M-ENDO AGAR LES

APPLICATION	M-Endo Agar Les is used for enumeration of coliforms in water using a two step membrane filter method
PRINCIPLE AND INTERPRETATION	It is possible to remove bacteria from fluids by passing them through filters with such small pore size that bacteria are arrested. This filtration technique enables fairly large volumes of water to pass rapidly under pressure, but prevents the passage of any bacteria present. These nutrients are retained on the surface of the membrane which is then brought into contact with suitable liquid nutrients. These diffuse upwards through the pores thereby inducing the organisms to grow as surface colonies which can be counted [1]. Endo Medium was first developed by Endo to differentiate between lactose-fermenters and non-fermenters [2] This medium employed sodium sulphite and basic fuchsin instead of bile salts to achieve inhibition of gram-positive bacteria (2). M-Endo Agar, LES is a modification of the original medium and is formulated as per McCarthy et al of Lawrence Experimental Station (LES) [3] for testing coliforms in water using a two-step membrane filter procedure, wherein Lauryl Sulphate Broth (M080) is used as the primary enrichment medium. This medium is recommended by APHA for testing coliforms in drinking and in bottled water[4] [5]Presumptive coliform bacteria will form red colonies with metallic sheen after an incubation at 35-37°C for 24 hours. Casein enzymic hydrolysate, tryptose, peptic digest of animal tissue and yeast extract provide essential nutrients especially nitrogenous for the coliforms. Lactose is the fermentable carbohydrate. Sodium sulphite, sodium deoxycholate and basic fuchsin inhibit the growth of gram-positive organisms. Phosphates buffer the medium. Coliforms ferment lactose and the resulting acetaldehyde reacts with sodium sulphite and basic fuchsin to form red colonies and similar colouration of the medium. Lactose non-fermenters form colourless colonies.
MEDIUM COMPOSITION*	Casein enzymic hydrolysate ……..3.70 g/l Peptic digest of animal tissue…… ……...……3.70 g/l Tryptose ……..……..7.50 g/l Yeast extract ……...…1.20 g/l Lactose ……..……..9.40 g/l Dipotassium phosphate ……..……..3.30 g/l Monopotassium phosphate ……..……..1.00 g/l Sodium chloride ……..……..3.70 g/l Sodium deoxicholate ……..……..0.10 g/l Sodium lauryl sulphate… ……0.050 g/l Sodium sulphite ……...1.60 g/l Basic fuchsin ……...0.80 g/l Agar ……15.00 g/l Final pH 7.2 ± 0.2 *Adjusted and/or supplemented as required to meet performances criteria
STORAGE	+2°/+8°C Protect from light, excessive heat, moisture and freezing

[1] Cruickshank R., Duguid J.P., Marmion B.P., Swain R.H.A., (Eds.), Medical Microbiology, 1975, 12th ed., Vol II, Churchill Livingstone.
[2] Endo S., 1904, Zentralbl. Bakteriol., Abt 1 Orig. 35:109-110
[3] McCarthy J.A., Delaney J.E. and Grasso R., 1961, water and Sewage works, 108:238
[4] Eaton A.D. Clesceri L.S. and Greenberg A.W. (Eds.), 2005, Standard methods for the Examination of Water and Wastewater, 21st ed., APHA, Washington D.C.
[5] Downes F.P. and ito K., (Eds), 2001, Compendium of methods for the Microbiological Examination of Foods, 4th Ed., American Public Health Association, Washington D.C.

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<table>
<tr><td>QUALITY CONTROL</td><td>
<table>
<tr><td colspan="3">Growth Promotion Test: 10-100 viable microorganisms[6]</td></tr>
<tr><td>Control strain</td><td>Incubation Conditions</td><td>Specifications</td></tr>
<tr><td>E. coli
ATCC 8739</td><td>24 h
at 32.5 ± 2.5°C</td><td>Luxuriant growth. Colonies red to black coloured with sheen</td></tr>
<tr><td>E.aerogenes
ATCC 13048</td><td>24 h
at 32.5 ± 2.5°C</td><td>Luxuriant growth. Colonies red</td></tr>
<tr><td>S. aureus
ATCC 6538</td><td>48 h
at 32.5 ± 2.5°C</td><td>Inhibited</td></tr>
<tr><td colspan="2">Sterility control</td><td>no growth</td></tr>
<tr><td colspan="2">Appearance</td><td>Red coloured, clear to slightly opalescent gel forms in plates</td></tr>
</table>
</td></tr>
<tr><td>BARCODE</td><td>Data matrix code is composed of 20 digits:

Digits 1→2 Media code
Digits 3→7 Batch number
Digits 8→9 Sub-batch number
Digits 10→14 Progressive number
Digits 15→20 Expiry Date (DDMMYY)</td></tr>
<tr><td>GENERAL WARNING NOTES</td><td>Device must be handled according to asepsis precautions, of utilization of culture media is strictly referred to the type of analysis that must be done. Please refer to specific norms and procedures. Do not use if device is broken. Do not use if media shows accidental contamination signs. Do not utilize after expiry date. Let device reach room temperature before utilizing. Results interpretation must be done by qualified personnel, who must consider context of use.
Disposal of waste must be carried out according to national and local regulations in force.</td></tr>
</table>

[6] For *E.coli* ≥100 viable microorganisms

M-ENDO AGAR LES

This product is available in:

- **Non Gamma irradiated media plates**

MODEL	PRODUCT CODE	ORDER CODE	DESCRIPTION	SHELF LIFE
Ø90mm	1106/10	1106/10.100 (100 pcs/pack)	**Filling volume:** 30ml **Packaging**: single wrapped (S.W.)	6 months

Customized filling volumes and formulations are available upon request
To receive information please
contact **info@cpcbiotech.it**