ARENA BioScien

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Bismuth Sulfite Agar

Recommended for the selective isolation of Salmonella from faeces, urine, sewage and other materials.

REF: BS.1/IU01.100.0100	100 Gram	REF: BS.1/IU01.250.0250	250 Gram
REF: BS.1/IU01.500.0500	500 Gram		

CLINICAL SIGNIFICANCE

The Salmonellae constitute the most taxonomically complex group of bacteria among Enterobacteriaceae (1). Human Salmonella infections are most commonly caused by ingestion of food, water or milk contaminated by human or animal excreta. Humans are the only reservoirs of S.Typhi (2). Of the various media employed for the isolation and preliminary identification of Salmonellae, particularly Salmonella Typhi; Bismuth Sulphite Agar is the most productive. Bismuth Sulphite Agar is a modification of original Wilson and Blair Medium (3-5). It is also recommended by various Associations (2,6-8) for the isolation and preliminary identification of Salmonella Typhi and other Salmonellae from pathological materials, sewage, water, food and other products. Bismuth Sulphite Agar is recommended for selective isolation and enumeration of Salmonella species in accordance with ISO Committee (8). S.Typhi, S.Enteritidis and S.Typhimurium typically grow as black colonies with or without a surrounding metallic sheen resulting from hydrogen sulphide production and reduction of sulphite to black ferric sulphide. Salmonella Paratyphi A grows as light green colonies. Bismuth Sulphite Agar may be inhibitory to some strains of Salmonella species and therefore should not be used as the sole selective medium for these organisms. Also this medium favors use of larger inoculum as compared to other selective media, as it has unique inhibitory action towards gram-positive organisms and coliforms.

METHOD PRINCIPLE

Peptone and Beef extract serve as sources as carbon, nitrogen, long chain amino acids, vitamins and essential growth factors. Dextrose is the carbon source. Disodium phosphate maintains the osmotic equilibrium. Bismuth sulphite indicator along with brilliant green inhibits the intestinal gram-positive and gram-negative bacteria. Ferrous sulphate aids in detection of hydrogen sulphide production. Clinical samples can be directly used to inoculate Bismuth Sulphite Agar. In case of food samples, pre enrichment of the sample is done prior to inoculation.

MEDIA COMPOSITION

Item	Formula per liter of medium
- Peptone	10
- Beef extract	5
- Dextrose	5
- Disodium hydrogen phosphate, anhydrous	4
- Ferrous sulphate	0.3
- Bismuth sulphite indicator	8
- Brilliant green	0.025
- Agar	20

Final pH 7.7 ± 0.2 at 25°C

PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves, glasses,).
- Do not pipette by mouth.
- In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries; seek medical advice immediately.
- Respect country requirement for waste disposal.

S56: dispose of this material and its container at hazardous or special waste collection point.
S57: use appropriate container to avoid environmental Contamination.
S61: avoid release in environment.
For further information, refer to the Bismuth Sulfite Agar material safety data sheet.

STORAGE AND STABILITY

BioScien Bismuth Sulfite Agar dehydrated media are stable until expiration date stated on label when properly stored 10-30°C. The prepared medium should be stored 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 avoid lump development due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in a dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

MEDIA PREPARATION

1. Suspend 52.33 grams in 1000 ml distilled water.
2. Adjust pH to 7.7 ± 0.2 at 25°C
3. Heat to boiling to dissolve the medium completely.
4. **DO NOT STERILIZE IN AUTOCLAVE** or by fractional sterilization since overheating may destroy the selectivity of the medium.
   The sensitivity of the medium depends largely upon uniform dispersion of precipitated bismuth sulphite in the final gel, which should be dispersed before pouring into sterile Petri plates.

Deterioration

The color of ***BioScien*** Bismuth Sulfite Agar is Light yellow to light green homogeneous free flowing powder. If there are any physical changes, discard the medium. prepared medium is Greenish yellow coloured, opalescent with flocculent precipitate forms in Petri plates. media should not be used if there are any signs of deterioration (shrinking, cracking, or discoloration), and contaminations.

SPECIMEN COLLECTION AND PRESERVATION

Clinical samples : faeces, urine, blood and other pathological material , Foodstuff , water sample

EQUIPMENT REQUIRED NOT PROVIDED

- Sterile cups
- Sterile tubes
- Sterile loops
- Incubator

PERFORMANCE CHARACTERISTICS

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature

Cultural characteristics observed after an incubation at 30ºC for 40-48 hours.

Test Organisms	Growth	Colony Color
Salmonella Typhimurium ATCC 14028	good	Brown, grey or black colonies usually with a metallic sheen after 24 hours becoming uniformly black after 48 hours.
Enterococcus faecalis ATCC 29212	inhibited	
Escherichia coli ATCC 8739	growth or partial inhibition	Dull green or brown colonies without metallic sheen
Salmonella Enteritidis ATCC 13076	good	Brown, grey or black colonies usually with a metallic sheen after 24 hours becoming uniformly black after 48 hours
Escherichia coli ATCC 25922	growth or partial inhibition	black with metallic sheen

QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control values are found outside the defined range, check the system performance. If control still out of range please contact ***BioScien*** technical support.

REFERENCES

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5. Wilson and Blair, 1931, J. Hyg., 31:138.

6. FDA Bacteriological Analytical Manual, 2005, 18th Ed., AOAC, Washington, D.C.

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SYMBOLS IN PRODUCT LABELLING	
IVD For in-vitro diagnostic use	Number of <n> test in the pack
LOT Batch Code/Lot number	Caution
REF Catalogue Number	Do not use if package is damaged
Temperature Limitation	Consult Instruction for use
Expiration Date	
Manufactured by	