



PRODUCT SPECIFICATION SHEET

CAL Agar (Cellobiose Arginine Lysine Agar) (DM418)

Intended Use

CAL Agar (Cellobiose Arginine Lysine Agar) (DM418) is recommended for isolation and biochemical characterization of *Yersinia enterocolitica*.

Product Summary and Explanation

Yersinia enterocolitica is a gram-negative bacillus-shaped bacterium, and a significant invasive enteric pathogen belonging to the family Enterobacteriaceae. *Y. enterocolitica* infection causes several well-recognized diseases especially in younger persons and several uncommon post-infection syndromes.⁽¹⁾ The portal of entry is the gastrointestinal tract. The organism is acquired usually by insufficiently cooked pork or contaminated water, meat, or milk. Acute *Y. enterocolitica* infections usually lead to mild self-limiting enterocolitis and are characterized by diarrhoea, low fever and abdominal pain. Dudley and Shotts originally formulated a differential medium CAL Agar for selective isolation of *Y. enterocolitica*.⁽²⁾ CAL Agar differentiates *Yersinia* on the basis of cellobiose fermentation and lysine or arginine decarboxylation. As the organism is biochemically similar to other Enterobacteriaceae this medium is generally used for the isolation and characterization of *Y. enterocolitica* from faecal specimens.^(2,3) *Y. enterocolitica* from water and other liquid specimens is enumerated using CAL Broth.⁽³⁾

Principles of the Procedure

CAL Agar (Cellobiose Arginine Lysine Agar) contains yeast extract which provides B complex vitamins and other essential nutrients to the organisms. Sodium chloride maintains the osmotic balance of the medium. Cellobiose is the fermentable carbohydrate. Sodium deoxycholate makes the medium selective by inhibiting the accompanying gram-positive bacteria, which may cause contamination during cultivation. L-arginine and L-lysine are the amino acids, decarboxylation of which makes the medium differential. Neutral red is the pH indicator, which under acidic conditions turns red.

Formula / Liter

Ingredients	Gms / Liter
Yeast extract	3.00
Sodium chloride	5.00
Cellobiose	3.50
L-Arginine	6.50
L-Lysine hydrochloride	6.50
Sodium deoxycholate	1.50
Neutral red	0.03
Agar	20.00
Final pH : 7.1 ± 0.2 at 25°C	
Formula may be adjusted and/or supplemented as required to meet performance specifications	

Precautions

- 1 For Laboratory Use only.
- 2 IRRITANT. Irritating to eyes, respiratory system, and skin.





PRODUCT SPECIFICATION SHEET

Directions

- 1 Suspend 46.03 grams of the medium in one liter of distilled water.
- 2 Heat to boiling to dissolve the medium completely.
- 3 DO NOT OVERHEAT OR AUTOCLAVE.
- 4 Mix well and pour into sterile Petri plates.

Quality Control Specifications

Dehydrated Appearance	Light yellow to pink homogeneous free flowing powder
Prepared Medium	Red coloured, clear to slightly opalescent gel forms in Petri plates
Reaction of 4.6% Solution	pH : 7.1 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 2.0% Agar gel

Expected Cultural Response: Cultural characteristics observed after an incubation at $35-37^{\circ}\text{C}$ for 18-48 hours.

Sr. No.	Organisms	Results to be achieved				
		Inoculum (CFU)	Growth	Cellobiose	Arginine Decarboxylation	Lysine Decarboxylation
1.	Escherichia coli ATCC 25922	50 -100	good	negative reaction	variable reaction	variable reaction
2.	Proteus mirabilis ATCC 25933	50 -100	good	negative reaction	negative reaction	negative reaction
3.	Pseudomonas aeruginosa ATCC 27853	50 -100	good	negative reaction	negative reaction	positive reaction
4.	Yersinia enterocolitica ATCC 27729	50 -100	good-luxuriant	positive reaction	negative reaction	negative reaction

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure

Refer to appropriate references for standard test procedures.





PRODUCT SPECIFICATION SHEET

Results

Refer to appropriate references and test procedures for interpretation of results.

Storage

Store the sealed bottle containing the dehydrated medium at 10 -30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

Expiration

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedure

- 1 For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
- 2 Consult appropriate texts for detailed information and recommended procedures.

Packaging Product Name : CAL Agar (Cellobiose Arginine Lysine Agar) Product Code : DM418 Available Pack sizes : 100gm

References

- 1 Cover T. L., and Aber R. C., 1989, *Yersinia Enterocolitica*, N. Engl. J. Med., 32:16-24.
- 2 Dudley M. V. and Shotts E. B., 1979, *J. Clin. Microbiol.*, 10 (2):180.
- 3 MacFaddin J. F., 1985, *Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria*, Vol. 1, Williams and Wilkins, Baltimore.

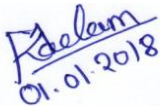






PRODUCT SPECIFICATION SHEET

Further Information

For further information please contact your local MICROMASTER Representative.

Prepared By	Checked By	Approved By
 01.01.2018	 01.01.2018	 01.01.2018
Microbiologist	Head Quality Control	Head Quality Assurance



MICROMASTER LABORATORIES PRIVATE LIMITED DM001PSS,QAD/FR/024,Rev.00/01.01.2018
Unit 38/39, Kalpataru Industrial Estate, Off G.B. Road, Near 'R-Mall', Thane (W) - 400607. M.S. INDIA.Ph:
+91-22-25895505, 4760, 4681. Cell: 9320126789.Email: micromaster@micromasterlab.com





PRODUCT SPECIFICATION SHEET

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