# Endo Agar, Special

**M029R**

Endo Agar, Special is recommended for the detection of coliform and other enteric organisms.

## Composition**

| Ingredients | Gms / Litre |
|---|---|
| Peptone, special | 11.500 |
| Lactose | 12.900 |
| Dipotassium phosphate | 0.480 |
| Monopotassium phosphate | 0.220 |
| Sodium chloride | 3.600 |
| Sodium sulphite | 0.860 |
| Sodium lauryl sulphate | 0.010 |
| Basic fuchsin | 0.830 |
| Agar | 9.600 |
| Final pH ( at 25°C) | 7.3±0.2 |

**Formula adjusted, standardized to suit performance parameters

## Directions

Suspend 40.0 grams in 1000 ml distilled water. Boil to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Caution: Basic Fuchsin is a potential Carcinogen and care should be taken to avoid inhalation of the powdered dye and contamination of the skin.

## Principle And Interpretation

Endo (1) had first developed a culture medium for differentiation of lactose fermentors and non-fermenters and further developed as todays Endo Agar (2). Endo agar is used for microbiological examination of potable water and waste water, dairy products and food (3,4,5).

Sodium sulphite and basic fuchsin has inhibitory effect on gram-positive microorganisms. Sodium Lauryl sulphate inhibits many organisms other than coliforms. Lactose fermenting coliforms produce aldehyde and acid. The aldehyde in turn liberates fuchsin from the fuchsin-sulphite complex, giving rise to a red colouration of colonies. With *Escherichia coli* this reaction is very pronounced that the fuchsin crystallises, exhibiting to the colonies a permanent greenish metallic lustre (fuchsin lustre). The phosphates buffer the medium. Peptone special provides essential nutrients especially nitrogenous for the coliforms.

## Quality Control

**Appearance**
Light pink to purple homogeneous free flowing powder

**Gelling**
Firm,comparable with 0.96% Agar gel.

**Colour and Clarity of prepared medium**
Pink Clear to slightly opalescent gel with a slight precipitate forms in Petri plates.

**Reaction**
Reaction of 4.0% w/v aqueous solution at 25°C. pH : 7.3±0.2

**pH**
7.10-7.50

**Cultural Response**
Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

**Cultural Response**

| Organism | Growth | Inoculum (CFU) | Recovery | Colour of Colony |
|---|---|---|---|---|
| **Cultural Response** | | | | |
| *Bacillus subtilis ATCC 6633* | inhibited | >=$10^3$ | 0% | |
| *Enterobacter aerogenes ATCC 13048* | good-luxuriant | 50-100 | >=50% | pink |
| *Enterococcus faecalis ATCC 29212* | none-poor | 50-100 | <=10% | pink, small |
| *Escherichia coli ATCC 25922* | good-luxuriant | 50-100 | >=50% | pink to rose red with metallic sheen |
| *Klebsiella pneumoniae ATCC 13883* | good-luxuriant | 50-100 | >=50% | pink, mucoid |
| *Salmonella Typhi ATCC 6539* | good-luxuriant | 50-100 | >=50% | colourless to pale pink |
| *Staphylococcus aureus ATCC 25923* | inhibited | >=$10^3$ | 0% | |
| *Pseudomonas aeruginosa ATCC 27853* | good-luxuriant | 50-100 | >=50% | colourless, irregular |
| *Proteus vulgaris ATCC 13315* | good-luxuriant | 50-100 | >=50% | colourless to pale pink |
| *Shigella sonnei ATCC 25931* | good-luxuriant | 50-100 | >=50% | colourless to pale pink |

## Storage and Shelf Life

Store below 30°C in tightly closed container and prepared medium at 2 – 8°C away from light to avoid photo-oxidation. Use before expiry date on the label.

## Reference

1.Endo, 1904, Zentralbl. Bakteriol., Abt. 1., Orig., 35:109.
2.Levin and Schoenlein, 1930, A Compilation of Culture Media for the Cultivation of Microorganisms, Williams and Wilkins, Baltimore.
3.Greenberg, Trussell and Clesceri (ed.), 1998, Standard Methods for the Examination of Water and Wastewater, 20th ed., APHA, Washington, D.C.
4.Richardson (ed.), 1992, Standard Methods for the Examination of Dairy Products, 16th ed., APHA, Washington, D.C.
5.Speck M., 1984, Compendium of Methods for the Microbiological Examination of Foods, 3rd ed., APHA, Washington, D.C.

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