

## TMV 791 - MOELLER DECARBOXYLASE BROTH W/ ORNITHINE HCl (VEG.)

### INTENDED USE

For differentiation of bacteria on the basis of their ability to decarboxylate L-Ornithine hydrochloride.

### PRODUCT SUMMARY AND EXPLANATION

Moeller decarboxylase broth w/ ornithine hcl (veg.) media are prepared by replacing animal based peptones with vegetable peptones which are BSE/TSE risks free. Moeller Decarboxylase Broth with Arginine hydrochloride is used for differentiating gram-negative enteric bacilli on the basis of their ability to decarboxylate L-Arginine hydrochloride. Decarboxylase Broth was introduced by Moeller 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. Decarboxylase media are also recommended by standard methods for identification of bacteria.

Acid produced stimulates decarboxylase enzyme. Arginine is first hydrolyzed to ornithine which is then decarboxylated to form putrescine. Formation of the amine putrescine increases the pH of the medium, changing the colour of the indicator from yellow to purple. If the organisms do not produce the appropriate enzyme, the medium remains acidic, yellow in colour. Each isolate to be tested should also be inoculated into the basal medium tube lacking the amino acid. After incubation, a decarboxylase test may show two layers of different colours, yellow and purple. Shake the tube gently before interpreting the results.

### 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     |
| L-Ornithine hydrochloride | 10.000    |

### PRINCIPLE

These media contain Veg extract and Veg peptone which provide 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 the 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. Arginine is first hydrolyzed to ornithine which is then decarboxylated to form putrescine.

### INSTRUCTION FOR USE

- Dissolve 20.52 grams in 1000 ml distilled water.
- Heat if necessary to dissolve the medium completely.
- Dispense in 5 ml amount in screw-capped tubes and sterilize by autoclaving at 15 psi pressure (121°C) for 10 minutes.
- Cool the tubed medium in an upright position.
- Inoculate the tubes and overlay with 2-3 ml of sterile mineral oil.

### 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.  
**pH (at 25°C)** : 6.0±0.2

## INTERPRETATION

Cultural characteristics observed after an incubation.

| Microorganism                 | ATCC  | Inoculum (CFU/ml) | Arginine decarboxylation                                    | Incubation Temperature | Incubation Period |
|-------------------------------|-------|-------------------|---|------------------------|-------------------|
| <i>Citrobacter freundii</i>   | 8090  | 50-100            | Variable reaction   | 35-37°C                | Upto 4 days       |
| <i>Enterobacter aerogenes</i> | 13048 | 50-100            | Negative reaction, yellow colour                            | 35-37°C                | Upto 4 days       |
| <i>Escherichia coli</i>       | 25922 | 50-100            | Variable reaction   | 35-37°C                | Upto 4 days       |
| <i>Klebsiella pneumoniae</i>  | 13883 | 50-100            | Negative reaction, yellow colour                            | 35-37°C                | Upto 4 days       |
| <i>Proteus mirabilis</i>      | 25933 | 50-100            | Negative reaction, yellow colour                            | 35-37°C                | Upto 4 days       |
| <i>Proteus vulgaris</i>       | 13315 | 50-100            | Negative reaction, yellow colour                            | 35-37°C                | Upto 4 days       |
| <i>Pseudomonas aeruginosa</i> | 9027  | 50-100            | Positive reaction, purple colour                            | 35-37°C                | Upto 4 days       |
| <i>Salmonella</i> Paratyphi A | 9150  | 50-100            | Delayed positive reaction/ positive reaction, purple colour | 35-37°C                | Upto 4 days       |
| <i>Salmonella</i> Typhi       | 6539  | 50-100            | Delayed positive reaction/ positive reaction, purple colour | 35-37°C                | Upto 4 days       |

|                             |       |        |   |         |             |
|-----------------------------|-------|--------|---|---------|-------------|
| <i>Serratia marcescens</i>  | 8100  | 50-100 | Negative reaction, yellow colour                            | 35-37°C | Upto 4 days |
| <i>Shigella dysenteriae</i> | 13313 | 50-100 | Delayed positive reaction/ positive reaction, purple colour | 35-37°C | Upto 4 days |
| <i>Shigella flexneri</i>    | 12022 | 50-100 | Delayed positive reaction/ positive reaction, purple colour | 35-37°C | Upto 4 days |
| <i>Shigella sonnei</i>      | 25931 | 50-100 | Variable Reaction   | 35-37°C | Upto 4 days |

#### PACKAGING:

In pack size of 100 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.

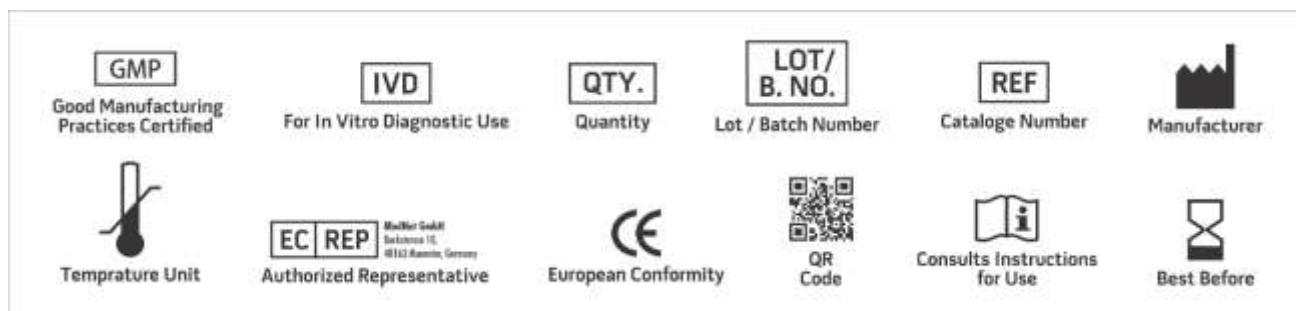
**Product Deterioration:** Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

#### 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. F., 2000, Biochemical tests for Identification of Medical Bacteria, 3rd Ed., Lippincott, Williams and Wilkins, Baltimore.



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

**\*For Lab Use Only**  
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