DEV Nutrient Agar

M1884

Intended Use:

Recommended for determining total microbial count in water and food.

Composition**

Ingredients	Gms / Litre
HM peptone#	10.000
HM extract ##	10.000
Sodium chloride	5.000
Agar	18.000
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters
- Equivalent to Meat peptone
- Equivalent to Meat extract

Directions

Suspend 43 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. Cool to 45-50°C. Mix well and pour into sterile Petri plates or dispense as desired.

Principle And Interpretation

DEV Nutrient Agar is a non-selective general purpose media supporting growth of wide number of microorganisms. It has almost double concentration of nitrogen sources that is used in Nutrient agar, making it more nutritious. This medium is in accordance with the German standard methods for testing water and food examination (3). Similar media is recommended by APHA for bacteriological examination of water and milk (1)

It contains peptone form meat, meat extract which provides necessary nitrogen sources, carbon, vitamins and growth factors and also trace ingredients to non-fastidious organisms. Sodium chloride maintains osmotic equilibrium of the medium. Agar acts as a solidifying agent. With addition of blood (10% v/v) or other biological fluids like ascetic fluid, serum or other supplements to promote growth of fastidious organisms. Either surface spread technique or pour plate method may be adopted for enumeration of microorganisms from samples under test. Incubation can be done at 20±2°C or 35±1°C and observed for bacterial growth for a period of 44±4 hours.

Type of specimen

Food and Dairy samples, Water samples

Specimen Collection and Handling

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (1,6,7).
For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards (2).
After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

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 specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1.This medium is general purpose medium and may not support the growth of fastidious organisms.

2. Further biochemical and serological test must be carried out for further information.

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

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.8% Agar gel

Colour and Clarity of prepared medium

Light yellow coloured clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 4.3% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH

7.00-7.40

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery
Escherichia coli ATCC 25922 (00013*)	50-100	good-luxuriant	>=70%
Pseudomonas aeruginosa ATCC 27853 (00025*)	50-100	good-luxuriant	>=70%
Salmonella Typhimurium *ATCC 14028* (00031*)	50-100	good-luxuriant	>=70%
Salmonella Typhi ATCC 6539	50-100	good-luxuriant	>=70%
Klebsiella pneumoniae ATCC 13883 (00097*)	50-100	good-luxuriant	>=70%
Serratia marcescens ATCC 14756	50-100	good-luxuriant	>=70%
Aeromonas hydrophila ATCC 7966 (00063*)	50-100	good-luxuriant	>=70%
Proteus vulgaris ATCC 13315	50-100	good-luxuriant	>=70%
Staphylococcus aureus ATCC 25923 (00034*)	50-100	good-luxuriant	>=70%
Bacillus subtilis subsp. spizizeniiATCC 6633 (00003*)	50-100	good-luxuriant	>=70%

Key : (*) Corresponding WDCM numbers.

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 in order 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 (4,5).

Reference

1. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.

2. 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.

3. German Standard methods (Deutsche einheitsverfahren), 1990, The German Drinking water Regulations (Trinkwasser-Verordnung) and the German regulation of food examination (LMBG).

4. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.

5. 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.

6. 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.

7. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

Revision : 02 / 2019