Technical Information

M-Endo MiVeg Agar LES

Product Code : VM2106

Application:- M-Endo MiVeg Agar LES is used for enumeration of coliforms in water using a two step membrane filtration method.

Composition

Ingredients	Gms / Litre
MiVeg hydrolysate	3.7
MiVeg peptone	3.7
MiVeg hydrolysate No. 1	7.5
Yeast extract	1.2
Lactose	9.4
Dipotassium phosphate	3.3
Monopotassium phosphate	1.0
Sodium chloride	3.7
Synthetic detergent No. III	0.1
Sodium lauryl sulphate	0.05
Sodium sulphite	1.6
Basic fuchsin	0.8
Agar	15.0
Final pH (at 25°C)	7.2±0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

M-Endo MiVeg Agar LES is prepared by using vegetable peptones in place of animal based peptones thus the medium becomes free from BSE/TSE risks. This medium is the modification M-Endo Agar LES (Lawrence, Experimental Station) which is formulated according to the formulation of McCarthy, Delaney and Grasso (1) and is used for the enumeration of coliforms in water (2).For the coliform enumeration, Membrane filter technique is more reliable and precise than MPN multiple tube test. A two-stage process has been suggested for enrichment to get a non-toxic environment for maximum revival of the coliforms. It is like the conventional medium is based on the medium described by Endo for the differentiation of lactose fermenters from non-fermenters (3).

This medium contains MiVeg hydrolysate, MiVeg hydrolysate No.1, MiVeg peptone and yeast extract which supplies essential nutrients especially nitrogenous for the coliforms. Lactose serve as the fermentable carbohydrate. Sodium sulphite, Synthetic detergent No. III and basic fuchsin inhibit the growth of gram-positive organisms. Phosphates present in the medium maintains the buffering system. Coliforms ferment the lactose and form red colonies and similar colouration of the medium while Lactose non-fermenters form colourless colonies.

In the first step of enrichment, the pad is impregnated with Lauryl Tryptose MiVeg Broth (VM1080). Membrane filter through which water sample is passed is aseptically placed on it and incubated without inverting for 2 hours at 35°C in a humid atmosphere. After incubation, the membrane filter is aseptically transferred to the M-Endo MiVeg Agar LES plate and incubated at 35°C for 24 hours. Alternatively membrane filter pad can be placed inside the lid of petri plate of M-Endo MiVeg Agar LES and then impregnated with 2 ml Lauryl Tryptose MiVeg Broth (VM1080) and incubated for 1 -1½ hour at 35°C. In the second step, membrane filter is transfered directly on the agar surface and incubated as described above. Presumptive coliforms produce golden green colonies with metallic sheen within 24 hours of incubation. If the inoculum is too heavy, the sheen will be suppressed. Sometimes non-coliform organisms may produce typical colonies with sheen, coliforms may also occasionally produce atypical colonies (dark red without sheen).

Coliform density calculation : Note the coliform density in terms of total coliforms/100 ml. Extrapolate the count using membrane filters with 20-80 coliform colonies but not more than 200 of all types per membrane.The formula for calculating the count is as follows:

Total coliform colonies/100 ml = coliform colonies x 100 / ml of sample filtered

Methodology

Suspend 51 grams of powder media in 980 ml distilled water. Mix thoroughly. Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE. Cool to 45°C and aseptically add 20 ml of 95% ethanol. Mix and dispense 4 ml amounts into 60 mm petri plates. In large plates, use sufficient medium to give an 1.5 mm depth. DO NOT EXPOSE PLATES TO DIRECT SUNLIGHT.

Caution : Basic fuchsin is a potential carcinogen and care must be taken to avoid inhalation and contamination of the skin.

Quality Control

Physical Appearance

Light purple to purple coloured, homogeneous, free flowing powder.

Gelling

Firm, comparable with 1.5% Agar gel.

Colour and Clarity of prepared medium

Red coloured, slightly opalescent gel forms in petri plates.

Reaction

Reaction of 5.1 % w/v aqueous solution with 2% v/v ethanol is pH: 7.2 ±0.2 at 25°C

pH range

7.0-7.4

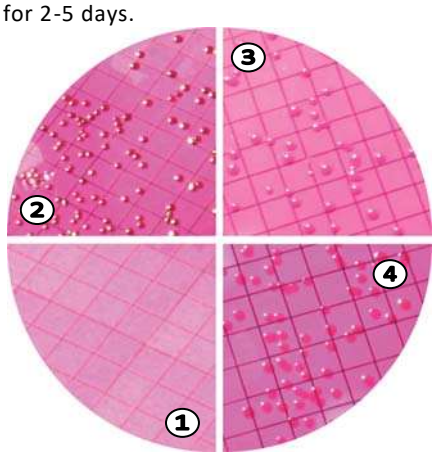
Cultural Response/Characteristics

Cultural characteristics observed after an incubation at 35-37°C for 20-24 hours.

Organisms (ATCC)	Inoculum (CFU)	Growth	Colour of colony
Enterobacter aerogenes (13048)	10 - 100	luxuriant	red to black with no sheen
Escherichia coli (25922)	10 - 100	luxuriant	red to black with seen
Salmonella serotype Typhimurium (14028)	10 - 100	luxuriant	colourless to light pink
Salmonella serotype Typhi (6539)	10 - 100	luxuriant	colourless tos lightly pink
Staphylococcus aureus (25923)	10 - 100	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: 2-8^0 in sealable plastic bags for 2-5 days.



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1. Control
2. *Escherichia coli*
3. *Salmonella* serotype Typhimurium
4. *Enterobacter aerogenes*

Further Reading

1. McCarthy J.A., Delaney J.E. and Grasso R., 1961, Water and Sewage Works, 108:238.
2. American Public Health Assiciation, 1980, Standard Methods for the Examination of the Water And Wastewater, 15th ed., APHA Inc., Washington, D.C.
3. Endo, 1904, Zentrabl. Bakteriol. Abt. I. Orig., 35:109.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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