Technical Information

Bismuth Sulphite MiVeg Agar

Product Code : VM1027

Application:- Bismuth Sulphite MiVeg Agar is a selective media, used for isolation of *Salmonellae* from faeces, urine, sewage and other materials.

Composition

Ingredients	Gms / Litre
MiVeg peptone	10.0
MiVeg extract	5.0
Dextrose	5.0
Disodium phosphate	4.0
Ferrous sulphate	0.3
Bismuth sulphite indicator	8.0
Brilliant green	0.025
Agar	20.0
Final pH (at 25°C)	7.7±0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

Bismuth Sulphite MiVeg Agar is prepared by using MiVeg special peptone and MiVeg extract inplace of animal peptone & beef extract respectively which makes the media BSE/TSE risks free. Bismuth Sulphite Agar is the modification of Wilson and Blair formula, which is recommended by various Associations(1, 2, 3, 4, 5) for the isolation and preliminary identification of *Salmonella* serotype Typhi and other *Salmonellae* from pathological materials, sewage, water, food and other products. This medium is the modification of Bismuth Sulphite Agar where all animal based peptones are replaced with MiVeg peptones. Bismuth Sulphite Agar was stable, sensitive and found to be superior to Wilson's original medium. Brilliant green and bismuth sulphite inhibits the intestinal gram-negative andgram-positive bacteria. *Salmonella* serotype Typhi, *Salmonella* serotype Enteritidis and *Salmonella* serotype Typhimurium typically grow as black colonies with asurrounding metallic sheen resulting from hydrogen sulfide(H2S) production and reduction of sulphite to black ferricsulphide. *Salmonella* serotype Paratyphi A grow as light green colonies. Also this medium favours use of larger inoculums as compared to other selective media, as it has unique inhibitory action towards gram-positive and coliform organisms. The medium can inhibit 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 and also some *Salmonellae* like *Salmonella* serotype Sendai, *Salmonella* serotype Berta, *Salmonella* serotype Gallinarum, *Salmonella* serotype Abortus-equi are inhibited. Colonies on this medium may be contaminated with other viable organisms; therefore, isolated colonies should be sub cultured on to a less selective medium (6). MiVeg special peptone and MiVeg extract supplies nitrogen, vitamins and minerals. Dextrose serve as energy source. Ferrous sulphate is used for detection of hydrogen sulfide(H_2S) production. Disodium phosphate maintains the pH & act as a buffering system in the medium.

Methodology

Suspend 52.33 grams of powder media in 1000 ml purified/distilled water. Mix thoroughly. 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 the plates.

Quality Control

Physical Appearance

Greenish yellow coloured, homogeneous, free flowing powder

Gelling

Firm, comparable with 2.0% Agar gel.

Colour and Clarity of prepared medium

Greenish yellow coloured, opaque gel with flocculent precipitate, forms in petri plates.

Reaction

Reaction of 5.23 % w/v aqueous solution pH: 7.7±0.2 at 25°C

pH range

7.5-7.9

Cultural Response/Characteristics

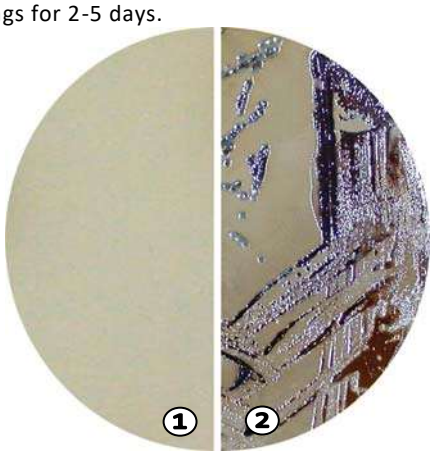
Cultural characteristics observed after an incubation at 35-37°C for 40-48 hours

Organisms (ATCC)	Inoculum (CFU)	Growth	Recovery	Colour of colony
Enterobacter aerogenese (13048)	10^2_10^3	None-poor	>10%	brown-green*
Enterococcus faecalis (29212)	10^2_10^3	inhibited	0%	-
Escherichia coli (25922)	10^2_10^3	Poor-fair	>20%	brown-green*
Salmonella serotype Enteritidis (13076)	10^2_10^3	luxuriant	>50%	black with metallic sheen
Salmonella serotype Typhi (19430)	10^2_10^3	luxuriant	>50%	black with metallic sheen
Salmonella serotype Typhimurium (14028)	10^2_10^3	luxuriant	>50%	black or greenish –grey#
Shigella flexneri (12022)		None-poor	>10%	brown

Key : * = Depends on inoculum density.
= may have sheen

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.



VM1027 Bismuth Sulphite MiVeg Agar
1. Control
2. *Salmonella* serotype Typhimurium

Further Reading

1. Washington J. A., 1981, Laboratory Procedures in Clinical Microbiology, Springer - verlag, New York.
2. Eaton A.D., Clesceri L.S. and Greenberg A.E., (Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st ed, APHA, Washington, DC.
3. Bacteriological Analytical Manual, 1980, U.S. Food and Drug Administration (FDA), Washington, D.C.
4. Murray PR, Baron, Pfaller and Yolken 2003, In Manual of Clinical Microbiology 8th ed., (Eds.), ASM, Washington, DC.

5. Vanderzant C. and Splittstoesser D. (Eds.), 1992, Compendium of Methods for the Microbiological Examination of Foods, 3rd ed., APHA, Washington, D.C.
6. MacFaddin J.F., 2000(Ed). Biochemical Tests for identification of Medical Bacteria, 3rd Edition, Lippincott, Williams & Wilkins, Newyork.

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