

## **CM 20540 – 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 Moeller's 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 |
|------------------------|-------|-------------------|---|----------------------------------|----------------------------------|------------------------|-------------------|
| Citrobacter freundii   | 8090  | 50-100            | Variable reaction   | Variable reaction                | Negative reaction, yellow colour | 35-37°C                | Upto 4 Days       |
| Klebsiella aerogenes   | 13048 | 50-100            | Negative reaction, yellow colour                            | Positive reaction, purple colour | Positive reaction, purple colour | 35-37°C                | Upto 4 Days       |
| Escherichia coli       | 25922 | 50-100            | Variable reaction   | Variable reaction                | Positive reaction, purple colour | 35-37°C                | Upto 4 Days       |
| Klebsiella pneumoniae  | 13883 | 50-100            | Negative reaction, yellow colour                            | Negative reaction, yellow colour | Positive reaction, purple colour | 35-37°C                | Upto 4 Days       |
| Proteus mirabilis      | 25933 | 50-100            | Negative reaction, yellow colour                            | Positive reaction, purple colour | Negative reaction, yellow colour | 35-37°C                | Upto 4 Days       |
| Proteus vulgaris       | 13315 | 50-100            | Negative reaction, yellow colour                            | Negative reaction, yellow colour | Negative reaction, yellow colour | 35-37°C                | Upto 4 Days       |
| Salmonella Paratyphi A | 9150  | 50-100            | Delayed positive reaction/ positive reaction, purple colour | Positive reaction, purple colour | Negative reaction, yellow colour | 35-37°C                | Upto 4 Days       |
| Salmonella Typhi       | 6539  | 50-100            | Delayed positive reaction / negative reaction               | Negative reaction, yellow colour | Positive reaction, purple colour | 35-37°C                | Upto 4 Days       |
| Serratia marcescens    | 8100  | 50-100            | Negative reaction, yellow colour                            | Positive reaction, purple colour | Positive reaction, purple colour | 35-37°C                | Upto 4 Days       |



|                      |       |        |  |                                  |                                  |         |             |
|----------------------|-------|--------|--|----------------------------------|----------------------------------|---------|-------------|
| Shigella dysenteriae | 13313 | 50-100 | Negative reaction/ delayed positive reaction | Negative reaction, yellow colour | Negative reaction, yellow colour | 35-37°C | Upto 4 Days |
| Shigella flexneri    | 12022 | 50-100 | Negative reaction/ delayed positive reaction | Negative reaction, yellow colour | Negative reaction, yellow colour | 35-37°C | Upto 4 Days |
| Shigella sonnei      | 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.

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|--|---|--|---|--|---|
| <br>GMP<br>Good Manufacturing Practices Certified | <br>IVD<br>For In Vitro Diagnostic Use   | <br>QTY.<br>Quantity    | <br>LOT/<br>B. NO.<br>Lot / Batch Number | <br>REF<br>Catalogue Number       | <br>Manufacturer |
| <br>Temperature Unit                              | <br>EC REP<br>Authorized Representative<br><small>MedNet GmbH<br/>Rohrstrasse 10,<br/>48153 Münster, Germany</small> | <br>European Conformity | <br>QR Code                              | <br>Consults Instructions for Use | <br>Best Before  |

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

\*For Lab Use Only

