



Yersinia Selective Agar Base, w/ 1.2% Agar

M843F

Intended use

Recommended for the selective, isolation and enumeration of *Yersinia enterocolitica* from food samples in accordance with FDA BAM, 1998.

Composition**

	FDA BAM		M843F
Ingredients	g / L	Ingredients	g / L
Special peptone	20.000	Special peptone	20.000
Yeast extract	2.000	Yeast extract	2.000
Mannitol	20.000	Mannitol	20.000
Pyruvic acid (Na salt)	2.000	Sodium pyruvate	2.000
Sodium chloride	1.000	Sodium chloride	1.000
Magnesium sulphate, 7H ₂ O (10 mg/ml)	1 ml	Magnesium sulphate, heptahydrate	0.010
Sodium deoxycholate	0.500	Sodium deoxycholate	0.500
Neutral red (3 mg/ml)	10 ml	Neutral red	0.030
Crystal violet (0.1 mg/ml)	10 ml	Crystal violet	0.001
Agar	12.000	Agar	12.000
Final pH (at 25°C)	7.40±0.2	Final pH (at 25°C)	7.40±0.2

Supplements to be added after autoclaving

		CTN Selective Supplement (FD034)	1 vial
I		Cefsulodin	7.500mg
Cefsulodin	7.500mg	Triclosan(Irgasan)	2mg
Triclosan(Irgasan)	2mg	Novobiocin	1.250mg
Novobiocin	1.250mg	SC Selective Supplement	1 vial
II		Strontium Chloride	500 mg
Strontium Chloride	500 mg		

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 28.77 grams (the equivalent weight of dehydrated medium per litre) in 500 ml purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C and aseptically add reconstituted contents of 1 vial of CTN Selective Supplement (FD034) and 1 vial of SC Selective Supplement II (FD301). Mix well and pour into sterile Petri plates.

Principle And Interpretation

Yersinia Selective Agar Base, w/ 1.2% Agar is formulated, for the isolation of *Yersinia* from food specimens in accordance with FDA BAM, 1998 (1). *Yersinia* species have been reported to be responsible for yersiniosis, a range of diseases/syndromes from gastroenteritis to plague. The organism is transmitted by ingestion of contaminated food (often milk and pork) and water, probably by the fecal-oral route or through contact with infected animals (2,3). The mechanisms of pathogenicity in the enteropathogenic *Yersinia* are complex and have served as research models for understanding the infectious process in many enteropathogenic bacteria.

Food samples with suspected Yersinia contamination are processed for the bacterial isolation using respective selective agars. According to the BAM protocol, aseptically weigh 25g sample into 225 ml Peptone sorbitol Bile Broth (M1231). Homogenized samples are incubated for 10 days at 10°C. If high levels of *Yersinia* are suspected, spread plate of 0.1ml each are done on MacConkey Agar (M081D) and Yersinia Selective Agar Base, w/ 1.2% (M843F) before incubation of the broth. Also transfer 1 ml homogenate to 9 ml 0.5% KOH in 0.5% saline (4), mix for 2-3 seconds, and spread-plate 0.1 ml on MacConkey and CIN agars. Incubate agar plates at 30°C for 1-2 days. Repeat this on day 10 as well. *Yersinia* colonies on Yersinia Selective Agar Base, w/ 1.2% appear as deep red center with sharp border surrounded by clear colorless zone with entire edge and on MacConkey, they appear as flat, colorless, or pale pink colonies. Colonies isolated have to be confirmed through biochemical and serological assays.

Peptone and yeast extract provide nitrogenous and carbonaceous compounds, long chain amino acids and other essential compounds. Mannitol is the energy source. Sodium deoxycholate inhibits the growth of most of the non-enteric organisms. Magnesium sulphate provides essential ions and sodium chloride maintains the osmotic equilibrium of the medium. Neutral red and crystal violet acts as the indicators and agar as the solidifying agent.

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 (1,3,5,6). 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 specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. *Serratia liquefaciens*, *Citrobacter freundii* and *Enterobacter agglomerans* may resemble *Y. enterocolitica* that can be further identified by biochemical tests.

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.

Quality Control

Appearance

Light yellow to pink homogeneous free flowing powder

Gelling

Firm, comparable with 1.2% Agar gel.

Colour and Clarity of prepared medium

Orange red coloured clear to slightly opalescent gel forms in Petri plates.

Reaction

Reaction of 5.75% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH

7.20 - 7.60

Cultural Response

Cultural characteristics observed with added CTN Selective Supplement (FD034) and SC Selective Supplement (FD301) after an incubation at 30°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
<i>Enterococcus faecalis</i> ATCC 29212 (00087*)	≥10 ⁴	inhibited	0%	
<i>Escherichia coli</i> ATCC 25922 (00013*)	≥10 ⁴	inhibited	0%	
<i>Proteus mirabilis</i> ATCC 25933	≥10 ⁴	inhibited	0%	
<i>Pseudomonas aeruginosa</i> ATCC 27853 (00025*)	≥10 ⁴	inhibited	0%	
<i>Yersinia enterocolitica</i> ATCC 27729	50-100	good-luxuriant	≥50%	translucent with dark pink centre & bile precipitate.

Key : (*) Corresponding WDCM numbers.

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 2-8°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. Product performance is best if used within stated expiry period.

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 (7,8).

Reference

1. FDA, U.S. 1998. Bacteriological Analytical Manual. 8 ed. Gaithersburg, Md. : AOAC International.
2. Aleksic, S., Steigerwalt, A., Bockemuhl, J., Huntley-Carter, G. and Brenner, D.J 1987. Int. J. Syst. Bacteriol, 37: 327-332.
3. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed.,APHA Inc., Washington, D.C.
4. Aulisio, C.C.G., Mehlman, I.J. and Sanders, A.C. 1980. Appl. Environ. Microbiol, 39: 135-140.
5. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed.,Washington D.C.
6. 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.
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.

Revision : 03 / 2025

Disclaimer :

User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related HiMedia™ publications. The information contained in this publication is based on our research and development work and is to the best of our knowledge true and accurate. HiMedia™ Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are not intended for human or animal or therapeutic use but for laboratory, diagnostic, research or further manufacturing use only, unless otherwise specified. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.