YERSINIA AGAR (CIN)

- For in vitro use only - Catalogue No. PY47

Our Yersinia Agar (CIN) is a selective medium used for the isolation and differentiation of *Yersinia enterocolitica* from clinical specimens and food.

Our formulation is based on the work of Schiemann whom developed CIN agar for the isolation of *Yersinia*. Schiemann later modified the original recipe by replacing bile slats with sodium desoxycholate and by reducing the novobiocin concentration thus improving the growth and recovery of some strains of *Yersinia enterocolitica*.

The nutritional components of the medium include a variety of peptones and extracts that allow for luxuriant bacterial growth. The combination of mannitol and neutral red makes the medium differential; organisms that are able to ferment mannitol cause a local drop in pH around the colony which allows absorption of the dye, neutral red, giving colonies a red coloration. Typical colonies of *Yersinia* will have a bulls-eye appearance with deep red centers and an outer translucent border. *Citrobacter* species, *Enterobacter agglomerans*, and *Serratia liquefaciens* may produce similar looking colonies and must be differentiated by other biochemical tests.

The selectivity of the medium is due to the presence of crystal violet, cefsulodin, irgasan, and novobiocin, which together inhibit the majority of gram-negative (including *Escherichia coli*, *Klebsiella pneumoniae*, *Proteus mirabilis*, and *Pseudomonas aeruginosa*) and gram-positive organisms while allowing *Yersinia* to grow.

Formulation per Litre of Medium

Peptone	20.0 g
Yeast Extract	2.0 g
Mannitol	20.0 g
Sodium Pyruvate	2.0 g
Sodium Chloride	1.0 g
Magnesium Sulfate	0.01 g
Sodium Desoxycholate	0.5 g
Agar	13.5 g
Neutral Red	30 mg
Crystal Violet	1 mg
Cefsulodin	15.0 mg
Irgasan	4.0 mg
Novobiocin	2.5 mg

pH 7.4 ± 0.2

Recommended Procedure

1. Allow medium to adjust to room temperature prior to inoculation.
2. Using an inoculum from the specimen, perform a four-quadrant streak to obtain well-isolated colonies.
3. Incubate aerobically at 32°C.
4. Examine after 18 to 24 hours. If desired the plates can also be incubated at room temperature rather than 32°C for 48 hours.

Interpretation of Results

Yersinia enterocolitica typically produces pink to red-centred colonies surrounded by a transparent border, giving the appearance of a “bulls-eye”. It should be noted that other *Yersinia* species will also produce the same colony morphology on CIN as *Y. enterocoltica*.

Non-mannitol-fermenting organisms that are uninhibited on this medium will produce clear, colorless colonies.

Additional biochemical and/or serological tests should be performed on isolated colonies from pure culture in order to complete identification.

- *As mentioned, Serratia, Enterobacter, and Citrobacter may form colonies resembling Yersinia and further test must be performed for differentiation*

Quality Control

After checking for correct pH, colour, depth, and sterility, the following organisms are used to determine the growth performance of the completed medium.

Organism	Expected Result
Yersinia enterocolitica ATCC 9610	Growth, red to pink bulls-eye colonies
Escherichia coli ATCC 25922	Inhibition
Proteus mirabilis ATCC 12453	Inhibition
Enterococcus faecalis ATCC 29212	Inhibition

Storage and Shelf Life

Our Yersinia Agar (CIN) should be stored away from direct light at 4°C to 8°C. The medium side should be uppermost to prevent excessive accumulation of moisture on the agar surface. Under these conditions this medium has a shelf life of 8 weeks from the date of manufacture.

Ordering Information

Cat#	Description	Format
PY47	Yersinia Agar (CIN) [Standard 15x100-mm plate]	10/pkg

References

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4. Schiemann DA. Development of a two step enrichment procedure for recovery of *Yersinia enterocolitica* from food. Appl Enviro Microbiol 1982; 43:14-27.
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9. Murray PR, Baron EJ, Pfaller MA, Tenover FC, Yolken RH, Eds. Manual of clinical microbiology. 7th ed. Washington, DC: ASM Press, 1999.

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