Dulcitol Selenite Broth (Selenite-F Broth with Dulcitol) (Twin Pack)

M1536

Dulcitol Selenite Broth is used for selective enrichment of *Salmonella* species.

Composition**

Ingredients	Gms / Litre
Part A	-
Peptic digest of animal tissue	5.000
Dulcitol	4.000
Sodium phosphate	10.000
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 grams of Part B in 1000 ml distilled water. Add 19 grams of Part A. Mix well. Heat if necessary 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 OR OVERHEAT. Excessive heating is detrimental.

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

Principle And Interpretation

Klett (1) first demonstrated the selective inhibitory effects of selenite and Guth (2) used this property to isolate *Salmonella* Typhi. Leifson (3) investigated the effects of selenite and formulated a media containing selenite. Dulcitol Selenite Broth is a modification of Leifson s Medium with Dulcitol replacing lactose. Selenium toxicity to certain microorganisms is not fully understood but it is suggested that it reacts with sulphur and sulphydral groups of critical cell components (6, 7).

Enrichment media are routinely employed for detection of pathogens in faecal specimens as the pathogens are present in a very small number in the intestinal flora. Dulcitol Selenite Broth is useful for detecting *Salmonella* from faeces, dairy products and other specimens.

Peptic digest of animal tissue provides nitrogenous substances. Sodium biselenite inhibits many species of gram-positive and gram-negative bacteria including Enterococci. Sodium phosphate maintains a stable pH and also lessens the toxicity of selenite. Dulcitol is typically fermented by *Salmonella* Choleraesuis subspecies Salamae, subspecies Gallinarum, subspecies Paratyphi A, subspecies Pullorum, subspecies Choleraesuis (4). Do not incubate the broth longer than 24 hours as the inhibitory effect of selenite decreases after 6-12 hours of incubation (5).

For routine purpose, selenite broth cultures should be incubated at 35°C for 18 to 24 hours and then subcultured on any combination of greater and lesser inhibitory selective agars.

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 solution without any precipitate

Reaction

Reaction of 1.9% w/v of Part A + 0.4% w/v of Part B at 25°C. pH : 7.0±0.2

pH

6.80-7.20

Cultural Response

M1536: Cultural characteristics observed when subcultured on MacConkey Agar (M081),after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Recovery (increase in numbers)	Colour of Colony
Cultural Response			
Escherichia coli ATCC 25922	50-100	none to poor	pink with bile precipitate
Salmonella Enteritidis ATCC 13076	50-100	luxuriant	colourless
Salmonella Typhi ATCC 6539	50-100	good	colourless
Salmonella Typhimurium ATCC 14028	50-100	luxuriant	colourless

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. Klett A., 1900, Zeitsch Fiir Hyg. and Infeskt, 33:137.
2. Guth F., 1926, Zbl. Bakt. 1, Orig., 77:487.
3. Leifson E., 1936, Am. J. Hyg. 24(2):423.
4. Bergeys Manual of Determinative Bacteriology, 9th Edition, 1994, Holt J. G., Krieg W. R., Sneath P. H. A., Staley J. T., Williams S. T. (Eds.), Williams & Wilkins, London, 241.
5. Chattopadhyay W. & Pilford J. N., 1976, Med. Lab. Sci., 33:191.
6. Weiss K. F., Ayers J. C., and Kraft A. A., 1965, J. Bacteriol., 90 : 857-862
7. Rose M. J., Enriki N. K. and Alford J. A., 1971, J. food Sci.,36: 59 0-593

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