

Ornithine Decarboxylase Broth

Intended Use

Ornithine Decarboxylase Broth is recommended for detection of the ability of microorganisms to decarboxylate ornithine.

Summary

Decarboxylation is the process in which bacteria that possess specific decarboxylase enzyme attack amino acids at their carboxyl end (-COOH) to yield an amine or a diamine and carbon dioxide. The amino acid L-ornithine is decarboxylated by the enzyme ornithine decarboxylase to yield the diamine putrescine and carbon dioxide. Ornithine Decarboxylase Broth is based on the Taylors modification. It is recommended by the ISO Committee for the detection of ornithine decarboxylation by *Yersinia enterocolitica*.

Principle

Yeast extract in the medium provides nitrogen and other nutrients necessary to support bacterial growth. The amino acid ornithine is added to detect the production of ornithine decarboxylase. Glucose is the fermentable carbohydrate, which during the initial stages of incubation, is fermented by the organisms with acid production, which results in colour change of the pH indicator (BCP) to yellow. The acidic condition also stimulates decarboxylase activity. If the organism produces the appropriate enzyme, i.e. decarboxylase, the amino acid (ornithine) in the medium is degraded, yielding a corresponding amine. Decarboxylation of ornithine yields putrescine. The production of this amine elevates the pH of the medium towards alkalinity, changing the colour of the indicator from yellow to purple or violet. If the organism does not produce the appropriate enzyme, the medium remains acidic or yellow in colour.

Formula*

Ingredients	g/L
L-Ornithine Monohydrochloride	5.0
Yeast Extract	3.0
Glucose	1.0
Bromo Cresol Purple	0.015
Final pH (at 25°C)	6.8 ± 0.2

*Adjusted to suit performance parameters.

Storage and Stability

Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2°C-8°C. Avoid freezing and overheating. Use before expiry date on the label. Once opened keep powdered medium closed to avoid hydration.

Specimen Collection and Handling

Ensure that all samples are properly labelled. Follow appropriate techniques for handling samples as per established guidelines. Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure. The samples must be stored and tested within the permissible time duration. After use, contaminated materials must be sterilized by autoclaving before discarding.

Directions

1. Suspended 9.01 g of the powder in 1000 mL purified / distilled water.
2. Heat, if necessary, to dissolve the powder completely.
3. Dispense in test tubes and sterilize by autoclaving at 121°C (15 psi) for 15 minutes as per validated cycle.
4. After inoculation overlay the tubes with 2-3 mL mineral oil.

Quality Control

Dehydrated Appearance: Light yellow to light green homogeneous free flowing powder

Prepared Appearance: Dark purple coloured, clear solution without any precipitate.

Cultural response: Cultural characteristics observed after an incubation at 35°C-37°C for 18-24 hours. Inoculated tubes are overlayed with mineral oil.

Organism (ATCC)	Growth	Ornithine Decarboxylation
<i>Escherichia coli</i> (25922)	Good	±
<i>Klebsiella aerogenes</i> (13048)	Good	+
<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i> (10031)	Good	-
<i>Proteus mirabilis</i> (25933)	Good	-
<i>Shigella flexneri</i> serotype 2b (12022)	Good	-
<i>Salmonella Typhi</i> (6539)	Good	-

Key: + = positive reaction, purple colour
- = negative reaction, yellow colour
± = variable (purple / yellow colour)

Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

Reference

1. Smith D.T., Coant N.F., Willett H.P., Zinssers Microbiology, 14th Ed., New York: Appleton-Century-Crofts, 1968:118-119
2. Moeller V., 1955, Acta Pathol. Microbiol. Scand. 36 (2): 158-172
3. MacFaddin J.F., 2000, Biochemical Tests for Identification of Medical Bacteria, 3rd Ed., Lippincott, Williams and Wilkins, Baltimore.
4. Taylor W.I., 1961, Appl. Microbiol., 9:487.
5. International Organization for Standardization (ISO), 1994, Draft ISO/DIS 10273.
6. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201150020100	Dehydrated Culture Media	100 g

Disclaimer

Information provided is based on our inhouse technical data on file, it is recommended that user should validate at his end for suitable use of the product.