

Technical Information

Yersinia Selective Agar Base

Product Code: DM 1843

Application: Yersinia Selective Agar Base is recommended for the selective isolation and enumeration of *Yersinia enterocolitica* from clinical specimens and food samples.

Composition**

Ingredients	Gms / Litre
Peptone, special	20.000
Yeast extract	2.000
Mannitol	20.000
Sodium pyruvate	2.000
Sodium chloride	1.000
Magnesium sulphate	0.010
Sodium deoxycholate	0.500
Neutral red	0.030
Crystal violet	0.001
Agar	12.500
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

The formulation of Yersinia selective Agar Base is based on CIN Agar of Schiemann ^(1, 2) which is recommended by ISO Committee ⁽³⁾. Schiemann ⁽¹⁾ modified his previous formula of CIN medium by replacing bile salts with sodium deoxycholate. Yersinia Selective Agar Base with added Yersinia Selective Supplement is used to isolate *Y. enterocolitica* from clinical and non-clinical specimens.

Yersinia enterocolitica is widely distributed in lakes and reservoirs. Epizootic outbreaks of diarrhea, lymphadenopathy, pneumonia and spontaneous abortions occur in various animals. It is the most common species of *Yersinia* recovered from clinical specimens. *Y. enterocolitica* is biochemically more active at room temperature than at 37°C.

The medium differentiates between mannitol and mannitol non-fermenting bacteria. Microorganisms that ferment the sugar mannitol acidify the medium resulting in drop of pH around the colonies. In presence of neutral red, the colonies take red colour. Mannitol negative organisms form colourless and translucent colonies. Sodium deoxycholate and crystal violet make the medium selective which inhibit gram-positive and a number of gram-negative bacteria. Addition of antibiotic supplement makes it more selective for *Yersinia*. Typical colonies of *Y. enterocolitica* form dark red colonies resembling bulls' eye, which are normally surrounded by a transparent border. Colony size, smoothness and ratio of the border to centre diameter may vary among different serotypes of yersinia *Serratia liquefaciens*, *Citrobacter freundii* and *Enterobacter agglomerans* may resemble *Y. enterocolitica* that can be identified by additional biochemical tests.

For the isolation of *Y. enterocolitica* by direct plating and pour plating, inoculate the specimen directly onto the medium. Incubate at 22-32°C for 24-48 hours or suspend the sample (food, faeces, etc.) in sterile Phosphate Buffer Saline and incubate for upto 21 days ⁽⁴⁾ at 4°C. Periodically subculture samples onto Yersinia Agar Plate and incubate as above.

Methodology

Suspend 29.02 grams of powder media in 500 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45°C and aseptically add reconstituted contents of 1 vial of Yersinia Selective Supplement (MS2034). Mix well before pouring into sterile Petri plates.



Dehydrated Culture Media
Bases / Media Supplements

Quality Control

Physical Appearance

Light yellow to pink homogeneous free flowing powder

Gelling

Firm, comparable with 1.25% Agar gel.

Colour and Clarity of prepared medium

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

Reaction of 5.8% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH Range:-

7.20-7.60

Cultural Response/Characteristics

DM 1843: Cultural characteristics observed with added Yesinia Selective Supplement (MS2034) after an incubation at 22-32°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
<i>Enterococcus faecalis</i> ATCC 29212	$\geq 10^5$	inhibited	0%	
<i>Escherichia coli</i> ATCC 25922	$\geq 10^5$	inhibited	0%	
<i>Proteus mirabilis</i> ATCC 25933	$\geq 10^5$	inhibited	0%	
<i>Pseudomonas aeruginosa</i> ATCC 27853	$\geq 10^5$	inhibited	0%	
<i>Yersinia enterocolitica</i> ATCC 27729	50-100	good-luxuriant	0%	Translucent with dark pink centre & bile precipitate

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

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

Further Reading

1. Schiemann D. A., 1979, Can. J. Microbiol., 25: 1298.
2. Schiemann D. A., 1980, Can. J. Microbiol., 26: 1232.
3. International Organization for Standardization (ISO), 1994, Draft ISO/DIS 10273.
4. Weissfeild and Sonnenwirth, 1982, J. Clin. Microbiol. 15:508.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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