

CAMPY CEFEX AGAR (7718) (U.S. Patent 5,891,709)

Intended Use

Campy Cefex Agar is used for the selective isolation of *Campylobacter* spp.

Product Summary and Explanation

Many experts consider *Campylobacter* to be the leading cause of enteric illness in the US.¹ *Campylobacter* spp. can cause mild to severe diarrhea, with loose, watery stools often followed by bloody diarrhea.¹ These pathogens are highly infective, and transmitted by contaminated food or water. Poultry is a primary reservoir of *Campylobacter* spp. and may cause contamination of more than 80% of chicken carcasses.

Campy Cefex Agar is described by Stern *et al.*² This medium was formulated to provide selective isolation of cephalothin-resistant *Campylobacter* species such as *C. jejuni* and *C. coli*.

Principles of the Procedure

Enzymatic Digest of Casein, Enzymatic Digest of Animal Tissue, and Yeast Extract provide nitrogen, amino acids, and vitamins in Campy Cefex Agar. Dextrose is a carbon energy source. Ferrous Sulfate, Sodium Pyruvate, and Sodium Bisulfite are present to increase the aerotolerance of *Campylobacter* oxygen scavengers. Sodium Chloride maintains the osmotic balance of the medium. Cycloheximide and Cefoperazone are both selective agents. Cycloheximide is added to inhibit the growth of fungi. Cefoperazone is a selective agent to inhibit enteric flora. Sterile laked horse blood provides essential growth factors. Agar is the solidifying agent.

Formula / Liter

Enzymatic Digest of Casein	10 g
Enzymatic Digest of Animal Tissue	10 g
Sodium Chloride	5 g
Yeast Extract	2 g
Dextrose	1 g
Sodium Pyruvate	0.5 g
Ferrous Sulfate	0.5 g
Sodium Bisulfite	0.3 g
Cycloheximide	0.2 g
Agar	15 g

Final pH: 7.0 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

Supplement

Cefoperazone, 0.033 g
Sterile laked horse blood, 5%

Precautions

1. For Laboratory Use.
2. TOXIC. Toxic if swallowed, inhaled, or absorbed through the skin. Cycloheximide may cause harm to unborn child. May cause irritation of the respiratory tract.

Directions

1. Dissolve 44.4 g of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.
4. Cool medium to 50°C and aseptically add 10 mL of a filtered sterilized solution containing 0.033 g of Cefoperazone and 5% of sterile laked horse blood.
5. Mix well and pour into petri dishes.

Quality Control Specifications

Dehydrated Appearance: Powder is homogeneous, free flowing, and light to medium beige.

Prepared Appearance: Trace to slightly hazy, red-brown to maroon, with trace precipitate.

Expected Cultural Response: The cultural response of *Campylobacter* spp test strains on Campy Cefex Agar at 35 ± 2°C in a microaerophilic atmosphere and examined for recovery after 24 - 96 hours incubation. All other test strains were incubated at 35 ± 2°C in an aerobic atmosphere and read for inhibition over 24 - 96 hours.

Microorganism	Approx. Inoculum (CFU)	Response
<i>Escherichia coli</i> ATCC® 25922	≈ 1000	Inhibited
<i>Enterococcus faecalis</i> ATCC® 29212	≈ 1000	Inhibited
<i>Proteus mirabilis</i> ATCC® 12453	≈ 1000	Inhibited
<i>Campylobacter coli</i> ATCC® 33559	10 - 300	Growth
<i>Campylobacter fetus</i> ATCC® 33246	10 - 300	Growth
<i>Campylobacter jejuni</i> ATCC® 29428	10 - 300	Growth
<i>Campylobacter jejuni</i> ATCC® 33291	10 - 300	Growth

The organisms listed are the minimum that should be used for quality control testing.

Note: Quality Control Laboratory sample was tested with the addition of cefoperazone.

Test Procedure

- Inoculate the specimen directly onto the surface of the prepared Campy Cefex Agar using the four-quadrant streak for isolation. If an enrichment broth is required, refer to the appropriate references.^{1,3,4}
- Incubate inoculated plates at 42°C in a microaerophilic atmosphere composed of 5 - 6% oxygen, 3 - 10% carbon dioxide and 84 - 85% nitrogen for 48 hours.

Results¹

Campylobacter colonies may appear as small, mucoid, grayish, flat colonies with irregular edges and no hemolytic patterns at 24 – 48 hours. Colonies may also appear pink or yellow-grey. Depending on the species, colonies may also appear as round, convex, entire, glistening colonies 1 –2 mm in diameter. Typically, *Campylobacter* spp. are oxidase and catalase positive.

Storage

Store dehydrated medium at 2 - 30°C. Once opened and recapped, place the container in a low humidity environment at the same storage temperature. Protect from moisture and light.

Expiration

Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedure

- Cephalothin sensitive *Campylobacter* spp. such as *C. fetus* and *C. upsaliensis* may not be recovered on Campy Cefex Agar because it contains Cefoperazone.⁴
- Due to the presence of dextrose in the medium, some weak oxidase reactions may occur.
- For complete identification, refer to the appropriate procedures for biochemical reactions.^{1,3,4}

Packaging

Campy Cefex Agar	Code No.	7718A	500 g
		7718B	2 kg
		7718C	10 kg

References

- U.S. Food and Drug Administration. 1998. Bacteriological analytical manual, 8th ed., Rev A., AOAC International, Gaithersburg, MD.
- Stern, N. J., B. Wojton and K. Kwiatek. 1992. A differential selective medium and dry ice generated atmosphere for recovery of *Campylobacter jejuni*. J. Food Prot. 55:514-517.
- Vanderzant, C., and D. F. Splittstoesser (eds.). 1992. Compendium of methods for the microbiological examination of food, 3rd ed. American Public Health Association, Washington, D.C.
- Murray, P. R., E. J. Baron, M. A. Pfaller, F. C. Tenover, and R. H. Tenover (eds.). 1995. Manual of clinical microbiology, 6th ed. American Society for Microbiology, Washington, D.C.

Technical Information

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.