Block 5, Street 9 inside The Ismailia free zone. Ismailia- Egypt
Post Code-41511
Tel.-Fax: +202 21813500/ +202 21813600
Mob.: +2 01211550941/ +2 01119225860
E-mail: sales@arenabioscientific.com
Website: www.arenabioscien.com

M-Endo Agar LES

M - Endo Agar LES is designed for enumerating coliforms in water by membrane filtration.

REF: BS.1/NZ01.100.0100	100 Gram	REF: BS.1/NZ01.250.0250	250 Gram
REF: BS.1/NZ01.500.0500	500 Gram		

PRINCIPLE AND INTERPERTATION :

The membrane filtration technique allows for the efficient removal of bacteria from fluids by passing large volumes of water under pressure through filters with pores small enough to arrest the organisms. These captured bacteria and nutrients are retained on the membrane surface, which is then brought into contact with liquid nutrients that diffuse upward through the pores to induce the growth of countable surface colonies (1). Originally developed by Endo to differentiate between lactose-fermenters and non-fermenters (2), this medium utilizes sodium sulphite and basic fuchsin instead of bile salts to inhibit Gram-positive bacteria (3). The M-Endo Agar, LES is a specific modification formulated by McCarthy et al. of the Lawrence Experimental Station (4) for testing coliforms in drinking and bottled water as recommended by the APHA (1, 5). The medium contains Tryptone, Tryptose, Peptone, and yeast extract for essential nitrogenous nutrients, while lactose serves as the fermentable carbohydrate and phosphates provide buffering. Selectivity is maintained by sodium sulphite, sodium deoxycholate, and basic fuchsin, which inhibit Gram-positive growth. During the two-step procedure, a membrane filter is first enriched on a pad saturated with Lauryl Sulphate Broth (M080) for 2 hours at 35°C, then transferred to M-Endo Agar LES. Coliforms ferment the lactose to produce acetaldehyde, which reacts with the sulphite and basic fuchsin to form distinctive red colonies with a metallic sheen after incubation at 35-37°C for 24 hours, while non-fermenters remain colorless. Alternatively membrane filter pad can be placed inside the lid of Petri plate of M-Endo Agar LES and then impregnated with 2 ml Lauryl Sulphate Broth (M080) and incubated for 1 - 1½ hours at 35°C. In the second step, the prepared membrane filter is kept directly on the agar surface and incubated as described above. Presumptive coliforms produce golden green colonies with metallic sheen within 24 hours of incubation. 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 /ml of sample filtered x 100.

MEDIA COMPOSITION

Item	Formula per liter of medium
peptone	3.7 gm
Trypton	3.7gm
Tryptose	7.5 gm
Lactose	9.4 gm
Yeast extract	1.2 gm
potassium dihydrogen phosphate	1.0 gm
dipotassium dihydrogen phosphate	3.3 gm
Basic fuchsin	0.8 gm
Sodium chloride	3.7 gm
Sodium deoxycholate	0.1 gm
Sodium sulphite anhydrus	1.6 gm
Sodium lauryl sulphate	0.05 gm
Agar	15.0 gm

Final pH 7.2 ± 0.2

PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves, glasses,).
- Do not pipette by mouth.
- In case of contact with eyes or skin; rinse immediately with plenty
- of soap and water. In case of severe injuries; seek medical advice

immediately.

Respect country requirement for waste disposal.
S56: dispose of this material and its container at hazardous or special waste collection point.
S57: use appropriate container to avoid environmental contamination.
S61: avoid release in environment.

For further information, refer to the m Endo Agar LES material safety data sheet.

Limitations

1. Due to varying nutritional requirements, some strains may be encountered that grow poorly.
2. If the inoculum is too heavy, the sheen may be suppressed.

STORAGE AND STABILITY

BioScien M-Endo Agar LES Store between 10-30°C in a tightly closed container and the prepared medium at 15-25°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use Product performance is best if used within stated expiry period.

PREPARATION

Suspend 51.05 grams in 980 ml purified/distilled water. Heat to boiling to dissolve the medium completely. **DO NOT AUTOCLAVE.** Cool to 45-50°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 1.5 mm depth. **DO NOT EXPOSE PLATES TO DIRECT SUNLIGHT.**

Deterioration

The color of BioScien Purple, homogeneous free flowing powder.

EQUIPMENT REQUIRED NOT PROVIDED

- Sterile petri dishes
- Incubator
- Autoclave

PERFORMANCE CHARACTERISTICS

Cultural characteristics observed after an incubation at 35-37°C for 22 - 24 hours.

Organisms (ATCC)	Growth	Colour of colony
Escherichia coli ATCC 25922	luxuriant	pink with metallic sheen
Staphylococcus aureus ATCC 25923	Inhibited	-
Salmonella Typhimurium 14028	luxuriant	colourless to light pink

QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control still out of range please contact ***BioScien*** technical support.

REFERENCE

1. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), 2015, Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C.
2.Cruickshank R., Duguid J. P., Marmion B. P., Swain R. H. A., (Eds.), Medical Microbiology, 1975, 12th Ed. Vol. II, Churchill Livingstone
3.Endo S., 1904, Zentralbl. Bakteriol., Abt. 1, Orig.35:109-110.
4.Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
5.Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
6.McCarthy J. A., Delaney J. E. and Grasso R., 1961, Water and Sewage Works, 108:238.
7.Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.

SYMBOLS IN PRODUCT LABELLING

IVD	For in-vitro diagnostic use	Σ	Number of <n> test in the pack
LOT	Batch Code/Lot number		Caution
REF	Catalogue Number		Do not use if package is damaged
	Temperature Limitation		Consult Instruction for use
	Expiration Date		
	Manufactured by		