

TM 373 – ENDO AGAR BASE

INTENDED USE

For standard test of lactose fermenting coliforms.

PRODUCT SUMMARY AND EXPLANATION

Endo had first developed a culture medium for differentiation of lactose fermenters and lactose non-fermenters while inhibiting gram-positive bacteria. 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 is recommended by APHA as an important medium in the microbiological examination of water and wastewater, dairy products and foods. Endo Agar is used to confirm the detection and enumeration of coliform bacteria following presumptive test of drinking water. It is also used for the detection and isolation of coliforms and fecal coliforms from milk, dairy products and food.

COMPOSITION

Ingredients	Gms / Ltr
Peptone	10.000
Lactose	10.000
Dipotassium hydrogen phosphate	3.500
Sodium sulphite	2.500
Agar	12.000

PRINCIPLE

The medium consists of peptone which provide nitrogen, carbon, vitamins and minerals required for bacterial growth. Sodium sulphite and basic fuchsin (FD) 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.

INSTRUCTION FOR USE

- Dissolve 38.0 grams in 1000 ml purified / distilled water. Add 4 ml of 10% Basic Fuchsin.
- Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.
- If the solidified culture 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 before pouring into sterile Petri plates.

QUALITY CONTROL SPECIFICATIONS



Appearance of Powder	: Cream to yellow homogeneous free flowing powder.
Appearance of prepared medium	: After addition of Basic fuchsin: Orangish pink coloured, After addition of Basic fuchsin: clear to slightly opalescent gel with fine precipitate forms in Petri plates.
pH (at 25°C)	: 7.5 ± 0.2

INTERPRETATION

Cultural characteristics observed with added Basic fuchsin after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Colour of colony	Incubation Temperature	Incubation Period
<i>Bacillus subtilis subsp. spizizenii</i>	6633	$\geq 10^3$	Inhibited	0%	-	35-37°C	18-24 Hours
<i>Klebsiella aerogenes</i>	13048	50-100	Good-luxuriant	$\geq 50\%$	Pink	35-37°C	18-24 Hours
<i>Enterococcus faecalis</i>	29212	50-100	None-poor	$\geq 50\%$	Pink, small	35-37°C	18-24 Hours
<i>Escherichia coli</i>	25922	50-100	Good-luxuriant	$\geq 50\%$	Pink to rose red with metallic sheen	35-37°C	18-24 Hours
<i>Klebsiella pneumoniae</i>	13883	50-100	Good-luxuriant	$\geq 50\%$	Pink, mucoid	35-37°C	18-24 Hours
<i>Proteus vulgaris</i>	13315	50-100	Good-luxuriant	$\geq 50\%$	Colourless to pale pink	35-37°C	18-24 Hours
<i>Pseudomonas aeruginosa</i>	27853	50-100	Good-luxuriant	$\geq 50\%$	Colourless, irregular	35-37°C	18-24 Hours
<i>Salmonella Typhi</i>	6539	50-100	Good-luxuriant	$\geq 50\%$	Colourless to pale pink	35-37°C	18-24 Hours
<i>Shigella sonnei</i>	25931	50-100	Good-luxuriant	$\geq 50\%$	Colourless to pale pink	35-37°C	18-24 Hours

<i>Staphylococcus aureus subsp.aureus</i>	25923	$\geq 10^3$	Inhibited	0%	-	35-37°C	18-24 Hours
<i>Enterobacter cloacae</i>	13047	50-100	Good	40-50%	Pink	35-37°C	18-24 Hours
<i>Salmonella Typhimurium</i>	14028	50-100	Good-luxuriant	$\geq 50\%$	Colourless	35-37°C	18-24 Hours
<i>Salmonella Enteritidis</i>	13076	50-100	Good-luxuriant	$\geq 50\%$	Colourless	35-37°C	18-24 Hours
<i>Shigella flexneri</i>	12022	50-100	Good-luxuriant	$\geq 50\%$	Colourless	35-37°C	18-24 Hours

PACKAGING:

In pack size of 100 gm and 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.













DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

1. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), 2015, Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C.
2. Endo, 1904, Zentralbl. Bakteriologie, Abt. I. Orig., 35:109.
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
4. 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.
5. 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.
6. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.



 GMP Good Manufacturing Practices Certified	 IVD For In Vitro Diagnostic Use	 QTY. Quantity	 LOT/ B. NO. Lot / Batch Number	 REF Catalogue Number	 Manufacturer
 Temperature Unit	 EC REP Authorized Representative <small>MedNet GmbH Buckstrasse 10, 49163 Muenster, Germany</small>	 European Conformity	 QR Code	 Consults Instructions for Use	 Best Before

NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**
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