Endo Agar Modified

M1075

Intended Use:

For detection of coliform and other enteric organisms.

Composition**

Ingredients	g / L
Peptone	10.000
Dipotassium hydrogen 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 purified / 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 somewhat 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.

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 peptone 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.

Type of specimen

Clinical samples - Urine; Food and dairy samples; Water samples

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (2,3). For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (4,5).

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(6)

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

In Vitro diagnostic use. For professional use only. Read the label before opening the container. Wear protective gloves/ protective clothing/ eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture.Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations

1. Besides *Enterobacteriaceae,* other gram negative bacteria and yeasts may also grow.
2. Avoid exposure of the medium to light, as it may lead to photo oxidation and decrease productivity of the medium.

3. Overheating of the medium must be avoided, as it may destroy the productivity of the medium.
4. Further biochemical tests must be carried out for confirmation.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Light pink to purple homogeneous free flowing powder

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.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of Colony
** *Bacillus spizizenii* ATCC 6633 (00003*)	>=10^4	inhibited	0%	
# *Klebsiella aerogenes* ATCC 13048 (00175*)	50-100	good-luxuriant	>=50%	pink
Enterococcus faecalis ATCC 29212 (00087*)	50-100	none-poor	<=10%	pink, small
Escherichia coli ATCC 25922 (00013*)	50-100	good-luxuriant	>=50%	pink to rose red with metallic sheen
Klebsiella pneumoniae ATCC 13883 (00097*)	50-100	good-luxuriant	>=50%	pink, mucoid
## *Proteus hauseri* ATCC 13315	50-100	good-luxuriant	>=50%	colourless to pale pink
Pseudomonas aeruginosa ATCC 27853 (00025*)	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 subsp. *aureus* ATCC 25923 (00034*)	>=10^4	inhibited	0%	
Enterobacter cloacae ATCC 13047 (00083*)	50-100	good	40-50%	pink
Salmonella Typhimurium ATCC 14028 (00031*)	50-100	good-luxuriant	>=50%	colourless
Salmonella Enteritidis ATCC 13076 (00030*)	50-100	good-luxuriant	>=50%	colourless
Shigella flexneri ATCC 12022 (00126*)	50-100	good-luxuriant	>=50%	colourless

Key : (*) - Corresponding WDCM numbers. (#) - Formerly known as *Enterobacter aerogenes*

**Formerly known as *Bacillus subtilis* subsp. *spizizenii* ## Formerly known as *Proteus vulgaris*

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle inorder 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.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (2,3).

Reference

1. Endo, 1904, Zentralbl. Bakteriol., Abt. I. Orig., 35:109.
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3. 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.
4. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
5. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
6. Lipps WC, Braun-Howland EB, Baxter TE,eds. Standard methods for the Examination of Water and Wastewater, 24th ed. Washington DC:APHA Press; 2023.

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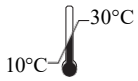
HiMedia Laboratories Pvt. Limited,
Plot No.C-40, Road No.21Y,
MIDC, Wagle Industrial Area,
Thane (W) -400604, MS, India

IVD *In vitro* diagnostic medical device



Storage temperature

EC REP CEpartner4U, Esdoornlaan 13,
3951DB Maarn, NL
www.cepartner4u.eu

CE CE Marking

Do not use if package is damaged

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