

# **Edwards and Bruner Semisolid Medium**

### Intended Use:

Recommended for detection of motility and separation of H and O phases of enteric bacilli from clinical and non-clinical samples.

## **Composition\*\***

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Ingredients	g / L
Peptone	10.000
HM peptone B #	3.000
Gelatin	80.000
Sodium chloride	5.000
Agar	4.000
Final pH ( at 25°C)	6.9±0.2
**Formula adjusted, standardized to suit performance parameters	8

# Equivalent to Beef extract

### Directions

Suspend 102.0 grams in 1000 ml warm distilled water. Heat to boiling to dissolve the medium completely. Dispense in tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool the tubes in an upright position.

## **Principle And Interpretation**

Edwards and Bruner (1) formulated a semisolid medium, which is used in routine identification of enteric bacilli by means of motility and separation of H and O phases. *Salmonella* is found in nature and occurs in the intestinal tract of many animals, both wild and domestic. Infection in humans occurs through consumption of contaminated vegetables, raw meat and other food products. Serotypes of *Salmonella* are defined based on the antigenic structure of both somatic cell wall antigen (O) and flagellar antigen (H).

Complete identification of *Salmonella* involves isolation on selective media, biochemical characterization and then confirmation by serotyping. Serological confirmation involves the procedure in which the microorganism (antigen) reacts with its corresponding antibody. *Salmonella* can be recovered when samples are processed to recover injured microorganisms. The purity of the cultures and their biochemical test reactions should be determined. These aid in the identification of the organisms as a *Salmonella* species. After these criteria have been met, serological identification can be performed. It is often necessary to increase the motility of the test organism. To accomplish this, make several consecutive transfers in motility medium.

Peptone and HM peptone B provide all the essential growth nutrients required by enteric bacilli. Cultures are inoculated by stabbing with a straight wire. Motile organisms grow diffusely and spread through the medium while non-motile organisms grow along the line of stab inoculation.

### **Type of specimen**

Isolated Microorganism from Clinical samples, Food samples

### **Specimen Collection and Handling**

Inoculate the tubes slightly below the surface of the medium using stab method, incubate and transfer only those organisms that have migrated to the bottom of the tubes. When the organism successfully travels 50-60 mm through the medium in 18-20 hours, it is ready to use.

### **Warning and Precautions**

In Vitro diagnostic Use only. 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. The purity of the cultures and their biochemical test reactions should be determined.

### **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 beige homogeneous free flowing powder

#### Gelling

Semisolid, comparable with 0.4% Agar gel.

#### Colour and Clarity of prepared medium

Light amber coloured, clear to slightly opalescent gel forms in tubes as butts

#### Reaction

Reaction of 10.2% w/v aqueous solution at 25°C. pH : 6.9±0.2

#### pН

6.70-7.10

#### **Cultural Response**

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

Organism	Growth	Motility
Escherichia coli ATCC 25922 (00013*)	good-luxuriant	positive, growth away from stabline causing turbidity
# Klebsiella aerogenes ATCC 13048 (00175*)	luxuriant	positive, growth away from stabline causing turbidity
Proteus mirabilis ATCC 25933	luxuriant	positive, growth away from stabline causing turbidity
Salmonella Typhimurium ATCC 14028 (00031*)	good-luxuriant	positive, growth away from stabline causing turbidity
Salmonella Enteritidis ATCC 13076 (00030*)	good-luxuriant	positive, growth away from stabline causing turbidity
Shigella sonnei ATCC 25931	good-luxuriant	negative, growth along the stabline, surrounding medium remains clear

Staphylococcus aureus	good-luxuriant	negative,
subsp. aureus ATCC		growth along
25923 (00034*)		the stabline,
		surrounding
		medium
		remains clear

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

#### **Storage and Shelf Life**

Store between 10-30°C in a tightly closed container and the prepared medium at 15-30°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 (2,3).

#### Reference

- 1. Edwards and Bruner, 1942, Univ. Ky. Cir., 154.
- 2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.

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.

Revision : 04/2024



#### Disclaimer :

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