BD™ Baird-Parker Agar

INTENDED USE

BD Baird-Parker Agar is a moderately selective and differential medium for the isolation and enumeration of *Staphylococcus aureus* in foods, environmental, and clinical specimens.

PRINCIPLES AND EXPLANATION OF THE PROCEDURE

Microbiological method.

A variety of media is used for the isolation of *Staphylococcus aureus*, which plays a major role in food-poisoning and in human clinical infections. The formulation of the present Baird-Parker Agar was published in 1962.[1] It is a partially selective medium which applies the ability of staphylococci to reduce tellurite to tellurium and to detect lecithinase from egg lecithin. Baird-Parker Agar is widely used and is included in many standard procedures for testing foods, cosmetics, or swimming pool waters for the presence of *Staphylococcus aureus*.[2-6]

It may also be used for the isolation of *S. aureus* from clinical specimens and is also called Egg-Tellurite-Glycine-Pyruvate Agar (ETGPA).[7,8]

BD Baird-Parker Agar contains the carbon and nitrogen sources necessary for growth. Glycine, lithium chloride and potassium tellurite act as selective agents. Egg yolk is the substrate to detect lecithinase production, and, in addition, lipase activity. Staphylococci produce dark gray to black colonies due to tellurite reduction; staphylococci that produce lecithinase break down the egg yolk and cause clear zones around respective colonies. An opaque zone of precipitation may form due to lipase activity.

The medium must not be used for the isolation of staphylococci other than *S. aureus.*

REAGENTS

BD Baird-Parker Agar

Formula* Per Liter Purified Water

Bacto™ Tryptone	10.0 g
Bacto Beef Extract	5.0
Bacto Yeast Extract	1.0
Lithium Chloride	5.0
Glycine	12.0
Sodium Pyruvate	10.0
Potassium Tellurite	0.1
Agar	20.0
Egg Yolk Emulsion	50.0 ml

pH 6.8 +/- 0.3

*Adjusted and/or supplemented as required to meet performance criteria.

PRECAUTIONS

IVD . For professional use only.

Do not use plates if they show evidence of microbial contamination, discoloration, drying, cracking or other signs of deterioration.

Consult **GENERAL INSTRUCTIONS FOR USE** document for aseptic handling procedures, biohazards, and disposal of used product.

STORAGE AND SHELF LIFE

On receipt, store plates in the dark at 2 to 8° C, in their original sleeve wrapping until just prior to use. Avoid freezing and overheating. The plates may be inoculated up to the expiration date (see package label) and incubated for the recommended incubation times.

Plates from opened stacks of 10 plates can be used for one week when stored in a clean area at 2 to 8° C.

USER QUALITY CONTROL

Inoculate representative samples with the following strains (for details, see **GENERAL INSTRUCTIONS FOR USE** document). Incubate the plates aerobically for 20 to 48 hours at 35 +/- 2° C.

Strains	Growth Results
Staphylococcus aureus ATCC™ 25923	Growth good to excellent; dark gray to black, shiny, medium-sized colonies, clear halos surrounding colonies
Staphylococcus aureus ATCC 6538	Growth good to excellent; dark gray to black, shiny, medium-sized colonies, clear halos surrounding colonies
Staphylococcus epidermidis ATCC 12228	No growth to fair growth; small, colorless to gray-brownish colonies; no clear zones
Escherichia coli ATCC 25922	Inhibition complete
Proteus mirabilis ATCC 12453	No growth to good growth; dark brown colonies; swarming reduced
Uninoculated	Yellowish to light brownish, opaque

PROCEDURE

Materials Provided

BD Baird-Parker Agar (90 mm **Stacker™** plates). Microbiologically controlled.

Materials Not Provided

Ancillary culture media, reagents and laboratory equipment as required.

Specimen Types

This is a selective differential medium for the isolation and enumeration of *Staphylococcus aureus* from materials such as foods and environmental materials of sanitary importance which may also be used for all types of clinical specimens (see also **PERFORMANCE CHARACTERISTICS AND LIMITATIONS OF THE PROCEDURE**).

Test Procedure

Consult standard references for specific instructions to process nonclinical materials being tested. [2-6] Clinical specimens can be streaked directly, from liquid enrichment media, or from primary isolation plates. For quantitative tests, prepare dilutions of the material being tested. Transfer aliquots of the dilutions to **BD Baird-Parker Agar** plates and distribute over the surface of the medium with sterile glass spreaders. For qualitative tests, including those of clinical specimens, streak for isolation. Other selective and nonselective media should also be inoculated with the clinical specimen, in order to detect all pathogens involved in the infection. At least, a blood agar plate, e.g., **BD Columbia Agar with 5% Sheep Blood**, must also be inoculated. Incubate **BD Baird-Parker Agar** aerobically at 35 to 37° C for 42 to 48 hours and read after 18 to 24 and 42 to 48 hours.

Results

Coagulase positive staphylococci (*Staphylococcus aureus*) produce dark gray to black, shiny, convex colonies with entire margins and clear zones with or without an opaque zone around the colonies. Coagulase negative staphylococci produce weak or no growth with gray to black colonies, usually without clear or opaque zones. Organisms other than staphylococci are often inhibited. If growth occurs, colonies may be brown to gray or colorless, with neither clear nor opaque zones. The presumptive identification obtained on this medium must be confirmed with additional tests. [2-6,8]

PERFORMANCE CHARACTERISTICS AND LIMITATIONS OF THE PROCEDURE

BD Baird-Parker Agar is one of the standard media for the isolation and enumeration of *Staphylococcus aureus* and its differentiation from other staphylococci. It is mainly used for the

isolation of the organism from nonclinical materials such as food, but is also used for its isolation from clinical specimens.[2-8]
An incubation of 46 to 48 hours is necessary for development of the typical appearance of *S. aureus* colonies.[2]

Staphylococci other than *S. aureus* may grow on the medium. However, since their growth is dependent on the species and strains, **BD Baird-Parker Agar** must not be used for their isolation. Instead, **BD Mannitol Salt Agar** may be used for this purpose. Media that allow isolation of all pathogens involved in an infection must be included.[8]

Organisms other than staphylococci may grow on this medium and may produce brown to black colonies, e.g., *Proteus mirabilis.* Therefore, additional tests are necessary for a complete identification of the isolates.[2-4,6,9]

REFERENCES

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PACKAGING/AVAILABILITY

BD Baird-Parker Agar
Cat. No. 255084 Ready-to-use Plated Media, cpu 20

FURTHER INFORMATION

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