microgen
Ready Prepared Media

Technical Information

Modified Charcoal Cefoperazone Deoxycholate Agar Plate

Product Code: PM 1887I

Application: Recommended recommended for selective detection and enumeration of *Campylobacter* species from food chain. The composition and performance criteria of this medium are as per the specifications laid down in ISO 10272-2:2017.

Composition**

Ingredients	Gms / Litre
HM Extract #	10.000
Peptone ##	10.000
Tryptone ###	3.000
Sodium chloride	5.000
Sodium deoxycholate	1.000
Iron (II) sulfate, hydrate	0.250
Sodium pyruvate	0.250
Activated charcoal	4.000
Agar	12.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Meat extract

Enzymatic digest of animal tissues

Enzymatic digest of casein

Principle & Interpretation

Campylobacters are carried in the intestinal tract of animal and therefore contaminate foods of animal origin (10). *Campylobacter* causes intestinal upset or abortion in animals. It is also one of the most important causes of human gastroenteritis, particularly in children. Initially blood was used in the isolation of *Campylobacter.* But, later it was reported by Bolton et al (3) that charcoal can be effectively used in place of blood. This rules out the variability obtained due to theuse of blood.

Modified Charcoal Cefoperazone Deoxycholate Agar Base formulated as per APHA (10) and recommended by the ISO Committee (3) is used for selective isolation of *Campylobacter* species. Cephalothin in the original formulation was replaced by Cefoperazone as the selective agent since the latter gave better selectivity (4). *Campylobacter* species are highly resistant to cefoperazone, an antibiotic which effectively suppresses growth of *Pseudomonas* and *Enterobacteriaceae* (5, 6, 7). Addition of cefoperazone increases the selectivity of the medium. Due to this addition, the medium is also known as Campylobacter Charcoal Differential Agar (CCDA). Charcoal, sodium pyruvate and ferrous sulphate reduces the aero tolerance of medium by quenching photo chemically generated toxic oxygen derivatives (8).

Peptone, Tryptone and HM extract serve as sources of carbon, nitrogen, long chain amino acids and essential nutrients. Additional Amphotericin B suppresses the growth of yeast and mold contaminants. Colonies tend to swarm when initially isolated from clinical specimens.

Type of specimen

Food samples : meat and meat products.

Specimen Collection and Handling

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (2,10,11).After use, contaminated materials must be sterilized by autoclaving before discarding.

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Warning and Precautions

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

Limitations

1. Due to variable nutritional requirements, some strains show poor growth on this medium.
2. Further 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 when stored at recommended temperature.

Methodology

Either streak, inoculate or surface spread the test inoculum (50-100 CFU) aseptically on the plate.

Quality Control

Appearance

Sterile Modified Charcoal Cefoperazone Deoxycholate Agar in 90 mm disposable plates.

Colour of medium

Black coloured medium

Quantity of medium

25 ml of medium in 90 mm disposable plates.

Reaction

7.20-7.60

Sterility Test

Passes release criteria

Cultural Response

Cultural characteristics observed after an incubation at 41.5°C±1°C for 40 hours under microaerobic atmosphere.

Oragnism	Inoculum (CFU)	Growth	Recovery	Colour of Colony
Campylobacter coli ATCC33559 (00004)*	50-100	good-luxuriant	>=50%	Greyish,flat colonies may have metallic sheen
Campylobacter jejuni ATCC29428 (00005)*	50-100	good-luxuriant	>=50%	Greyish,flat colonies may have metallic sheen
Escherichia coli ATCC 25922 (00013)*	50-100	non-poor	<=10%	
Staphylococcus aureussubsp. aureus ATCC 25923 (00034)*	50-100	non-poor	<=10%	

Key : * - Corresponding WDCM numbers

Storage and Shelf Life

On receipt store between 2-8°C Use before expiry date on the label.Product performance is best if used within stated expiry period.

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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 (5,7).

Further Reading

(1) Ahonkai V. I., et al, 1981, Antimicrob. Agents. Chemother.,20:850
(2) American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.
(3) Bolton F. J., Hutchinson D. N and Coates D., 1984, J. Clin. Microbiol., 19:169.
(4) Hutchinson D. N and Bolton F.J., 1984, J. Clin. Pathol., 34:956.
(5) Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
(6) Jones R. N., et al, 1980, Antimicrob. Agents. Chemother.,17:743
(7) 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.
(8) Karmali M. A., et al, 1986, J. Clin. Microbiol., 23:456
(9) Microbiology of food chain-Horizontal method for detection and enumeration of *Campylobacter* spp. InternationalOrganization for Standardization (ISO), 10272-2:2017.
(10) Salfinger Y. and Tortorello M. L., (Eds.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed.,APHA, Washington, D.C.
(11) Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

Disclaimer

- User must ensure suitability of the product(s) in their application prior to use.
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