Technical Information

Karmali Campylobacter Agar Base

Product Code: DM 2222

Application: -Karmali Campylobacter Agar is a blood free medium recommended for selective isolation and cultivation of thermotolerant *Campylobacter* species from food and animal feeds.

Composition**

Ingredients	Gms / Litre
Peptone, special	23.000
Corn starch	1.000
Sodium chloride	5.000
Charcoal	4.000
Agar	12.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Campylobacter are carried in the intestinal tract of animals and therefore, contaminate foods of animals origin. *Campylobacter jejuni* is recognized as a leading cause of acute bacterial gastroenteritis in humans, and eating foods of animal origin has been associated with many of these illnesses (1).*Campylobacter jejuni* and *Campylobacter coli* are the most common *Campylobacter* species associated with diarrheal illness and are clinically indistinguishable (2). Karmali Campylobacter Agar Base, recommended for the selective isolation and cultivation of Campylobacter species, is a modification of the original formulation of Karmali et al (3). Selectivity of the medium is achieved by the addition of selective supplement. Campylobacter Selective Supplement with Hemin (Karmali) (MS 2132) or Campylobacter Selective Supplement with Hemin (Karmali), Modified (MS 2167) has hemin, as part of the supplement whereas, while using Campylobacter Selective Supplement, Karmali (MS 2078) or Campylobacter Selective Supplement (Karmali), Modified (MS 2178), hemin has to be added separately. Karmali Campylobacter Agar Base is also recommended by the ISO Committee (4).

Peptone special, cornstarch and hemin, serve as sources of essential nutrients required for bacterial metabolism. Presence of charcoal in the medium helps to neutralize the toxic metabolic products formed in the medium. Sodium pyruvate (present in Supplement) (5) enhances, the aerotolerance of microaerophilic Campylobacter by quenching the toxic forms of oxygen (6). The antibiotics included in the selective supplement are Vancomycin, Ammphotericin B, Cycloheximide and Cefoperazone. Vancomycin suppresses gram-positive organisms while Amphotericin B/ Cycloheximide inhibits the fungal flora. Cefoperazone has inhibitory action on gram-negative organisms other than Campylobacter. The inoculated plates are incubated in an atmosphere consisting of approximately 5-6% O_2, 10% CO_2 and 84-85% N2 at 42°C.

Type of specimen

Food and dairy samples

Specimen Collection and Handling:

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (9, 10, 11). 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 clinical specimens. Safety guidelines may be referred in individual safety data sheets

Limitations :
Some strains may show poor growth due to strain variability

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

Suspend 22.5 grams of dehydrated powder media in 490 ml distilled water. Mix thoroughly & heat to boil to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Aseptically add rehydrated contents of 1 vial of Campylobacter Selective Supplement w/ Hemin (Karmali) (MS 2132) or Campylobacter Selective Supplement w/ Hemin (Karmali), Modified (MS 2167). Alternatively, add aseptically rehydrated contents of one vial of Campylobacter Selective Supplement, Karmali (MS 2078) or Campylobacter Selective Supplement (Karmali), Modified (MS 2178) and 5 ml of Hemin solution (16 mg/5 ml). Mix well and pour into sterile Petri plates.

Quality Control

Appearance
Grey to black homogeneous free flowing powder

Gelling
Firm, comparable with 1.2% Agar gel.

Colour and Clarity
Black coloured, opalescent gel forms in Petri plates

Reaction
Reaction of 4.5% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH Range
7.20-7.60

Cultural Response
DM 2222: Cultural characteristics observed with added Hemin solution and Campylobacter Selective Supplement (Karmali), Modified (MS 2178)/ Campylobacter Selective Supplement, Karmali (MS 2078) or Campylobacter Selective Supplement w/ Hemin (Karmali), Modified (MS 2167)/ Campylobacter Selective Supplement w/Hemin (Karmali) (MS 2132) after an incubation at 42°C for 42-48 hours.

Cultural Response

Organism	**Growth**
Cultural Response	
Campylobacter coli ATCC 33559	good-luxuriant
Campylobacter jejuni ATCC 29428	good-luxuriant
*Escherichia coli ATCC*25922 (00013*)	none-poor

Key: *Corresponding WDCM numbers.

Storage and Shelf Life

Dried Media: Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°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. Use before expiry date on the label. Product performance is best if used within stated expiry period.

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

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 clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (7, 8).

Further Reading

1. Vanderzant C. and Splittstoesser D.F., (Eds.), 1992, Compendium of Methods for the Microbiological Examination of Foods, 3rd Ed., APHA, Washington, D.C.
2. Murray P. R., Baron E. H., Pfaller M. A., Tenover F. C. and Yolken R. H., (Ed.), 1995, Manual of Clinical Microbiology, 6th Ed., American Society for Microbiology, Washington, D.C.
3. Karmali M. A., Simor A. E., Roscoe M., Fleming P. C., Smith S. S. and Lane J., 1986, J. Clin. Microbiol., 23:456-459.
4. International Organization for Standardization (ISO), 1995, Draft ISO/DIS 10272.
5. George H. A., Hoffman P. S. and Krieg N. R., 1978, J. Clin. Microbiol., 8:36.
6. Hoffman P. S. et al, 1979, Can. J. Microbiol., 25:8.
7. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
8. 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.
9. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.
10.Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, 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.
- The product conform solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at CDH is true and accurate
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