

67454 Bolton Broth Base (Bolton Selective Enrichment Broth Base)

Bolton broth base is used for the selective enrichment of *Campylobacter* species from foods as recommended by ISO Committee under specifications ISO 10272-1:2017.

Composition:

Ingredients	Grams/Litre
Enzymatic digest of animal tissues	10.0
Lactalbumin hydrolysates	5.0
Yeast extract	5.0
Sodium chloride	5.0
Sodium metabisulphite	0.5
Sodium carbonate	0.6
Alpha-ketoglutaric acid	1.0
Sodium pyruvate	0.5
Haemin	0.01
Final pH 7.4 +/- 0.2 at 25°C	

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C.

Appearance: Light yellow coloured, homogeneous, free flowing powder.
Colour and Clarity: Faintly yellow coloured, clear solution.

Directions:

Suspend 13.8 grams in 472.5 ml distilled water. Boil to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50 °C and aseptically add rehydrated contents of 1vial of Bolton Selective Supplement (Cat. No. 40568) and 25 ml of sterile lysed defibrinated horse blood. Mix well before dispensing into sterile tubes.

Principle and Interpretation:

Bolton broth is a selective enrichment broth for *Campylobacter* species from foods [1,2]. This medium is also recommended by ISO Committee [3] for *Campylobacter* species from foods. *Campylobacter* are Gram-negative, spirally shaped microaerophilic organisms which are observed to be occasionally contaminants in raw milk, untreated water, improperly handled food and undercooked meats, poultry and shellfish. The medium was specially developed to improve the recovery of *Campylobacter*, sublethally damaged cells can recover and grow faster in this medium. Microaerophilic incubation is not needed.

Enzymatic digest of animal tissues, Lactalbumin hydrolysates and yeast extract provide essential growth nutrients like vitamin, amino acids and other nitrogenous compounds to *Campylobacter* species. The addition of sodium metabisulphite and sodium pyruvate quenches toxic compounds and increases on this way the recovery rate and also the aero-tolerance of the culture. The alpha-ketoglutaric acid is used for an initial burst of the metabolism. Sodium carbonate is added to neutralize the acid that may form in the culture medium. The osmotic balance is given by the sodium chloride. The antibiotics Vancomycin, Cefopeerazone and Trimethoprim present in the supplement inhibit the growth of gram positive and gram negative bacteria. Amphotericin B, as well in the supplement, largely reduces the growth of yeasts and moulds. Also the incubation temperature of 41.5°C, after the initial incubation step, increases the selectivity.



Cultural characteristics after 4-6 hours at 37°C followed by 40-48 hours at 41.5°C.

Organisms (ATCC)	Growth
<i>Campylobacter jejuni</i> (33291)	+++
<i>Campylobacter jejuni</i> (29428)	+++
<i>Campylobacter coli</i> (33559)	+++
<i>Escherichia coli</i> (25922)	-
<i>Canida albicans</i> (10231)	-

References:

1. J.M. Hunt, *Campylobacter*, F.D.A Bacteriological Analytical Manual, 8th Editino, (Revision A) 7.01-7.27, AOAC, Arlington V A (1998)
2. F.J. Bolton, Personal communication (1995).
3. International Organisation for Standardization (ISO), 2017, Draft ISO 10272-1, 2017.
4. National Advisory Committee on Microbiological Criteria for Foods, *Journal of Food Protection* 57 (12), 1101-1121 (1994)
5. M.B. Skirrow, *British Medical Journal* 2, 9-11 (1977)
6. D.E. Post, *Food-Borne Pathogens Monograph Number 3 Campylobacter* (1995)
7. H.N. Westfall, D.M. Rollins, E. Weiss, Substrate utilization by *Campylobacter jejuni* and *Campylobacter coli*., *Appl. Environ. Microbiol.*, Oct. 52(4), 700-5 (1986)

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices

The vibrant M, Millipore, and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. Detailed information on trademarks is available via publicly accessible resources.
© 2018 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.

The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada.

