BISMUTH SULPHITE AGAR TM 039

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

Composition

Ingredients	Gms/Ltr.
Agar	20.00
Peptone	10.00
Bismuth sulphite	8.00
Beef extract	5.00
Dextrose	5.00
Disodium phosphate	4.00
Ferrous sulphate	0.30
Brilliant Green	0.025

* Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers below 25°C and protect from direct Sunlight.

Instructions for Use

Dissolve 52.3gms in 1000ml of distilled water. Gently heat to boiling with gentle swirling and dissolve the medium completely. **DO NOT AUTOCLAVE**. Cool to 45-50°C prior to dispense.

Appearance: Greenish yellow colour, solution opalescent with flocculent precipitate
pH (at 25°C): 7.7 ± 0.2

Principle

BISMUTH SULPHITE AGAR is used for the selective isolation of *Salmonella* spp. *Salmonella* constitute the most taxonomically complex group of bacteria among Enterobacteriaceae. Bismuth Sulphite Agar is a modification of **Wilson** and **Blair** formula. 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. Peptone and Beef extract serve as sources as carbon, nitrogen, vitamins and essential growth factors. Disodium phosphate acts as a buffereing agent. Dextrose is a fermentable carbohydrate source of the growth of microorganisms. Bismuth Sulphite Indicator and Brilliant Green are complementary, inhibiting to Gram-positive bacteria and coliforms, allowing *Salmonella* spp. to grow. Ferrous Sulphate is used for H_2S production. When H_2S is present, the iron incorporated in medium is precipitated, and positive cultures produce the characteristic brown to black color with metallic sheen. Agar is the solidifying agent.

Interpretation

Cultural characteristics observed after inoculating (10^3 - 10^5CFU / ml), on incubation at 35-37^{0}C for 40 - 48 hours.

Microorganisms	ATCC	Inoculum (CFU/ml)	Growth	Recovery (%)	Appearance of colony
Salmonella enteritidis	13076	10^3 - 10^5	Good-luxuriant	>=50%	Black with metallic sheen
Salmonella typhi	6539	10^3 - 10^5	Good-luxuriant	>=50%	Black with metallic sheen

Escherichia coli	25922	10^3	None - poor	<=10%	Brown – green (depends on the inoculum density)
Shigella flexneri	12022	10^3	None - poor	<=10%	Brown
Enterobacter aerogenes	13048	10^3	None- Poor	<=10%	Brown – green

References

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3. Wilson, W. J., and E. M. Blair. Use of a glucose bismuth sulphite iron medium for the isolation of *B. typhosus* and *B. proteus*. J. Hyg. 26:374-391. (1927).
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