TM 039 – BISMUTH SULPHITE AGAR

INTENDED USE

For selective isolation of Salmonellae from faeces, urine, sewage and other materials.

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 theisolation 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. It is also recommended by various Associations for the isolation and preliminary identification of *Salmonella* Typhi and other Salmonellae from pathological materials, sewage, water, food and other products. *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. 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.

COMPOSITION

Ingredients	Gms / Ltr
Peptone	10.000
Beef extract	5.000
Dextrose (Glucose)	5.000
Disodium hydrogen phosphate, anhydrous	4.000
Ferrous sulphate, anhydrous	0.300
Bismuth sulphite indicator	8.000
Brilliant green	0.025
Agar	20.000

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.

INSTRUCTION FOR USE

- Dissolve 52.33 grams in 1000 ml purified/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.
- 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.

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) : 7.7±0.2

INTERPRETATION

Cultural characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Colour of colony	Incubation Temperature	Incubation Period
Klebsiella aerogenes	13048	50-100	None-poor	0-10%	Brown-green (depends on the inoculum density)	37 ± 1°C	24 ± 3 hour
Enterococcus faecalis	29212	50-100	Inhibited	0%	-	37 ± 1°C	24 ± 3 hour
Escherichia coli	25922	50-100	None-poor	0-10%	Brown-green (depends on the inoculum density)	37 ± 1°C	24 ± 3 hour
Salmonella Enteritidis	13076	50-100	Good-luxuriant	>=50%	Black with metallic sheen	37 ± 1°C	24 ± 3 hour
Salmonella Typhi	6539	50-100	Good-luxuriant	>=50%	Black with metallic sheen	37 ± 1°C	24 ± 3 hour
Salmonella Typhimurium	14028	50-100	Good-luxuriant	>=50%	Black with metallic sheen	37 ± 1°C	24 ± 3 hour
Shigella flexneri	12022	50-100	None-poor	0-10%	Brown	37 ± 1°C	24 ± 3 hour
Escherichia coli	8739	50-100	None-poor	0-10%	Brown-green (depends on the inoculum density)	37 ± 1°C	24 ± 3 hour

PACKAGING:

In pack size of 100 gm and 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 10-25°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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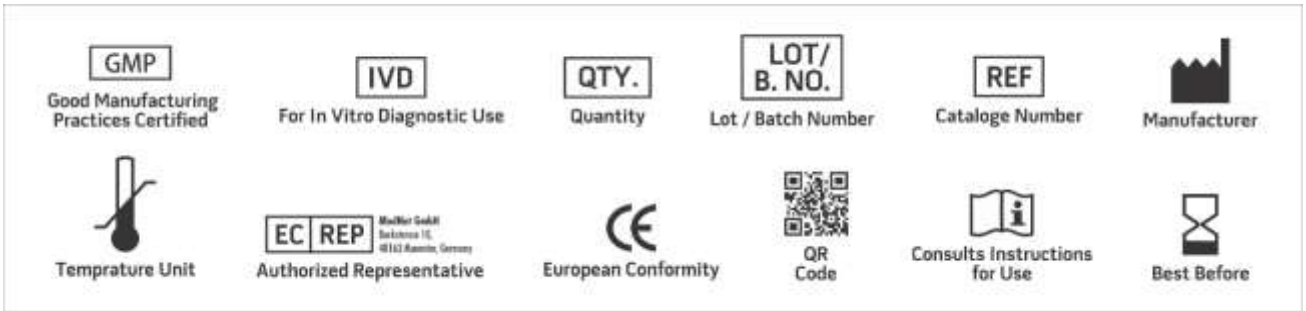

NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**

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