



Endo Agar w/ NaCl

M1258

Endo Agar w/ NaCl is used for detection and isolation of pathogenic enteric bacilli

Composition**

Ingredients	Gms / Litre
Peptone, special	8.000
Lactose	10.000
Sodium chloride	3.000
Dipotassium phosphate	2.000
Sodium sulphite	2.500
Basic fuchsin (pararosaniline)	0.200
Agar	12.000
Final pH (at 25°C)	7.5±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 37.7 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and pour into sterile Petri plates. If the solidified culture medium is somewhat too red, then to remove the colour, add a few drops (max. 1ml/litre) of a freshly prepared 10% Sodium sulphite solution and boil.

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 Agar was developed by Endo to differentiate gram-negative bacteria on the basis of lactose fermentation, while inhibiting gram-positive bacteria (1). Endo was successful in inhibiting gram-positive bacteria on his medium by the incorporation of sodium sulphite and basic fuchsin Endo Agar w/ NaCl is prescribed in the regulations for the execution of the German Meat Inspection Law (2).

The medium contains peptone special which provide nitrogen, carbon, vitamins and minerals required for bacterial growth. Sodium sulphite and basic fuchsin inhibits most of the gram-positive bacteria. Lactose fermenting *Escherichia coli* and coliforms produce aldehyde and acid. The aldehyde liberates fuchsin from the fuchsin-sulphite complex and colonies of lactose fermenters appear dark red. Non-lactose fermenters show colourless colonies.

With *Escherichia coli*, this reaction is very pronounced as the fuchsin crystallizes, exhibiting a permanent greenish metallic luster (fuchsin luster) to the colonies. Medium should be stored away from light to avoid photo-oxidation.

Quality Control

Appearance

Light pink to purple homogeneous free flowing powder

Gelling

Firm, comparable with 1.2% Agar gel

Colour and Clarity of prepared medium

Orangish pink coloured, clear to slightly opalescent gel with fine precipitate forms in Petri plates.

Reaction

Reaction of 3.77% w/v aqueous solution at 25°C. pH : 7.5±0.2

pH

7.30-7.70

Cultural Response

M1258: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of Colony
Cultural Response				
<i>Bacillus subtilis</i> ATCC 6633	$\geq 10^3$	inhibited	0%	
<i>Enterobacter aerogenes</i> ATCC 13048	50-100	good-luxuriant	$\geq 50\%$	pink
<i>Enterococcus faecalis</i> ATCC 29212	50-100	none-poor	$\leq 10\%$	pink, small
<i>Escherichia coli</i> ATCC 25922	50-100	good-luxuriant	$\geq 50\%$	pink to rose red with metallic sheen
<i>Klebsiella pneumoniae</i> ATCC 13883	50-100	good-luxuriant	$\geq 50\%$	pink, mucoid
<i>Proteus vulgaris</i> ATCC 13315	50-100	good-luxuriant	$\geq 50\%$	colourless to pale pink
<i>Pseudomonas aeruginosa</i> ATCC 27853	50-100	good-luxuriant	$\geq 50\%$	colourless, irregular
<i>Salmonella Typhi</i> ATCC 6539	50-100	good-luxuriant	$\geq 50\%$	colourless to pale pink
<i>Shigella sonnei</i> ATCC 25931	50-100	good-luxuriant	$\geq 50\%$	colourless to pale pink
<i>Staphylococcus aureus</i> ATCC 25923	$\geq 10^3$	inhibited	0%	
<i>Enterobacter cloacae</i> ATCC 13047	50-100	good	40-50%	pink
<i>Salmonella Typhimurium</i> ATCC 14028	50-100	good-luxuriant	$\geq 50\%$	colourless
<i>Salmonella Enteritidis</i> ATCC 13076	50-100	good-luxuriant	$\geq 50\%$	colourless
<i>Shigella flexneri</i> ATCC 12022	50-100	good-luxuriant	$\geq 50\%$	colourless

Storage and Shelf Life

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

Reference

1. Endo S., 1904, Centralbl. Bakt. I. Orig., 35:109.
2. Deutsches Fleischbeschaugesetz: Anlage Zu § 20 Abs, 4: Vorschriften über die bakteriologische Fleischuntersuchung.

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