Technical Information

M-HD Endo Broth

Product Code: DM 2110

Application: - M-HD Endo Broth is recommended for the detection of coliforms in water samples by membrane filter technique.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	10.000
Peptic digest of animal tissue	10.000
Yeast extract	3.000
Lactose	20.000
Sodium deoxycholate	0.200
Sodium chloride	5.000
Dipotassium phosphate	6.000
Sodium sulphite	2.100
Basic fuchsin	0.840
Final pH (25°C)	7.5±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

The coliform group consists of several genera of bacteria belonging to the family *Enterobacteriaceae*. Estimation or enumeration of these bacteria in water can be done rapidly & more accuratly by employing the membrane filter technique. In membrane filter technique, the coliform group is defined as facultative anaerobic, gram-negative, non-spore forming rod shaped bacteria that develop red colonies with a metallic sheen at 35°C within 24 hours on an Endo- type medium containing lactose [(1)]. M-HD Endo Broth formulated as per Hajna and Damon [(2)] is used for the estimation of coliforms in water samples by membrane filtration technique [(3)].

M-HD Endo Broth contains casein enzymic hydrolysate, peptic digest of animal tissue and yeast extract as source of essential nutrients including vitamins and B-complex nutrients. Lactose is the fermentable carbohydrate and energy source. Sodium deoxycholate is the selective agent, which helps to inhibit non-coliform bacteria. Sodium chloride maintains the osmotic equilibrium of the medium while dipotassium phosphate buffers the medium. Lactose-fermenting coliforms produce aldehyde and acid. The aldehyde in turn liberates fuchsin from the fuchsin-sulphite complex, giving rise to red coloured colonies. With *Escherichia coli,* this reaction is more pronounced as the fuchsin crystallizes, exhibiting a permanent greenish metallic luster (fuchsin luster) to the colonies.

Sterile cotton absorbent pads are saturated with about 2 ml of M-HD Endo Broth. Membrane filter through which the test water sample has been passed is aseptically placed on these saturated absorbent cotton pads containing the medium. Following an incubation at 35-37°C for 18-24 hours, lactose fermenting coliforms produce pink to rose red colonies with similar colouration to the medium. Non-lactose fermenting coliforms form colourless to faint colonies against the pink background.

Methodology

Suspend 57.14 grams of powder media in 1000 ml distilled water. Shake well & heat if necessary to dissolve the medium completely. Dispense as desired. DO NOT AUTOCLAVE. Use on the same day of preparation.

Quality Control

Physical Appearance
Light pink to purple homogeneous free flowing powder
Colour and Clarity of prepared medium
Light pink coloured clear solution without any precipitate
Reaction
Reaction of 5.7 1% w/v aqueous solution at 25°C. pH : 7.5±0.2
pH range 7.30-7.70
Cultural Response/ characteristices
DM 2110: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Colour of Colony (on Membrane filter)
Escherichia coli ATCC 25922	50-100	luxuriant	red to black with metallic sheen
Enterobacter aerogenes ATCC 13048	50-100	luxuriant	pink to red
Salmonella Typhi ATCC 6539	50-100	luxuriant	colourless
Staphylococcus aureus ATCC 25923	>=10^3	inhibited	

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° in sealable plastic bags for 2-5 days.

Further Reading

1. Eaton A. D., Clesceri L. S. and Greenberg A. E., (Ed.), 1998, Standard Methods for the Examination of water and Wastewater, 20th Ed. American Public Health Association, Washington, D.C.
2. Hajna A. A. and Damon S. R., 1954, Public Health Rep., 69, 58
3. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.

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