumerate plates with 30 to 300 typical *S. aureus* colonies.

Interpretation of Results

Differentiation on Baird-Parker Agar is based on egg yolk enzymatic reactions and tellurite reduction. The egg yolk emulsion contains lecithin and proteins that can be broken down by various bacterial enzymes. Lecithinase breaks down lecithin and produces an insoluble precipitate resulting in opaque zones in the medium surrounding the colonies. Proteolytic activity can be observed on this medium as clear zones surrounding the colonies. Organisms, such as *S. aureus*, capable of reducing potassium tellurite will form distinct gray-black colonies. Differentiation between members of the Genus *Staphylococcus* is possible: coagulase-positive staphylococci appear as shiny, gray-black, convex colonies with a clear zone surrounding the colonies; while coagulase-negative staphylococci grow poorly and appear as small, dull black colonies while clear or opaque zones are rare.

Additional biochemical and/or serological tests should be performed on isolated colonies from pure culture to complete identification.

- *Some strains of S. aureus produce both clear and opaque zones*

- *Other organisms capable of growing on Baird-Parker Agar usually form brown colonies with no visible zones surrounding the colonies*

Quality Control

After checking the medium for correct pH, colour, depth, and sterility, the following organisms are used to determine the growth and differential performance of the completed medium.

Organism	Expected Results
Staphylococcus aureus ATCC 25923	Good growth Black w/ clear halo
Staphylococcus epidermidis ATCC 14990	Poor growth Black (no halo)
Escherichia coli ATCC 25922	Inhibition

Storage and Shelf Life

Our Baird-Parker Agar should be stored away from direct light at 4°C to 8°C. The medium side should be uppermost to prevent excessive accumulation of moisture on the surface of the agar. Under these conditions this medium has a shelf life of 6 weeks from the date of manufacture.

References

1. Baird-Parker AC. An improved diagnostic and selective medium for isolating coagulase-positive staphylococci. J of App Bacteriol 1962; 25:12-9.
2. Baird-Parker AC. The classification of staphylococci and micrococci from world-wide sources. J Gen Microbiol 1965; 28:363.
3. Holbrook R, Anderson JM, Baird-Parker AC. The performance of a stable revision of Baird-Parker's medium for isolating *Staphylococcus aureus*. J Appl Bacteriol 1969; 32:187.
4. MacFaddin JF. Media for isolation-cultivation-maintenance of medical bacteria, Vol I. Baltimore: Williams & Wilkins, 1985.
5. Power DA, McCuen PJ. Manual of BBL products and laboratory procedures. 6th ed. Cockeysville, Maryland: Becton Dickinson, 1988.
6. Murray PR, Baron E, Pfaller M, Tenover F, Yolken R. Manual of Clinical Microbiology. 7th ed. Washington, DC: ASM, 1999.

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