Technical Information

M-PA Agar Base

Product Code: DM 2121

Application: - M-PA Agar Base is recommended for the detection and isolation of *Pseudomonas aeruginosa* by membrane filter technique.

Composition**

Ingredients	Gms / Litre
L-Lysine hydrochloride	5.000
Sodium chloride	5.000
Yeast extract	2.000
Xylose	2.500
Sucrose	1.250
Lactose	1.250
Ferric ammonium citrate	0.800
Sodium thiosulphate	6.800
Phenol red	0.080
Agar	15.000
Final pH (25°C)	7.1±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

The MPN (Most Probable Number) technique results in satisfactory recovery levels of Pseudomonas aeruginosa , but is not usable for the testing of large-volumes water samples and they also lack precision for the recovery of Pseudomonas aeruginosa .

Devised by Levin and Cabelli M-PA Agar is as a selective membrane filter medium for Pseudomonas aeruginosa [1]. Most of the filter media used for the recovery of P.aeruginosa lack specificity and are of limited value when heterogeneous microbial flora is present in the water samples is large quantity. The original medium was modified by increasing the pH [2] and changing the content or concentration of ingredients [3]. This media is included in part 914 C, Membrane Filter Technique for P.aeruginosa (Tentative) in the 16th / 19th Edition of Standard Methods for the Examination of Water and Waste water [4].

Yeast extract, lysine and carbohydrates provide nitrogeneous compounds, energy sources and vitamins required for bacterial metabolism. Sodium chloride maintains osmotic equilibrium. Inorganic salts provide essential ions. Kanamycin inhibits protein synthesis in gram-positive organisms [5]. Cycloheximide (MS2202) inhibits fungal flora. Nalidixic acid blocks replication of susceptible gram-negative bacteria [5]. Phenol red is the pH indicator which turns yellow under acidic conditions due to fermentation of the carbohydrates.

After filtration of the water sample through a sterile 0.45 µm gridded filter, place the membrane filter on the surface of plates of M-PA Agar Base taking care to avoid the entrapment of bubbles between the agar and filter surface. Incubate for 24 hours at 41.5±0.5°C in an aerobic atmosphere. Optimal colony density on membrane filters is 20-200 colonies. All colonies on the filter are counted when the density is 2 or fewer per square; the average of 10 squares is determined when the count is 3-10 colonies per square and the average of 5 squares is determined when the count is 10-20 colonies per square. The average count per square is multiplied by 100 times the reciprocal of the dilution to give colonies per ml.

Methodology

Suspend 39.68 grams of powder media of DM2121 in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (12 1°C) for 15 minutes. Cool to 50°C and aseptically add rehydrated contents of 1 vial of M - PA Selective Supplement (MS2202). Mix well and use as desired.

Quality Control

Physical Appearance
Light yellow to pink homogeneous free flowing powder
Gelling
Firm, comparable with 1.5% Agar gel
Colour and Clarity of prepared medium
Orange red coloured clear to slightly opalescent gel forms in Petri plates
Reaction
Reaction of 3.97% w/v aqueous solution at 25°C. pH : 7.1±0.2
pH range 6.90-7.30
Cultural Response/ characteristices
DM 2121: Cultural characteristics observed after an incubation at 41.5 ± 0.5°C for upto 72 hours with added M-PA Selective Supplement (MS2202)

Organism	Inoculum (CFU)	Growth	Colour of medium
Escherichia coli ATCC 25922	>=10^3	inhibited	
Klebsiella pneumoniae ATCC 13883	>=10^3	inhibited	
Pseudomonas aeruginosa ATCC 27853	50-100	good-luxuriant	pink
Salmonella Typhi ATCC 6539	>=10^3	inhibited	
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. Levin M. A. and Cabelli V. J., 1972, Appl. Microbiol., 24:864.
2. Carson L. A., Peterson M, J., Favero M. S., Doto I. L., Collins D. E. and Levin M. A., 1975, Appl. Microbiol., 30:935.
3. Dutka B. J. and Kwan K. K., 1977, Appl. Environ. Microbiol., 33:240.
4. Greenberg A. E. , Trussell R. R. and Clesceri L. S., (Eds.), 1985, Standard Methods for the Examination of Water and Wastewater, 16th / 19th Ed., APHA, Washington, DC.
5. Estevez R. A., 1984, Bacteriologic plate media: review of mechanisms of action. Lab. Med. 15:258.

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