

Brucella Agar (i23026)

Brucella Agar is a culture medium for the cultivation of *Brucella* organisms.

Industry: Food / Dairy Products

Principles & Uses

Brucella, causing abortions in animals and febrile illnesses in humans, demand a nutrient-rich medium for growth and strict handling precautions due to their high infectivity. Brucella Agar Base is the medium of choice for cultivating *Brucella* species and can also be employed for *Campylobacter* isolation. Enriched with Campylobacter Supplements, it supports the growth of fastidious bacteria like *Streptococci*, *Pneumococci*, *Listeria*, *Neisseria meningitidis*, and *Haemophilus influenzae*. Peptones and yeast extract supply essential nutrients and sodium chloride maintains osmotic balance. Glucose provides energy, and 5% v/v sterile defibrinated horse blood can be added for enrichment. For selective isolation, antibiotic supplements are incorporated into the base.

The differentiation of *Brucella* species is facilitated by their varying sensitivity to thionine and fuchsin dyes, allowing the preparation of distinctive culture media by adding these compounds to Brucella agar. This medium, also endorsed by APHA for isolating *Brucella* from foods, is crucial for studying and differentiating *Brucella* strains based on their reactions to specific components. Extreme care is imperative in handling these highly infective intracellular parasites.

Composition (gr/L)

Pancreatic Digest of Casein 10 g, Peptone from Meat 10 g, Yeast Extract 2 g, Glucose 1 g, Sodium Chloride 5 g, Agar 14 g. Final pH at 25°C 7.0 ± 0.2

Preparation from dehydrated Powder

Dissolve 21 grams in 500 ml of distilled water, autoclave at 121°C for 15 minutes, and pour into plates. The resulting plates exhibit a clear, yellowish-brown appearance.

For Brucella differential agar, adjust the pH to 6.7 ± 0.1, sterilize Brucella agar, cool to 50°C. Introduce 1 ml of a 2% basic fuchsin solution or prepare a 2% solution from thionine acetate, boiling the solution for 20 minutes.

In the case of Brucella selective agar, sterilize Brucella agar, cool to 50°C, and supplement the medium with the following compounds per 500 ml: Bacitracin 250 mg, Polymyxin B sulfate 0.5 mg, Cycloheximide 50 mg, and, if needed, ethyl violet 0.61 mg.

For the isolation of *Campylobacter* species, cool the media to 50°C and add a sterile, filtered solution containing 125 mg sodium pyruvate, 125 mg sodium metabisulfite, 125 mg ferrous sulfate in 2 ml of distilled water, along with 5-7% sterile defibrinated sheep blood. Additionally, add 25 ml heat-inactivated horse serum to 500 ml of the medium base.

Quality Control

Dehydrated Appearance: Fine, homogeneous, free of extraneous material.

Prepared Appearance: Light to medium, tan to yellow, clear to slightly hazy.

Reaction of 4.2% Solution at 25°C: pH 7.0 ± 0.2

Cultural Response

Prepare the medium per label directions without (plain) and with 5% defibrinated blood. Inoculate and incubate at 35 ± 2°C for 3 days with 3-5% CO₂ (incubate *S. aureus* without CO₂).

Organism (ATCC*)	Recovery Plain	Recovery with Blood
<i>Brucella abortus</i> (11192)	Good	Good
<i>Brucella melitensis</i> (4309)	Good	N/A
<i>Brucella suis</i> (4314)	Good	N/A
<i>Staphylococcus aureus</i> (25923)	Good	N/A
<i>Streptococcus pneumoniae</i> (6305)	N/A	Good
<i>Streptococcus pyogenes</i> (19615)	N/A	Good

*ATCC is a registered trade mark of the American Type Culture Collection.

Storage

Keep the container at 15-30 °C. Store prepared medium at 2-8 °C.