Campylobacter Nitrate HiVeg™ Broth

MV1240

Intended Use:

Recommended for identification of *Campylobacter* species on the basis of nitrate reduction obtained from various samples.

Composition**

Ingredients	g / L
HiVeg™ infusion	10.000
HiVeg™ hydrolysate No. 1	10.000
Sodium chloride	5.000
Potassium nitrate	2.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 27.0 grams in 1000 ml purified / distilled water. Heat if necessary to dissolve the medium completely. Dispense into tubes or flasks as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Principle And Interpretation

Campylobacter species are ubiquitous in the environment inhabiting a wide variety of ecological niches (1). Infection with *Campylobacter* species is one of the most common causes of human bacterial gastroenteritis (1). Most species are found in animals (cattle, swine) and cause infertility and abortion. *Campylobacter* species are non-fermentative and non-oxidative in their metabolism, deceiving energy from the use of amino acids (2). Also, they do not ferment or oxidize the usual carbohydrate substrates. Campylobacter Nitrate Broth is formulated as per APHA (3) and is used for identification of *Campylobacter* species on the basis of nitrate reduction (4). *Campylobacter jejuni* is oxidase positive and reduces nitrates. Campylobacter Nitrate HiVeg™ Broth is prepared by using vegetable peptones in place of animal based peptones which make the media free of BSE/TSE risks. HiVeg™ infusion and HiVeg™ hydrolysate No. 1 in the medium provide the essential nutrients including mainly the nitrogenous and a few carbon compounds to *Campylobacter* species. Sodium chloride maintains the osmotic balance of the medium. Potassium nitrate serves as the nitrate source. Biochemical reactions by which species may be differentiated are relatively few because of their inability to ferment or oxidize the usual carbohydrate substrates.

Preparation of Nitrate Test Reagents and Technique:

1. Sulphanilic acid: Dissolve 8 grams of sulphanilic acid in 1 litre 5 N acetic acid.
2. Alpha-naphthylamine reagent: Dissolve 5 grams of alpha-naphthylamine in 1 litre 5 N acetic acid.

For the test:

Put 2 - 3 drops of each reagent into the tube containing culture to be tested. A distinct red or pink colour indicates nitrate reduction. A control (uninoculated) tube should also be tested.

Type of specimen

Food and dairy samples; Environmental samples.

Specimen Collection and Handling:

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (3,4). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

Read the label before opening the container. Wear protective gloves/ protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium.
2. Further isolation and biochemical tests must be carried out for confirmation

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period recommended temperature.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Amber coloured, clear solution without any precipitate

Reaction

Reaction of 2.7% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH

6.80-7.20

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Nitrate reduction
Acinetobacter calcoaceticus ATCC 23055	50-100	good-luxuriant	negative, no colour development
Campylobacter jejuni ATCC 29428 (00156*)	50-100	good-luxuriant	positive, red colour developed within 1-2 minutes
Escherichia coli ATCC 25922(00013*)	50-100	good-luxuriant	positive, red colour developed within 1-2 minutes
# *Klebsiella aerogenes* ATCC 13048 (00175*)	50-100	good-luxuriant	positive, red colour developed within 1-2 minutes
Salmonella Typhimurium ATCC 14028 (00031*)	50-100	good-luxuriant	positive, red colour developed within 1-2 minutes

Key : *Corresponding WDCM numbers. # Formerly known as *Enterobacter aerogenes*

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (5,6).

Reference

1. Manning H., Duim B., Wassenaar T., Wagenaar A., Ridley A., Newell D. G., 2001, Appl. Environ. Microbiol., 67:1185
2. Koneman E. W., Allen S. D., Janda W. M, Schrenckenberger P. C., Winn W. C. Jr., 1992, Colour Atlas and Textbook of Diagnostic Microbiology, 4th Ed, J. B. Lippincott Company.
3. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
4. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
5. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
6. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

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