Yersinia Isolation Agar

M564

Intended use

Yersinia Isolation Agar is recommended for the selective isolation of *Yersinia* species from foods.

Composition**

Ingredients	Gms / Litre
Peptone	5.000
HM extract*	5.000
Yeast extract	5.000
Lactose	10.000
Sodium deoxycholate	10.000
Sodium citrate	10.000
Bile#	8.500
Sodium thiosulphate	8.500
Ferric citrate	1.000
Calcium chloride	1.000
Neutral red	0.025
Brilliant green	0.0003
Agar	15.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters
* - Equivalent to Meat extract
# - Equivalent to Ox bile

Directions

Suspend 79.02 grams in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE OR OVERHEAT. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Yersinia is a gram-negative bacillus that is usually nitrate reductase-positive, fermentative, oxidase-negative and facultative with respect to oxygen requirement. *Yersinia* is usually urease-positive and motile at 25°C but not at 35°C. It is relatively sensitive to acidic conditions; therefore acid foods and fermented products should be analyzed promptly. A variety of enrichment methods have been described for recovery of *Yersinia enterocolitica* from foods . Highly selective enteric plating media, such as SS Agar (M108) have been used for isolation of *Yersinia*. Yersinia Isolation Agar has been developed for selective isolation of *Yersinia* species and preliminary differentiation of *Y. enterocolitica* from human and animal intestinal contents (6). The medium is recommended by the ISO Committee for identification of *Yersinia* species from foods (2).

Peptone, HM extract and yeast extract provide nitrogenous and carbonaceous compounds, vitamin B complex, trace elements and other essential growth nutrients. Neutral red acts as the pH indicator. Lactose is the fermentable carbohydrate. High amount of sodium deoxycholate and bile inhibit *Enterobacteriaceae* but not *Y.enterocolitica*. Brilliant green and sodium citrate suppresses growth of accompanying gram-positive bacteria. Within 24 hours of incubation at 29-30°C, *Y.enterocolitica* and some species of *Enterobacteriaceae* exhibit scanty growth, however, after 48 hours, *Y.enterocolitica* colonies are well established and other *Yersinia* species start growing.

For isolation, streak the primary or secondary enrichment broths after incubation on one or more selective agar plates. After appropriate incubation period, examine the plates for colonies resembling *Yersinia*.

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 (1,5,7).
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. Further identification must be carried out by performing 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 1.5% Agar gel.

Colour and Clarity of prepared medium

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

Reaction

Reaction of 7.9% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH

7.20-7.60

Cultural Response

Cultural characteristics observed after an incubation at 25-30°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery
Escherichia coli ATCC 25922 (00013*)	50-100	none-poor	<=10%
Proteus mirabilis ATCC 25933	50-100	fair-good	30-40%
Salmonella Typhimurium ATCC 14028 (00031*)	50-100	fair-good	30-40%
Shigella flexneri ATCC 12022 (00126*)	50-100	none-poor	<=10%
Yersinia enterocolitica ATCC 27729	50-100	good-luxuriant	>=50%

Key : *Corresponding WDCM numbers.

Storage and Shelf Life

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.

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 (3,4).

Reference

1. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.
2. International Organization for Standardization (ISO), 2017 Draft ISO/DIS 10273.
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
4. 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.
5. 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.
6. Wauters G., 1973, Med. Malad. Infect. 3:437.
7. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

Revision : 03 / 2019