Technical Information

Selenite Broth (Selenite F Broth) (Twin Pack)

Product Code: DM 1052

Application: Selenite Broth is recommended as enrichment media 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
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

Principle & Interpretation

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. Selenite 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 number of organisms from asymptomatic or convalescent patients [4].

Klett [1] first demonstrated the selective inhibitory effects of selenite and Guth [2] used it to isolate *Salmonella Typhi.* Leifson fully investigated selenite and formulated the media [3].

Casein enzymic hydrolysate provides nitrogenous substances. Lactose maintains the pH of medium. 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. Sodium phosphate maintains a stable pH and also lessens the toxicity of selenite. Enriched broth is subcultured on differential plating media such as Bismuth Sulphite Agar (DM1027), Brilliant Green Agar (DM1016), and XLD Agar (DM1031) etc. Do not incubate the broth longer than 24 hours as inhibitory effect of selenite decreases after 6 - 12 hours of incubation [5].

Methodology

Suspend 4.0 grams of Part B in 1000 ml distilled water followed by addition of 19.0 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).

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

Quality Control

Physical Appearance

Part A : White to light yellow homogeneous free flowing powder Part B : White to cream crystalline powder

Colour and Clarity of prepared medium

Cream to yellow coloured clear solution without any precipitate

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 Range:- 6.80-7.20

Cultural Response/Characteristics

DM 1052**:** Cultural characteristics observed when subcultured on MacConkey Agar (DM1081) after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Recovery	Colour of Colony
Escherichia coli ATCC 25922	50-100	none to poor (no increase in numbers)	pink with bile precipitate
Salmonella Choleraesuis ATCC 12011	50-100	good-luxuriant	colourless
Salmonella Typhi ATCC 6539	50-100	good-luxuriant	Colourless
Salmonella Typhimurium ATCC 14028	50-100	good-luxuriant	colourless
Escherichia coli ATCC 8739	50-100	none to poor (no increase in numbers)	pink with bile precipitate
Escherichia coli NCTC 9002	50-100	none to poor (no increase in numbers)	pink with bile precipitate

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1. Klett A., 1900, Zeitsch Für Hyg. Und. Infekt., 33: 137.
2. Guth F., 1926, Zbl. Bakt. I. Orig., 77:487.
3. Leifson E., 1936, Am. J. Hyg., 24(2): 423.
4. Kelly, Brenner and Farmer, 2003, Manual of Clinical Microbiology, 8th ed., ,,Lennett and others (Eds.), ASM, Washington, D.C.
5. Chattopadhyay W. and Pilford J. N., 1976, Med. Lab. Sci., 33:191.

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