TM 1152 – CAL AGAR (CELLOBIOSE ARGININE LYSINE AGAR)

INTENDED USE

For isolation and biochemical identification of *Yersinia enterocolitica.*

PRODUCT SUMMARY AND EXPLANATION

Yersinia enterocolitica is a significant invasive enteric pathogen belonging to the family Enterobacteriaceae, which causes several well-recognized diseases especially in younger persons and several uncommon post-infection syndromes. Enterocolitis caused by *Y. enterocolitica* is characterized by diarrhoea, low fever and abdominal pain. CAL Agar used for selective isolation of Y. enterocolitica was originally formulated by Dudley and Shotts. CAL Agar is a differential medium as it differentiates *Yersinia* on the basis of cellobiose fermentation and lysine or arginine decarboxylation. CAL Agar is generally used for the isolation and characterization of *Y. enterocolitica* from faecal specimens as the organism is biochemically similar to other Enterobacteriaceae. CAL Broth is used for the enumeration of Y. enterocolitica from water and other liquid specimens.

COMPOSITION

Ingredients	Gms / Ltr
Yeast extract	3.000
Sodium chloride	5.000
Cellobiose	3.500
L-Arginine	6.500
L-Lysine hydrochloride	6.500
Sodium deoxycholate	1.500
Neutral red	0.030
Agar	20.000

PRINCIPLE

Yeast extract provides essential nutrients to the organisms. Cellobiose is the fermentable carbohydrate. Sodium chloride maintains the osmotic equilibrium. 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 indicator, which turns red under acidic conditions.

INSTRUCTION FOR USE

- Dissolve 46.03 grams in 1000 ml purified / distilled water.
- Heat to boiling to dissolve the medium completely.
- DO NOT OVERHEAT OR AUTOCLAVE. Cool to 45-50ºC.
- Mix well and pour into sterile Petri plates.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Light yellow to pink homogeneous free flowing powder.
Appearance of prepared medium : Red coloured, clear to slightly opalescent gel forms in Petri plates.
pH (at 25°C) : 7.1±0.2

INTERPRETATION

Cultural characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Cellobiose	Arginine Decarboxylation	Lysine Decarboxylation	Incubation Temperature	Incubation Period
Escherichia coli	25922	50-100	Good	40-50%	Negative reaction	Variable reaction	Variable reaction	35-37°C	18-48 Hours
Proteus mirabilis	25933	50-100	Good	40-50%	Negative reaction	Negative reaction	Negative reaction	35-37°C	18-48 Hours
Pseudomonas aeruginosa	27853	50-100	Good	40-50%	Negative reaction	Negative reaction	Positive reaction	35-37°C	18-48 Hours
Yersinia enterocolitica	27729	50-100	Good-luxuriant	>=50%	Positive reaction	Negative reaction	Negative reaction	35-37°C	18-48 Hours

PACKAGING:

In pack size of 100 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

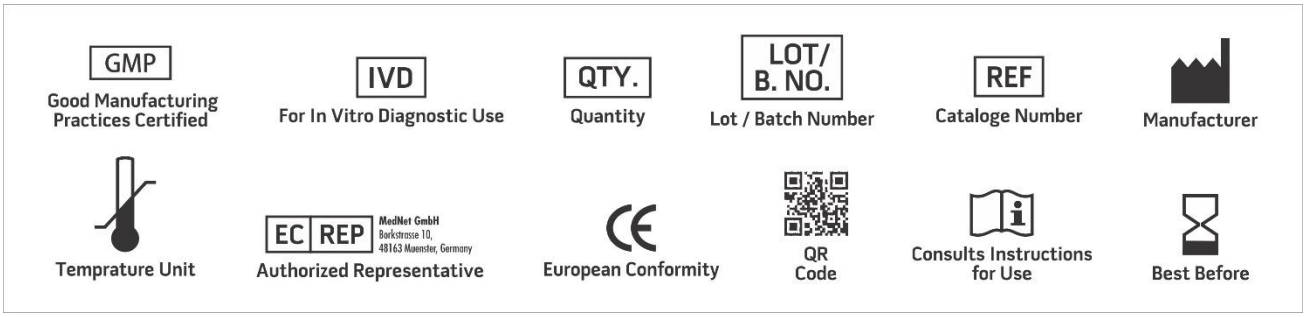
Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

1. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.
2. Cover T.L., and Aber R.C., 1989 Yersinia Enterocolitica, N. Engl. J. Med., 32:16-24
3. Dudley M.V. and Shotts E.B., 1979, J. Clin. Microbiol., 10(2):180.
4. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
5. 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.
6. MacFaddin J.F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.
7. 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.
8. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.



NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**

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