

Baird Parker Agar Base ISO

Cat. 1319

For the selective isolation of coagulase-positive staphylococci

Practical information

Applications	Categories
Selective isolation	Coagulase-positive staphylococcus

Industry: Clinical / Food

Regulations: ISO 11133 / ISO 22718 / ISO 6888



Principles and uses

Baird Parker Agar Base is used for the isolation and enumeration of coagulase-positive staphylococci in food and other materials. Its formula is described in ISO 6888-1 normative.

Casein pancreatic digest, beef extract and yeast extract provide nitrogen, vitamins, minerals and amino acids essential for growth. Lithium chloride, trypsin inhibitor and potassium tellurite inhibit the accompanying flora, and glycine and sodium pyruvate facilitate the staphylococci growth. Bacteriological agar is the solidifying agent.

The ISO 6888-1 Standard recommends adding Egg Yolk Tellurite Emulsion Supplement to Baird Parker Agar Base to make the complete medium Baird Parker Agar, used for the general count of coagulase-positive staphylococci in products intended for human or animal feed, through the counting of colonies obtained in a solid medium. The identity of *Staphylococcus aureus* isolated on Baird Parker Agar must be confirmed with a coagulase reaction.

The ISO 6888-2 Standard recommends the addition of Rabbit Plasma Fibrinogen (RPF) Supplement (Cat. 6024) to Baird-Parker Agar Base, to make Rabbit Plasma Fibrinogen (RPF) Agar used for food (such as cheese made from raw milk and certain raw meat products) that may be contaminated with: *Staphylococcus* forming non-characteristic colonies in Baird-Parker Agar or with base flora that can mask the colonies sought. This medium should be used immediately after preparation.

In Baird-Parker Agar the characteristic colonies are black or grey, shiny and convex and surrounded by a clear area. After 24 h of incubation an opalescent ring may appear in the clear area. Non-characteristic colonies may be bright black or gray, with or without a narrow white border, without a clear area or opalescent ring.

In Rabbit Plasma Fibrinogen Agar, staphylococcus colonies are small, black or gray, even white, surrounded by a halo of precipitation indicating the coagulase activity. At the start of incubation, *Proteus* colonies can present similar physical characteristics to coagulase-positive *Staphylococcus aureus* colonies. However, after 24 or 48 hours of incubation, they can acquire a brown color that expands and invades the plate, and which allows them to be distinguished from staphylococcus.

Formula in g/L

Bacteriological agar	13	Glycine	12
Beef extract	5	Pancreatic digest of casein	10
Sodium pyruvate	10	Yeast extract	1
Lithium chloride	5		

Preparation

Suspend 5,0 grams of the medium in 90 ml of distilled water or 5,6 grams in 100 ml. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Sterilize in autoclave at 121 °C for 15 minutes. Cool to 45-50 °C. Aseptically add one vial of the RPF Supplement ISO (Cat. 6024) reconstituted in 10 ml of sterile distilled water to 90 ml of Baird Parker Agar Base, or 5 ml of Tellurite Egg Yolk Emulsion ISO (Cat. 5129) to 100 ml of Baird Parker Agar Base. Homogenize gently and dispense into Petri dishes.

Instructions for use

» For clinical diagnosis, the type of sample is any clinical sample.

- The plates should be dry before inoculation (the drying can be done by incubating at 35±2 °C for approximately 10 minutes before use).

- Prepare the sample in an adequate solution, dilute it and place from 0,1 ml to 1,0 ml of the appropriate dilution in the plates.
- Spread the inoculum over the entire surface.
- Incubate at 35±2 °C for 24-48 hours

» For other uses not covered by the CE marking:

Enumeration of coagulase-positive staphylococci by the technique using Baird-Parker Agar:

- Inoculate 0,1 ml of the liquid sample or 0,1 ml the initial suspension. Inoculate also the first decimal dilution.
- Spread the inoculum over the plate surface as quick as possible.
- Incubate the plates at a temperature of 35-37 °C for 24±2 hours, then reincubate for a further 24±2 hours at the same temperature.
- Examine the characteristics colonies at the 24 hours and 48 hours.
- Select a defined number of characteristic colonies to confirm in tubes of Brain Heart Infusion and incubate at 35-37 °C for 24±12 h.
- Add 0,1 ml of the culture obtained to 0,3 ml of the rabbit plasma and incubate at 35-37 °C.
- Observe the coagulation of the plasma at the 4-6 hours. If the assay is negative continue incubating for 24 hours.
- Coagulation of half of the volume of the plasma is considered a positive result.

Enumeration of coagulase-positive staphylococci by the technique using Rabbit Plasma Fibrinogen Agar:

- Inoculate 1 ml of the liquid sample or 1 ml of the initial suspension by the pour plate method. Inoculate also the first decimal dilution.
- Incubate the plates at a temperature of 35-37 °C for 18-24 hours. If needed reincubate for a further 18-24 hours at the same temperature.
- Count the characteristic colonies.

Quality control

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25°C)
w/o rests	Fine powder	Light toasted	Clear amber	7,2±0,2

Microbiological test

According to ISO 11133:

Incubation conditions: Productivity, Specificity (24±2-48±2 h / 37±1°C) / Selectivity (48±2 h / 37±1 °C).

Inoculation conditions: Productivity quantitative (100±20. Min.50 cfu) / Selectivity (10⁴-10⁶ cfu) / Specificity (10³-10⁴ cfu).

Reference media: TSA.

Microrganisms	Specification (Baird-parker)	Specification (RPFA)	Characteristic reaction (Baird-Parker)	Characteristic reaction (RPFA)
Staphylococcus epidermidis ATCC 12228	Growth	Growth	Black or grey colonies without egg yolk clearing reaction	Black o grey colonies without opacity halo
Staphylococcus saprophyticus ATCC 15305	Growth	Growth	Black or grey colonies without egg yolk clearing reaction	Black o grey colonies without opacity halo
Escherichia coli ATCC 25922	Total inhibition (0)			
Staphylococcus aureus ATCC 25923	Good growth >50%	Good growth >50%	Black or grey colonies with clear halo (egg yolk clearing reaction)	Black o grey colonies with opacity halo
Staphylococcus aureus ATCC 6538	Good growth >50%	Good growth >50%	Black or grey colonies with clear halo (egg yolk clearing reaction)	Black o grey colonies with opacity halo

Storage

Temp. Min.:2 °C
Temp. Max.:25 °C

Bibliography

- Baird Parker, A.C. (1962). An improved diagnostic and selective medium for isolating coagulase-positive staphylococci. J. Appl. Bact. 25 (1): 12-19.
- Beckers N.J. et al (1984). Cannad J. microbiol. 30: 470-474.
- ISO 6888-2. Enumeration of Staphylococcus aureus using RPF medium.
- ISO 6888-1. Microbiology of food and animal feeding stuffs -- Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) -- Part 1: Technique using Baird-Parker agar medium