

## TM 085 – DECARBOXYLASE BROTH BASE, MOELLER (MOELLER DECARBOXYLASE BROTH BASE)

### INTENDED USE

For differentiation of bacteria on the basis of their ability to decarboxylate the amino acid.

### PRODUCT SUMMARY AND EXPLANATION

Moeller Decarboxylase Broth Base is used for differentiating gram-negative enteric bacilli on the basis of their ability to decarboxylate amino acids. Moeller introduced the Decarboxylase Broth for detecting the production of lysine and ornithine decarboxylase and arginine dihydrolase. Prior to Moellers work, bacterial amino acid decarboxylases were studied by Gale and Gale and Epps. Production of ornithine decarboxylase is a helpful criterion in differentiating *Klebsiella* and *Enterobacter* species. *Klebsiella* are non-motile and do not produce ornithine decarboxylase while *Enterobacter* are motile and produce ornithine decarboxylase except *Enterobacter agglomerans*.

### COMPOSITION

Ingredients	Gms / Ltr
Peptone	5.000
Beef extract	5.000
Dextrose (Glucose)	0.500
Bromocresol purple	0.010
Cresol red	0.005
Pyridoxal	0.005

### PRINCIPLE

The medium consists of Peptone and Beef extract which provides nitrogenous and carbonaceous compounds, long chain amino acids and other essential nutrients for the growth of bacteria. Dextrose is the fermentable carbohydrate and pyridoxal is the co-factor for the decarboxylase enzyme. Bromo cresol purple and cresol red are the pH indicators in this medium.

When the medium is inoculated with the dextrose fermenting bacteria, the pH is lowered due to acid production, which changes the colour of the indicator from purple to yellow. Acid produced stimulates decarboxylase enzyme. Decarboxylation of lysine yields cadaverine while putrescine is produced due to ornithine decarboxylation. Arginine is first hydrolyzed to ornithine which is then decarboxylated to form putrescine. Formation of these amines increases the pH of the medium, changing the colour of the indicator from yellow to purple.

### INSTRUCTION FOR USE

- Dissolve 10.52 grams in 1000 ml purified/distilled water.
- Add 10 grams of L-Lysine, L-Arginine, L-Ornithine or other L-amino acids. When using DL-amino acids, use 2% concentration.
- Heat if necessary to dissolve the medium completely. When L-Ornithine is added, readjustment of the pH is required.
- Dispense in 5 ml amount in screw-capped tubes and sterilize by autoclaving at 15 psi pressure (121°C) for 10 minutes.

### QUALITY CONTROL SPECIFICATIONS



**Appearance of Powder** : Light yellow to greenish yellow homogeneous free flowing powder.  
**Appearance of prepared medium** : Purple coloured, clear solution without any precipitate in tubes.  
**pH (at 25°C)** : 6.0 ± 0.2

### INTERPRETATION

Cultural characteristics observed after incubation with addition of appropriate amino acids and overlaying with sterile mineral oil.

Microorganism	ATCC	Inoculum (CFU/ml)	Arginine decarboxylation	Ornithine decarboxylation	Lysine decarboxylation	Incubation Temperature	Incubation Period
<i>Citrobacter freundii</i>	8090	50-100	Variable reaction	Variable reaction	Negative reaction, yellow colour	35-37°C	Upto 4 Days
<i>Klebsiella aerogenes</i>	13048	50-100	Negative reaction, yellow colour	Positive reaction, purple colour	Positive reaction, purple colour	35-37°C	Upto 4 Days
<i>Escherichia coli</i>	25922	50-100	Variable reaction	Variable reaction	Positive reaction, purple colour	35-37°C	Upto 4 Days
<i>Klebsiella pneumoniae</i>	13883	50-100	Negative reaction, yellow colour	Negative reaction, yellow colour	Positive reaction, purple colour	35-37°C	Upto 4 Days
<i>Proteus mirabilis</i>	25933	50-100	Negative reaction, yellow colour	Positive reaction, purple colour	Negative reaction, yellow colour	35-37°C	Upto 4 Days
<i>Proteus vulgaris</i>	13315	50-100	Negative reaction, yellow colour	Negative reaction, yellow colour	Negative reaction, yellow colour	35-37°C	Upto 4 Days
<i>Salmonella Paratyphi A</i>	9150	50-100	Delayed positive reaction/ positive reaction, purple colour	Positive reaction, purple colour	Negative reaction, yellow colour	35-37°C	Upto 4 Days
<i>Salmonella Typhi</i>	6539	50-100	Delayed positive reaction / negative reaction	Negative reaction, yellow colour	Positive reaction, purple colour	35-37°C	Upto 4 Days
<i>Serratia marcescens</i>	8100	50-100	Negative reaction, yellow colour	Positive reaction, purple colour	Positive reaction, purple colour	35-37°C	Upto 4 Days

<i>Shigella dysenteriae</i>	13313	50-100	Negative reaction/ delayed positive reaction	Negative reaction, yellow colour	Negative reaction, yellow colour	35-37°C	Upto 4 Days
<i>Shigella flexneri</i>	12022	50-100	Negative reaction/ delayed positive reaction	Negative reaction, yellow colour	Negative reaction, yellow colour	35-37°C	Upto 4 Days
<i>Shigella sonnei</i>	25931	50-100	Variable reaction	Positive reaction, purple colour	Negative reaction, yellow colour	35-37°C	Upto 4 Days

#### 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. Gale G. F., 1940, Biochem. J., 34:392.
2. Gale and Epps, 1943, Nature, 152:327.
3. MacFaddin J., 1980, Biochemical Tests for Identification of Medical Bacteria, 2nd ed., Williams and Wilkins, Baltimore.
4. Moeller V., 1955, Acta Pathol. Microbiol. Scand. 36:158.

 Good Manufacturing Practices Certified	 For In Vitro Diagnostic Use	 Quantity	 Lot / Batch Number	 Catalogue Number	 Manufacturer
 Temperature Unit	 Authorized Representative MedNet GmbH Birkstrasse 10, 48163 Münster, Germany	 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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