

Technical Information

Campylobacter Nitrate Broth

Product Code: DM 2240

Application: - Campylobacter Nitrate Broth is used for the identification of *Campylobacter* species on the basis of nitrate reduction

Composition**

Ingredients	Gms / Litre
Beef heart, infusion from	500.000
Tryptose	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

Principle & Interpretation

Campylobacter species are ubiquitous in the environment inhabiting a wide variety of ecological niches and Campylobacter is one of the most common causes of human bacterial gastroenteritis⁽³⁾. Most species are found in animals (cattle, swine) cause infertility and abortion. Campylobacter species are non-fermentative and non-oxidative receiving energy by the use of amino acids⁽¹⁾. They do not ferment or oxidize the usual carbohydrate substrates. Campylobacter Nitrate Broth is formulated as per APHA and is used for identification of Campylobacter species on the basis of nitrate reduction⁽²⁾. Campylobacter jejuni is oxidase positive and reduces nitrates.

Beef heart infusion and tryptose 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.

Methodology

Suspend 27 grams of powder media in 1000 ml distilled water. Shake well & heat, if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and dispense as desired.

Quality Control

Physical 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 range 6.80-7.20

Cultural Response/ characteristics

DM 2240: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Nitrate reduction
<i>Acinetobacter calcoaceticus</i> ATCC 23055	50-100	good-luxuriant	negative, no colour development
<i>Campylobacter jejuni</i> ATCC 29428	50-100	good-luxuriant	positive, red colour developed within 1-2 minutes
<i>Escherichia coli</i> ATCC 25922	50-100	good-luxuriant	positive, red colour
<i>Enterobacter aerogenes</i> ATCC 13048	50-100	good-luxuriant	positive, red colour
<i>Salmonella Typhimurium</i> ATCC 14028	50-100	good-luxuriant	positive, red colour

Storage and Shelf Life

Dried Media : Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

Prepared Media : 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. 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.
2. Vanderzant C. and Splittstoesser D. F., (Eds.), 1992, Compendium of Methods for the Microbiological Examination of Foods, 3rd Ed., APHA, Washington, D.C.
3. Manning H., Duim B., Wassenaar T., Wagenaar A., Ridley A., Newell D. G., 2001, Appl. Environ. Microbiol., 67:1185

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