

Potato Infusion Agar

Intended Use

Potato Infusion Agar is used for cultivating *Brucella*, especially in mass cultivation procedures.

Summary and Explanation

Potato Infusion Agar is prepared according to the formula used by Stockman and MacFadyean for the isolation of *Brucella abortus*. Brucellosis is a zoonotic disease with a domestic-animal reservoir.¹ Transmission by milk, milk products, meat and direct contact with infected animals is the usual route of exposure.¹

Brucella spp. grow on most standard laboratory media, including blood agar and chocolate agar, when incubated at 35°C in a CO₂-supplemented atmosphere; however, enriched media are preferred.² Potato Infusion Agar, enriched with glycerol, permits luxuriant growth of characteristic colonies of *B. abortus* from infected materials, and may be used with excellent results in mass cultivation of *Brucella* in the preparation of vaccines and antigens.

Principles of the Procedure

Infusion from potatoes, beef extract and peptone provide the nitrogen, vitamins and amino acids in Potato Infusion Agar. Dextrose and glycerol are used as a carbon source in this formula. Sodium chloride maintains the osmotic balance of the medium. Agar is the solidifying agent.

Formula

Difco™ Potato Infusion Agar

Approximate Formula* Per Liter

| | | |
|-------------------------------|------|---|
| Potatoes, Infusion from 200 g | 4.0 | g |
| Beef Extract | 5.0 | g |
| Proteose Peptone | 10.0 | g |
| Dextrose | 10.0 | g |
| Sodium Chloride | 5.0 | g |
| Agar | 15.0 | g |

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

Precautions³

1. Biosafety Level 2 practices, containment equipment and facilities are recommended for activities with clinical specimens of human or animal origin containing or potentially containing pathogenic *Brucella* spp.
2. Biosafety Level 3 practices, containment equipment and facilities are recommended for all manipulations of cultures of the pathogenic *Brucella* spp. and for experimental animal studies.

User Quality Control

Identity Specifications

Difco™ Potato Infusion Agar

| | |
|---|---|
| Dehydrated Appearance: | Medium tan, free-flowing, homogeneous. |
| Solution: | 4.9% solution, soluble in purified water with 2% glycerol upon boiling. Solution is medium amber, slightly opalescent, with a slight precipitate. |
| Prepared Appearance: | Medium amber, slightly opalescent to opalescent with a slight precipitate. |
| Reaction of 4.9% Solution with 2% Glycerol at 25°C: | pH 6.8 ± 0.2 |

Cultural Response

Difco™ Potato Infusion Agar

Prepare the medium per label directions. Inoculate and incubate at 35 ± 2°C under 5-10% CO₂ for 40-72 hours.

| ORGANISM | ATCC™ | INOCULUM CFU | RECOVERY |
|---------------------------------|-------|----------------------------------|----------|
| <i>Brucella abortus</i> | 4315* | 10 ² -10 ³ | Good |
| <i>Brucella melitensis</i> | 4309* | 10 ² -10 ³ | Good |
| <i>Brucella suis</i> | 4314* | 10 ² -10 ³ | Good |
| <i>Streptococcus pneumoniae</i> | 6305 | 30-300 | Good |

*Minimally, one strain of *Brucella* should be used for performance testing. These ATCC strains should be used if available.

Directions for Preparation from Dehydrated Product

1. Suspend 49 g of the powder in 1 L of purified water containing 2% glycerol. Mix thoroughly.
2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.
3. Autoclave at 121°C for 15 minutes. The final medium will contain a slight, rapidly-settling precipitate that will not interfere with product performance.
4. Test samples of the finished product for performance using stable, typical control cultures.

Procedure

Incubate plates at 35 ± 2°C in 5-10% CO₂ for 10 days.¹ For a complete discussion on the inoculation and identification of *Brucella* spp., consult appropriate references.^{1,2}

Expected Results

Refer to appropriate references and procedures for results.

References

1. Murray, Baron, Jorgensen, Landry and Pfaller (ed.). 2007. Manual of clinical microbiology, 9th ed. American Society for Microbiology, Washington, D.C.
2. Forbes, Sahm and Weissfeld. 2007. Bailey & Scott's diagnostic microbiology, 12th ed. Mosby, Inc., St. Louis, Mo.
3. U.S. Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. 2007. Biosafety in microbiological and biomedical laboratories, 5th ed. HHS Publication No. (CDC) 93-8395. U.S. Government Printing Office, Washington, D.C.

Availability

Difco™ Potato Infusion Agar

Cat. No. 251100 Dehydrated – 500 g

Difco™ Glycerol

Cat. No. 228210 Bottle – 100 g
228220 Bottle – 500 g