CIN AGAR BASE

INTENDED USE
Remel CIN Agar Base is a solid medium recommended for selective and differential isolation of *Yersinia enterocolitica* from food products.

SUMMARY AND EXPLANATION
In 1979, Schiemann described a selective and differential medium for isolation of *Y. enterocolitica* which contained Irgasan®, bile salts, and crystal violet as selective agents.[1] He later modified the formula by substituting sodium desoxycholate for bile salts to further improve growth and recovery of *Y. enterocolitica*.[2] CIN Agar is recommended in *Bacteriological Analytical Manual* and in *Compendium of Methods for the Microbiological Examination of Foods* for isolation of *Yersinia* from food products.[3,4]

PRINCIPLE
Peptones provide nitrogen, amino acids, and peptides necessary for bacterial growth. Sodium chloride is a source of essential electrolytes and maintains osmotic equilibrium. Yeast extract provides B-complex vitamins. Mannitol is the carbohydrate which, in combination with neutral red dye, enables differentiation of enteric gram-negative bacilli. Organisms which ferment mannitol produce a localized pH drop around the colony which is followed by absorption of the neutral red dye. This results in a characteristic "bulls-eye" colony which has a colorless, translucent outer zone and a red center. Colonies of *Y. enterocolitica* typically develop a "bulls-eye" appearance after 24-48 hours incubation at 25°C. Crystal violet, sodium desoxycholate, and Irgasan® are selective agents which inhibit *Escherichia coli*, *Klebsiella pneumoniae*, *Proteus mirabilis*, and *Pseudomonas aeruginosa*, as well as gram-positive organisms.

REAGENTS (CLASSICAL FORMULA)*

Mannitol	20.0 g	Neutral Red	30.0 mg
Peptone	10.0 g	Cefsulodin	4.0 mg
Beef Extract	5.0 g	Irgasan®	4.0 mg
Meat Peptone	5.0 g	Novobiocin	2.5 mg
Sodium Pyruvate	2.0 g	Crystal Violet	1.0 mg
Yeast Extract	2.0 g	Magnesium Sulfate	1.0 mg
Sodium Chloride	1.0 g	Agar	12.0 g
Sodium Desoxycholate	0.5 g	Demineralized Water	1000.0 ml

pH 7.4 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PRECAUTIONS
This product is For Laboratory Use only. It is not intended for use in the diagnosis of disease or other conditions.

PREPARATION OF DEHYDRATED CULTURE MEDIUM
1. Suspend 57.5 g of medium in 1000 ml of demineralized water.
2. Heat to boiling with agitation to completely dissolve. **Do not autoclave**.
3. Cool to 45-50°C and aseptically add 10 ml of rehydrated CN Selective Supplement (REF R450031).
4. Mix well and dispense into appropriate containers.

PROCEDURE
1. Consult current editions of appropriate references for the recommended procedure for sample preparation, inoculation, and incubation.[3,4]

QUALITY CONTROL
Each lot number of CIN Agar Base has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. Testing of control organisms should be performed in accordance with established laboratory quality control procedures at or prior to the time of use. If aberrant quality control results are noted, results should not be reported.

CONTROL	INCUBATION	RESULTS
Yersinia enterocolitica ATCC® 9610	Aerobic, 24-48 h @ 25°C	Growth, clear colonies w/ deep red "bulls-eye" center
Enterococcus faecalis ATCC® 29212	Aerobic, 24-48 h @ 25°C	Inhibition (partial to complete)
Escherichia coli ATCC® 25922	Aerobic, 24-48 h @ 25°C	Inhibition (partial to complete)
Proteus mirabilis ATCC® 12453	Aerobic, 24-48 h @ 25°C	Inhibition (partial to complete)
Pseudomonas aeruginosa ATCC® 27853	Aerobic, 24-48 h @ 25°C	Inhibition (partial to complete)

LIMITATIONS
1. Gram-negative bacilli other than *Y. enterocolitica* grow on CIN Agar, including *Aeromonas, Serratia, Enterobacter,* and *Citrobacter*. These organisms cannot be differentiated from *Y. enterocolitica* on the basis of colony morphology alone. Further biochemical and/or serological testing is required for definitive identification of *Y. enterocolitica*.[5]

BIBLIOGRAPHY

1. Schiemann, D.A. 1979. Can. J. Microbiol. 25:1298-1304.
2. Schiemann, D.A. 1982. Appl. Environ. Microbiol. 43:14-27.
3. Food and Drug Administration. 2000. Bacteriological Analytical Manual Online. AOAC International, Gaithersburg, MD.
4. Downes, F.P. and K. Ito. 2001. Compendium of Methods for the Microbiological Examination of Foods. 4th ed. APHA, Washington, D.C.
5. MacFaddin, J.F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams and Wilkins, Baltimore, MD.

Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, specimen collection, storage and transportation, materials required, quality control, and limitations.

IFU 452941, Revised November 19, 2013 Printed in U.S.A.

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