Technical Information

Salmonella Differential Agar, Modified

Product Code: DM 2082

Application: - Salmonella Differential Agar media are recommended for identification and differentiation of *Salmonella* species from members of *Enterobacteriaceae*, especially *Proteus* species.

Composition**

Ingredients	Gms / Litre
Part A	-
Peptone, special	8.000
Yeast extract	3.000
Sodium deoxycholate	1.000
Sodium chloride	5.000
B. C. Indicator	2.000
Agar	12.000
Part B	-
Propylene glycol	10.000
Final pH (at 25°C)	7.3±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Salmonella Differential Agar is slight modification of original formulation of Rambach (1) recommended for differentiation of Salmonella species from *Proteus* species and other enteric bacteria. Production of acid from propylene glycol is a novel characteristic of *Salmonella* species and is utilized in these media. Many of the media such as SS Agar, XLD Agar recommended for the identification and differentiation of *Salmonella* species (2) are based on lactose fermentation and hydrogen sulphide production.

Peptone special and yeast extract supports the luxuriant growth of bacteria while sodium deoxycholate enhances gram-positive organisms rendering the medium selective for enteric microorganisms. The BC indicator turns pink in presence of acid produced from propylene glycol. Lactose fermenting ability is determined by using an indicator, which can detect the presence of enzyme ß-galactosidase. Lactose fermenting (ß-galactosidase producing) bacteria yield blue violet coloured colony (3). Salmonellae produce acid from propylene glycol and on combining with the pH indicator gives typical pink red colonies. Other enteric gram-negative bacteria form colourless colonies. *Salmonella* Typhimurium and *Salmonella* Enteritidis produce pink to red colonies. Specimen should be enriched in an appropriate selective enrichment broth. This enriched culture is then inoculated on Salmonella Differential Agar, Modified and incubated at 35-37°C for 24-48 hours.

Methodology

Suspend 10 grams of dehydrated media fluid of **Part B** in 1000 ml distilled water. Add 31 grams of dehydrated powder media **Part A**. Mix thoroughly and heat to boil to dissolve the medium completely. DO NOT AUTOCLAVE. Cool to 45-50°C. Shake well before pouring into sterile Petri plates.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.0% Agar gel.

Colour and Clarity
Light orange coloured, clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 3.1% w/v aqueous solution of Part A at 25°C. pH : 7.3±0.2

pH Range
7.10-7.50

Cultural Response
DM 2082: Cultural characteristics observed after an incubation at 35-37°C for 24-48 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Escherichia coli ATCC 25922	50-100	luxuriant	>=50%	blue-green
Klebsiella pneumoniae ATCC 13883	50-100	luxuriant	>=50%	blue-violet
Proteus mirabilis ATCC 25933	50-100	luxuriant	>=50%	colourless
Salmonella Typhimurium ATCC 14028	50-100	luxuriant	>=50%	pink-red
Salmonella Enteritidis ATCC 13076	50-100	luxuriant	>=50%	pink-red
Salmonella Typhi ATCC 6539	50-100	luxuriant	>=50%	colourless
Shigella flexneri ATCC 12022	50-100	luxuriant	>=50%	colourless
Staphylococcus aureus ATCC 25923	>=10^3	inhibited	0%	-

Storage and Shelf Life

Dried Media: Store dehydrated powder in tightly closed container and prepared medium at 2-8°C. Use before expiry period on the label.
Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Rambach A., 1990, Appl Environ. Microbiol., 56:301.
2.Eaton A.D., Clesceri L.S., Rice E. W. and Greenberg A W., (Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st Ed., APHA, Washington, D.C.
3. Greenwald R., Henderson R.W. and Yappaw S., 1991, J. Clin. Microbiol. 29:2354.

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