Malonate Broth

Intended Use
Malonate Broth is used for differentiating *Enterobacter* and *Escherichia* on the basis of malonate utilization.

Summary
Leifson developed a synthetic liquid medium, which differentiated *Aerobacter* (now *Enterobacter*) from *Escherichia* species based on their ability to utilize malonate where *Enterobacter* utilizes malonate and *Escherichia* does not.

Principle
An organism that can simultaneously utilize sodium malonate as its carbon source and ammonium sulphate as its nitrogen source produces alkalinity due to the formation of sodium hydroxide. The alkali changes the colour of the bromothymol blue indicator in the medium to light blue and finally to prussian blue. The colour of the medium remains unchanged in the presence of an organism that cannot utilize these substances. Also, some malonate-positive organisms produce only a slight alkalinity that causes the results to be difficult to interpret. Therefore, these tubes should be compared with an un-inoculated malonate tube.

Formula*

Ingredients	**g/L**
Ammonium Sulphate	2.0
Dipotassium Phosphate	0.6
Monopotassium Phosphate	0.4
Sodium Chloride	2.0
Sodium Malonate	3.0
Bromothymol Blue	0.025
Final pH (at 25°C)	6.7 ± 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. Dissolve 8.02 g of the powder in 1000 mL purified / distilled water.
2. Dispense and sterilize by autoclaving at 121°C (15 psi) for 15 minutes as per validated cycle.
3. Avoid the addition of carbon and nitrogen from other sources.

Quality Control
Dehydrated Appearance: Light yellow to light green homogenous free flowing powder.
Prepared Appearance: Bluish green to green coloured, clear solution without any precipitate.
Cultural Response: Cultural characteristics observed after an incubation at 35°C-37°C for 18-48 hours.

Organism (ATCC)	Growth	Malonate Utilization
Klebsiella aerogenes (13048)	Good	Positive reaction, pale blue colour
Escherichia coli (25922)	Partial Inhibition	Negative reaction
Klebsiella pneumoniae (13883)	Good	Positive reaction, blue colour
Salmonella Arizonae (13314)	Good	Positive reaction, pale blue colour
Salmonella enterica subsp. *enterica* serovar *Typhimurium* (14028)	Good	Negative reaction

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. Leifson, 1933, J. Bact., 25:329.
2. MacFaddin J., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.
3. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201130300100	Dehydrated Culture Media	100 g
201130300500	Dehydrated Culture Media	500 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.