



CAMPYLOBACTER ENRICHMENT BROTH (BOLTON'S) (7526)

Intended Use

Campylobacter Enrichment Broth (Bolton's) is used with antimicrobics for the selective enrichment 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 This pathogenic species is highly infective, and transmitted by contaminated food or water. Consumption of food and water contaminated with untreated animal or human waste accounts for 70% of *Campylobacter*-related illnesses each year.¹ The foods include unpasteurized milk, meats, poultry, shellfish fruits, and vegetables.¹

Campylobacter spp. are microaerophilic, very small, curved, thin, Gram-negative rods.¹ Microaerophilic organisms have a tendency to be more sensitive to toxic forms of oxygen.² *Campylobacter* Enrichment Broth (Bolton's), along with nutritional ingredients, contains compounds which enhance the aerotolerance of microaerophilic bacteria by suppressing the toxic form of oxygen.² *Campylobacter* Enrichment Broth (Bolton's) is recommended in food testing.¹

Principles of the Procedure

Enzymatic Digest of Animal Tissue, Lactalbumin Hydrolysate, and Yeast Extract provide nitrogen, carbon, amino acids, and vitamins in *Campylobacter* Enrichment Broth. Hemin and Lysed Horse Blood provide essential growth factors. Sodium Chloride maintains the osmotic balance of the medium. Sodium Pyruvate, Sodium Metabisulphite, and Sodium Carbonate increase the aerotolerance of *Campylobacter* spp. by acting as oxygen scavengers. The addition of cefoperazone, cycloheximide, trimethoprim, and vancomycin are selective agents for heavily contaminated samples.

Formula / Liter

Enzymatic Digest of Animal Tissue	10 g
Lactalbumin Hydrolysate	5 g
Yeast Extract	5 g
Sodium Chloride	5 g
Hemin.....	0.01 g
Sodium Pyruvate	0.5 g
α -Ketoglutamic Acid.....	1 g
Sodium Metabisulfite	0.5 g
Sodium Carbonate	0.6 g

Final pH: 7.4 \pm 0.2 at 25°C

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

Antimicrobial / 10 mL of Ethanol

Cefoperazone	20 mg
Cycloheximide	50 mg
Trimethoprim	20 mg
Vancomycin	20 mg

Enrichment

Lysed Horse Blood 50 mL

Precautions

1. For Laboratory Use.
2. HARMFUL. Harmful if swallowed, inhaled, or absorbed through skin. May cause allergic respiratory reaction. Irritating to eyes, skin, and respiratory tract.

Directions

1. Dissolve 27.6 g of the medium in one liter of purified water.
2. Allow powder to soak for 10 minutes.
3. Heat with frequent agitation to completely dissolve the medium.
4. Autoclave at 121°C for 15 minutes.
5. Cool medium to 45 - 50°C and aseptically add 50 mL of lysed horse blood and 10 mL of ethanol containing 20 mg of cefoperazone, 50 mg of cycloheximide, 20 mg trimethoprim, and 20 mg vancomycin.

Quality Control Specifications

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

Prepared Appearance: Prepared medium is trace to moderately hazy, amber to dark amber to dark amber-red, and may have none to moderate precipitate.

Expected Cultural Response: Cultural response, after incubation in *Campylobacter* Enrichment Broth (Bolton's) for 24 – 72 hours in a microaerophilic atmosphere at 35 ± 2°C, and examined for confirmation of recovery or inhibition onto non-selective blood agar media.

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

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

Test Procedure

Refer to the appropriate procedure for the material being testing on the isolation of *Campylobacter* spp. Refer to appropriate references for *Campylobacter* testing.^{1,3}

Results¹

Campylobacter colonies are round to irregular with smooth edges. They may have translucent, white colonies to spreading, flat, transparent growth. Some strains appear tan or slightly pink. Normal enteric flora are completely to markedly inhibited. Typically, *Campylobacter* spp. are oxidase positive and catalase positive. For complete identification of species and biotype, refer to the appropriate procedures for biochemical reactions.^{1,4}

Storage

Store dehydrated medium at 2 - 30°C. Once opened and recapped, place 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.

Limitation of the Procedure

Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

Packaging

Campylobacter Enrichment Broth (Bolton's)

**Code No. 7526A 500 g
 7526B 2 kg
 7526C 10 kg**

References

1. www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalyticalManualBAM/default.htm.
2. George, H. A., P. S. Hoffman, and N. R. Krieg. 1978. J. Clin. Micro. 8:36-41.
3. **United States Department of Agriculture, Food Safety and Inspection Service**, 2010. Isolation, identification, and enumeration of *Campylobacter jejuni/coli/lari* from poultry rinse and sponge samples. MLG 41.00, USDA/FSIS, Microbiology Laboratory Guidebook, Washington D.C.
4. **Murray, P. R., E. J. Baron, M. A. Pfaller, J. A. Jorgensen, M. L. Landry (eds.)**. 2007. Manual of clinical microbiology, 9th 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.