Endo Agar Modified, Granulated

GM1075

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

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	10.000
Dipotassium phosphate	2.500
Lactose	10.000
Sodium sulphite	3.300
Basic fuchsin	0.300
Agar	12.500
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 38.6 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. If the prepared medium is too red, then to remove the colour, add a few drops

(max. 1 ml/litre) of a freshly prepared 10% Sodium sulphite solution and boil.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 Agar was developed by Endo to differentiate gram-negative bacteria on the basis of lactose fermentation, while inhibiting gram-positive bacteria (1). Inhibition of the later was achieved without the use of bile salts as was traditionally used. Endo was successful in inhibiting gram-positive bacteria on his medium by the incorporation of sodium sulphite and basic fuchsin. The resulting Endo Agar, also known as Fuchsin Sulphite and Infusion Agar, was used to isolate the typhoid bacilli. Many modifications of this media have been done over the years. Endo Agar, modified is one of the modifications of Endo Agar.

The medium contains peptic digest of animal tissue that provide nitrogen, carbon, vitamins and minerals required for bacterial growth. Sodium sulphite and basic fuchsin has inhibitory effect on gram-positive microorganisms. 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 as the fuchsin crystallizes, exhibiting a permanent greenish metallic lustre (fuchsin lustre) to the colonies.

Quality Control

Appearance
Light pink to purple coloured granular medium

Gelling
Firm, comparable with 1.25% 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 3.86% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH
7.20-7.60

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

Cultural Response

Organism	Inoculum (CFU)	Growth	Recovery	Colour of Colony
Cultural Response				
Bacillus subtilis ATCC 6633	>=10^3	inhibited	0%	
Enterobacter aerogenes ATCC 13048	50-100	good-luxuriant	>=50%	pink
Enterococcus faecalis ATCC 29212	50-100	none-poor	<=10%	pink, small
Escherichia coli ATCC 25922	50-100	good-luxuriant	>=50%	pink to rose red with metallic sheen
Klebsiella pneumoniae ATCC 13883	50-100	good-luxuriant	>=50%	pink, mucoid
Proteus vulgaris ATCC 13315	50-100	good-luxuriant	>=50%	colourless to pale pink
Pseudomonas aeruginosa ATCC 27853	50-100	good-luxuriant	>=50%	colourless, irregular
Salmonella Typhi *ATCC 6539*	50-100	good-luxuriant	>=50%	colourless to pale pink
Shigella sonnei ATCC 25931	50-100	good-luxuriant	>=50%	colourless to pale pink
Staphylococcus aureus ATCC 25923	>=10^3	inhibited	0%	
Enterobacter cloacae ATCC 13047	50-100	good	40-50%	pink
Salmonella Typhimurium *ATCC 14028*	50-100	good-luxuriant	>=50%	colourless
Salmonella Enteritidis *ATCC13076*	50-100	good-luxuriant	>=50%	colourless
Shigella flexneri ATCC 12022	50-100	good-luxuriant	>=50%	colourless

Storage and Shelf Life

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

Reference

1. Endo, 1904, Zentralbl. Bakteriol., Abt. I. Orig., 35:109.

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