TMV 085 – DECARBOXYLASE BROTH BASE, MOELLER (MOELLER DECARBOXYLASE BROTH BASE) (VEG.)

INTENDED USE

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

PRODUCT SUMMARY AND EXPLANATION

These media are used for differentiating gram-negative enteric bacilli on the basis of their ability to decarboxylate amino acids. The Decarboxylase Broth was introduced by Moeller 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. These Veg media are prepared by replacing animal based peptones with vegetable peptones which are BSE/TSE risks free. 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
Veg Peptone	5.000
Veg extract	5.000
Dextrose	0.500
Bromocresol purple	0.010
Cresol red	0.005
Pyridoxal	0.005

PRINCIPLE

The medium consists of Veg Peptone and Veg extract which provides nitrogenous 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 Lamino 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 : Greenish yellow coloured, homogeneous, free flowing powder.
Appearance of prepared medium : Purple coloured, clear solution without any precipitate.
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 freundi	8090	50-100	Variable reaction	Variable reaction	Negative reaction, yellow or no colour change	35-37°C	Upto 4 Days
Klebsiella aerogenes	13048	50-100	Negative reaction, yellow or no colour change	Positive reaction, purple colour	Positive reaction, purple colour	35-37°C	Upto 4 Days
Escherichia coli	25922	50-100	Variable reaction	Variable reaction	Variable reaction	35-37°C	Upto 4 Days
Klebsiella pneumoniae	13883	50-100	Negative reaction, yellow or no colour change	Negative reaction, yellow or no colour change	Positive reaction, purple colour	35-37°C	Upto 4 Days
Proteus mirabilis	25933	50-100	Negative reaction, yellow or no colour change	Positive reaction, purple colour	Negative reaction, yellow or no colour change	35-37°C	Upto 4 Days
Proteus vulgaris	13315	50-100	Negative reaction, yellow or no colour change	Negative reaction, yellow or no colour change	Negative reaction, yellow or no colour change	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 or no colour change	35-37°C	Upto 4 Days
Salmonella Typhi	6539	50-100	Delayed positive reaction / negative reaction	Negative reaction, yellow or no colour change	Positive reaction, purple colour	35-37°C	Upto 4 Days
Serratia marcescens	8100	50-100	Negative reaction, yellow or no colour change	Positive reaction, purple colour	Positive reaction, purple colour	35-37°C	Upto 4 Days

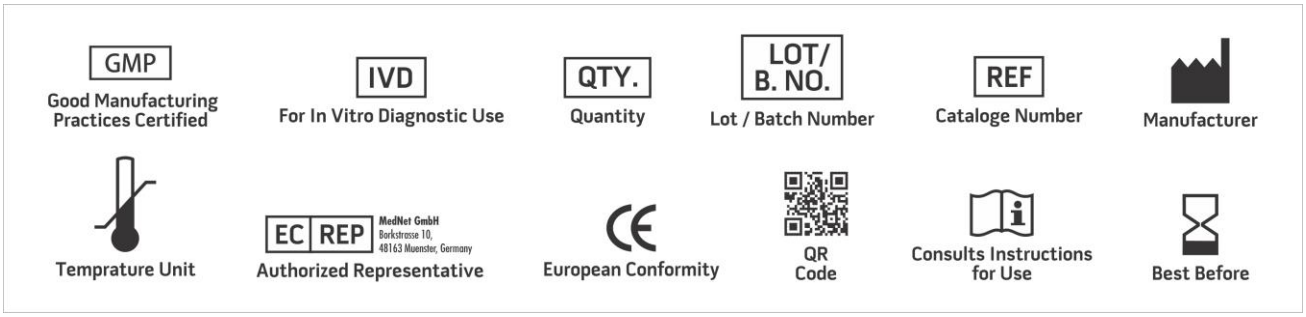
Shigella dysenteriae	13313	50-100	Negative reaction/ delayed positive reaction	Negative reaction, yellow or no colour change	Negative reaction, yellow or no colour change	35-37°C	Upto 4 Days
Shigella flexneri	12022	50-100	Negative reaction/ delayed positive reaction	Negative reaction, yellow or no colour change	Negative reaction, yellow or no colour change	35-37°C	Upto 4 Days
Shigella sonnei	25931	50-100	Variable reaction	Positive reaction, purple colour	Negative reaction, yellow or no colour change	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 Moeller V., 1955, Acta Pathol. Microbiol. Scand. 36:158.
2. Gale G. F., 1940, Biochem. J., 34:392.
3. Gale and Epps, 1943, Nature, 152:327.
4. MacFaddin J., 2000, Biochemical Tests for Identification of Medical Bacteria, 3rd ed., Williams and Wilkins, Baltimore.



NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.
***For Lab Use Only**
Revision: 08 Nov., 2019