Modified Iron Sulphite Agar Base

M1629

Modified Iron Sulphite Agar Base is recommended for the detection and enumeration of clostridia in meat and meat products.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	15.000
Yeast extract	10.000
Sodium sulphite	0.500
Agar	15.000
Final pH (at 25°C)	6.9±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 20.25 grams in 500 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 50°C and aseptically add rehydrated contents of 1 vial of Iron Sulphate Supplement (FD237). Mix well and pour into sterile Petri plates.

Principle And Interpretation

Sulphite-reducing *Clostridium* is sought as an index organism for *Clostridium botulinum* , as general hygiene indicators, or as a means of detecting faults in food processing. Sulphite reductase activity is a common property among clostridia. Modified Iron Sulphite Agar Base utilizes the ability of the genus *Clostridium* to reduce sulphite, which reacts with iron citrate to form ferrous sulphide, staining the colonies black (2, 3). Modified Iron Sulphite Agar Base is recommended by ISO (4) for the detection and enumeration of clostridia in meat and meat products.

The medium contains casein enzymic hydrolysate and yeast extract, which act as sources of nitrogen, carbon, vitamins and minerals. Reduction of sulphite and precipitation of the resultant sulphide as a black deposit involves an appropriate iron salt that yields iron sulphide. The reaction is seen as a black halo around each colony. Inclusion of a fermentable carbohydrate in the medium can lead to a rapid fall in pH during bacterial growth and failure to precipitate the sulphide (1). Clostridia grow to form black colonies in an anaerobic environment.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Yellow to amber coloured clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 4.05% w/v aqueous solution at 25°C. pH : 6.9±0.2

pH
6.70-7.10

Cultural Response
M1629: Cultural characteristics observed with added Iron Sulphate Supplement (FD237), after an incubation at 35-37°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Blackening
Cultural Response				
Clostridium perfringens ATCC 10543	50-100	good	40-50%	positive

Clostridium perfringens ATCC 13124	50-100	good	40-50%	positive
Clostridium botulinum	50-100	good	40-50%	positive
Escherichia coli ATCC 25922	50-100	fair	20-30%	negative
Pseudomonas aeruginosa ATCC 27853	50-100	poor	10-20%	negative
Bacillus cereus ATCC 11778	50-100	poor	10-20%	negative

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

1. Corry J. E. L., Curtis G. D. W., and Baird R. M., Culture Media for Food Microbiology, Vol. 34, Progress in Industrial Microbiology, 1995, Elsevier, Amsterdam
2. Prevot A. R., and Thouvenot H., 1954, Ann. Inst. Pasteur, 86, 236-237
3. Skovgaard N., 1958, VIII Nordiska Veterianarmotel Sektion E., Rapport 2, 1-7
4. International Organization for Standardization (ISO): Meat and Meat Products. Mesophilic Clostridial Spores- Working Draft ISO/TC/34/SC 6 (1971).

Revision : 2 / 2015