



Fluid Selenite Cystine Medium (Selenite Cystine Medium) (Twin Pack)

M025

Intended Use

Recommended as an enrichment medium for isolation of Salmonellae from foods, dairy products, materials of sanitary importance and clinical specimens.

Composition**

Ingredients	Gms / Litre
Part A	-
Tryptone	5.000
Lactose	4.000
Sodium phosphate	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 19.01 grams of Part A. Mix well. Warm to dissolve the medium completely. Distribute in sterile test tubes. Sterilize in a boiling water bath or 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).

Note : Instead of Part B , DD056 -Sodium Biselenite discs (1 disc per 10 ml of the medium) or DB001-Sodium Biselenite Bud (1 bud per 100ml of medium) can be added to the medium after boiling.

Principle And Interpretation

Selective inhibitory effects of selenite were first demonstrated by Klett (7). Guth (4) used it to isolate *Salmonella* Typhi. Leifson studied selenite and formulated a medium using selenite. Fluid Selenite Cystine Medium is a modification of Leifsons (8) formula with added cystine (10). The formulation corresponds to that recommended by AOAC (3) for the detection of Salmonella in foodstuff, particularly egg products. It is also recommended by APHA (11,13) and USP (12). Selenite Cystine Broth is useful for detecting Salmonella in the non-acute 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 (9). *Salmonella* are also injured during various food processing procedures, including exposure to low temperatures, sub-marginal heat, drying, radiation, preservatives or sanitizers. Recovery of *Salmonella* involves pre- enrichment, selective enrichment and selective plating since Salmonella may be present in low numbers in food sample in an injured conditions. Fluid Selenite Cystine Medium is used as selective enrichment medium for the cultivation of *Salmonella* species. This medium is formulated to allow the proliferation of Salmonella while inhibiting the growth of competing non-*Salmonella* organisms.

Tryptone provides nitrogenous substances. Lactose is the fermentable carbohydrate and 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 is the reducing agent, improving the recovery of Salmonella. 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 (2).

Inoculate the food sample into recommended pre-enrichment broth, and then transfer 1 ml of mixture to 10 ml of Fluid Selenite Cystine Medium and also to 10 ml Tetrathionate Broth (M032). Incubate and subsequently subculture on to Bismuth Sulphite Agar (M027), Xylose-Lysine-Deoxycholate Agar (M031), Hektoen Enteric Agar (M467) or MacConkey Agar (M081).

Type of specimen

Clinical samples - faeces ; Food and dairy samples.

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (5,6).

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (1,11,13).

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

In Vitro diagnostic Use only. Read the label before opening the container. Wear protective gloves/protective clothing/ eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. Some organisms may show poor growth due to variable nutritional requirement.

Quality Control

Appearance

Part A : Cream to yellow homogeneous free flowing powder. Part B : White to cream homogeneous free flowing powder

Colour and Clarity of prepared medium

Light yellow coloured, clear to slightly opalescent solution of complete medium

Reaction

Reaction of medium [(1.9% 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

M025: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours when sub cultured on XLD Agar (M031).

Organism	Inoculum (CFU)	Recovery	Colour of Colony
<i>Salmonella Choleraesuis</i> ATCC 12011	50-100	luxuriant	red w/black centre
<i>Salmonella Typhimurium</i> ATCC 14028 (00031*)	50-100	luxuriant	red w/black centre
<i>Salmonella Typhi</i> ATCC 6539	50-100	luxuriant	red w/black centre
<i>Salmonella Enteritidis</i> ATCC 13076 (00030*)	50-100	luxuriant	red w/black centre
<i>Pseudomonas aeruginosa</i> ATCC 27853 (00025*)	50-100	luxuriant	red
<i>Escherichia coli</i> ATCC 8739 (00012*)	50-100	little-none (no increase in numbers)	yellow
<i>Escherichia coli</i> ATCC 25922 (00013*)	50-100	little-none (no increase in numbers)	yellow

M025: Cultural characteristics observed after an incubation at 35-37°C for 24 hours when sub cultured on Tryptone Soya Agar (M290).

<i>Escherichia coli</i> ATCC 8739 (00012*)	50-100	little-none (no increase in numbers)
<i>Escherichia coli</i> ATCC 25922 (00013*)	50-100	little-none (no increase in numbers)
<i>Enterococcus faecalis</i> ATCC 29212 (00087*)	>=10 ³	inhibited

Key: (*) Corresponding WDCM numbers

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Use before expiry date on the label.

Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (5,6).

Reference

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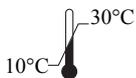
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In vitro diagnostic medical device



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