

TM 2009 – BISMUTH SULPHITE AGAR MODIFIED

INTENDED USE

For the selective isolation and preliminary identification of *Salmonella* Typhi and other Salmonellae from pathological materials, sewage, water supplies, food etc.

PRODUCT SUMMARY AND EXPLANATION

The Salmonellae constitute the most taxonomically complex group of bacteria among *Enterobacteriaceae*. 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*. Four clinical types of *Salmonella* infections may be distinguished namely gastroenteritis, bacteremia or septicemia, enteric fever and a carrier state. 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, Modified is a modification of the original formulation of Wilson and Blair Medium. It is also recommended for the isolation of *Salmonella typhi* and other *Salmonella*. *S. typhi*, *S. enteritidis* and *S.typhimurium* typically grow as black colonies with 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. *Shigella* species are mostly inhibited on this medium; exceptions being *S. flexneri* and *S.sonnei* and also some Salmonella like *S.Sendai*, *S. Berta*, *S. Gallinarum*, *S.abortus-equi* are inhibited. Also this medium favors use of larger inoculum as compared to other selective media, as it has unique inhibitory action toward gram-positive organisms and coliforms.

COMPOSITION

Ingredients	Gms / Ltr	
Peptone	5.000	
Beef extract	5.000	
Dextrose (Glucose)	5.000	
Disodium hydrogen phosphate	4.000	
Ferrous sulphate	0.300	
Bismuth sulphite indicator	8.000	
Brilliant green	0.016	
Agar	12.700	

PRINCIPLE

The medium contains peptone and Beef extract serve as sources of carbon, nitrogen, vitamins and essential growth factors. Dextrose (Glucose) is the carbon source. Disodium hydrogen 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.

INSTRUCTION FOR USE

- Dissolve 40 grams in 1000 ml distilled water.
- Heat to boiling to dissolve the medium completely, do not sterilize in autoclave or by fractional sterilization since
 overheating may destroy the selectivity of the medium.
- Cool to 45-50°C. Mix well and pour into sterile Petri plates.













• 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 the sterile Petri plates.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Light yellow to greenish yellow homogeneous free flowing powder

Appearance of prepared medium : Greenish yellow coloured opalescent with flocculent precipitate forms in Petri

plates.

pH (at 25°C) : 7.6±0.2

INTERPRETATION

Cultural characteristics observed after incubation.

Microorganism	ATCC	Growth	Recovery	Colour of colony	Incubation Temperature	Incubation Period
Klesiella aerogenes	13048	None-poor	0-10%	Brown green(depends on inoculum density)	35-37°C	40-48 Hours
Enterococcus faecalis	29212	Inhibited	0%	-	35-37°C	40-48 Hours
Escherichia coli	25922	None-poor	0-10%	Brown green(depends on inoculum density)	35-37°C	40-48 Hours
Salmonella Typhi	19430	Good- luxuriant	>=50%	Black with metallic sheen	35-37°C	40-48 Hours

PACKAGING:

In pack size of 100 and 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

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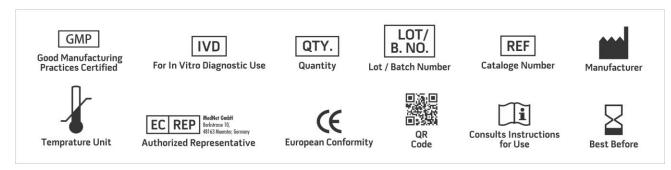








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NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices. *For Lab Use Only Revision: 08 Nov., 2019







