Fluid Selenite Cystine Broth (Twin Pack) M1533I

This medium is recommended as an enrichment medium for the isolation of Salmonellae from faeces, urine or other pathological materials.

Composition**

Ingredients	Gms / Litre
Part A	-
Casein enzymic hydrolysate	5.000
Lactose	4.000
Disodium phosphate.12H2O	10.000
L-Cystine	0.010
Part B	-
Sodium hydrogen selenite	4.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 4.0 grams of Part B in 1000 ml distilled water. Add 13.0 grams of dehydrated Part A medium. Warm to dissolve the medium completely. Distribute in sterile test tubes. Sterilize in a boiling water bath or in a free flowing steam for 10 minutes. DO NOT AUTOCLAVE. Excessive heating is detrimental. Discard the prepared medium if large amount of selenite is reduced. (Indicated by red precipitate at the bottom of tube/bottle.

Caution : Sodium hydrogen selenite (Sodium bi-selenite) is very toxic, corrosive agent and causes teratogenicity and hence should be handled with great care. Upon contact with skin, wash immediately with a lot of water.

Principle And Interpretation

Selective inhibitory effects of selenite were first demonstrated by Klett (1). Guth (2) used it to isolate *Salmonella* serotype Typhi . Leifson studied selenite and formulated a medium. Fluid Selenite Cystine Medium is a modification of Leifson's (3) formula with added cystine (4). The formulation corresponds to that recommended by the AOAC (5) for the detection of Salmonellae in foodstuff, particularly egg products. It is included by APHA (6,7), USP (8). This medium is recommended by ISO Committee (9) as a selective enrichment medium for the detection of Salmonellae. 10 ml of culture from Buffered Peptone Water (M614S) is inoculated in Fluid Selenite Cystine Broth (M1533I) and further sub-cultured on Brilliant Green Agar w/Phosphate (M971S).

Selenite Cystine Broth is useful for detecting *Salmonella* in the nonacute stages of illness when organisms occur in the faeces in low numbers and for epidemiological studies to enhance the detection of low numbers of organisms from asymptomatic or convalescent patients (10).

Casein enzymic hydrolysate provide nitrogenous substances. Lactose maintains the pH in medium as selenite is reduced by bacterial growth and alkali is produced. An increase in pH lessens the toxicity of the selenite and results in overgrowth of other bacteria. The acid produced by bacteria due to lactose fermentation serves to maintain a neutral pH. Phosphate maintains a stable pH and also lessens the toxicity of selenite. L-cystine improves recovery of Salmonellae. Enriched broth is subcultured on solid medium. Do not incubate the broth longer than 24 hours as inhibitory effect of selenite reduces after 6 - 12 hours of incubation (11).

Quality Control

Appearance

Part A : Off-white to light yellow Part B : White to cream homogeneous free flowing powder

Colour and Clarity of Prepared medium
Light yellow clear to slightly opalescent solution

Reaction
Reaction of [(1.3% w/v) Part A and (0.4% w/v) Part B] at 25°C. pH : 7.0±0.2

pH
6.80-7.20

Cultural Response
Cultural characteristics observed after an incubation at 35 - 37°C for 18 - 24 hours when subcultured on MacConkey Agar (M081).

Cultural Response

Organism	Inoculum (CFU)	Recovery (increase in numbers)	Colour of Colony
Cultural Response			
Escherichia coli ATCC 25922	50-100	little-none	pink w/ bile ppt
Salmonella Choleraesuis ATCC 12011	50-100	luxuriant	colourless
Salmonella Typhi ATCC 6539	50-100	luxuriant	colourless
Salmonella Typhimurium ATCC 14028	50-100	luxuriant	colourless

Storage and Shelf Life
Store below 30 °C in tightly closed container and use freshly prepared medium. Use before expiry date on label.

Reference
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11.Chattopadhyay W. and Pilford J. N., 1976, Med. Lab. Sci., 33:191.

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