



# PRODUCT SPECIFICATION SHEET

## Yersinia Selective Agar Base (DM685)

### Intended Use

Yersinia Selective Agar Base (DM685) is recommended for selective isolation and enumeration of *Yersinia enterocolitica* from clinical specimens and food samples.

### Product Summary and Explanation

*Yersinia enterocolitica* is a gram negative bacterium widely distributed in lakes and reservoirs. This organism is a causative agent of many epizootic outbreaks of diarrhea, lymphadenopathy, pneumonia and spontaneous abortions which 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. Yersinia Selective Agar Base with added Yersinia Selective Supplement was first described as an alternative to MacConkey Agar and other commonly used media used to isolate *Y. enterocolitica* from clinical and non-clinical specimens. The formulation is based on CIN Agar of Schiemann<sup>(1, 2)</sup> and is recommended by ISO Committee.<sup>(3)</sup> Schiemann<sup>(1)</sup> modified his previous formula of CIN medium by replacing bile salts with sodium deoxycholate. The medium differentiates between mannitol fermenting and non-fermenting bacteria.

### Principles of the Procedure

Yersinia Selective Agar Base contains peptone special and yeast extract which provides the nitrogen, vitamins and amino acids required for growth. Mannitol is the fermentable source of carbohydrate. Sodium chloride maintains the osmotic balance of the media. Mannitol fermenting organisms acidify the medium and cause a localized drop in 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 makes the medium is selective, presence of which helps to inhibit gram-positive and a number of gram-negative bacteria. Addition of antibiotic supplement makes it highly selective for *Yersinia*.

### Formula / Liter

Ingredients	Gms / Liter
Peptone, special	20.00
Yeast extract	2.00
Mannitol	20.00
Sodium pyruvate	2.00
Sodium chloride	1.00
Magnesium sulphate	0.01
Sodium deoxycholate	0.50
Neutral red	0.03
Crystal violet	0.001
Agar	12.50
Final pH: 7.4 ± 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.

### Directions

1. Suspend 29.02 grams in 500 ml distilled water.





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- Heat to boiling, to dissolve the medium completely.
- Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
- Cool to 45°C and aseptically add reconstituted contents of 1 vial of Yersinia Selective Supplement (MS076).
- Mix well before pouring into sterile Petri plates.

### Quality Control Specifications

Dehydrated Appearance	Light yellow to pink homogeneous free flowing powder
Prepared Medium	Orange red coloured clear to slightly opalescent gel forms in Petri plates
Reaction of 5.8% Solution	pH : 7.4 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 1.25% Agar gel

**Expected Cultural Response:** Cultural characteristics observed with added Yersinia Selective Supplement (MS076) after an incubation at 22-32°C for 24-48 hours.

Sr. No.	Organisms	Results to be achieved			
		Inoculum (CFU)	Growth	Recovery	Colour of Colony
1.	<i>Enterococcus faecalis</i> ATCC 29212	≥10 <sup>3</sup>	inhibited	> 0%	--
2.	<i>Escherichia coli</i> ATCC 25922	≥10 <sup>3</sup>	inhibited	> 0%	--
3.	<i>Proteus mirabilis</i> ATCC 25933	≥10 <sup>3</sup>	inhibited	> 0%	--
4.	<i>Pseudomonas aeruginosa</i> ATCC 27853	≥10 <sup>3</sup>	inhibited	> 0%	--
5.	<i>Yersinia enterocolitica</i> ATCC 27729	50 - 100	good-luxuriant	≥50%	translucent with dark pink centre & bile precipitate

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

### Test Procedure

- 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 at 4°C.
- Periodically subculture samples onto Yersinia Agar Plate and incubate as above.

### Results

- Typical colonies of *Y. enterocolitica* will form dark red colonies resembling bull's 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.
- Serratia liquefaciens*, *Citrobacter freundii* and *Enterobacter agglomerans* may resemble *Y. enterocolitica* that can be further identified by biochemical tests.

### 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.





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## Limitations of the Procedure

1. Although certain strains of *Yersinia* can be recovered by direct plating, others may require cold enrichment (4°C) in phosphate buffered saline. However, cold enrichment may not be practical because of the long incubation time and because it selects for non-pathogenic *Yersinia* species.
2. Consult appropriate texts for detailed information and recommended procedures.

## Packaging

Product Name : *Yersinia* Selective Agar Base

Product Code : DM685

Available Pack sizes : 500gm

## References

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.

## Further Information

For further information please contact your local MICROMASTER Representative.



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