

Technical Information

Malonate Broth, Ewing Modified

Product Code: DM 1779

Application: - MacConkey Agar w/ Bromo Thymol Blue is recommended for detection of lactose fermenting enteric bacteria.

Composition**

Ingredients	Gms / Litre
Yeast extract	1.000
Ammonium sulphate	2.000
Dipotassium phosphate	0.600
Monopotassium phosphate	0.400
Sodium chloride	2.000
Sodium malonate	3.000
Dextrose	0.250
Bromothymol blue	0.025
Final pH (25°C)	6.7±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Based on their ability to utilize malonate leifson developed a synthetic liquid medium⁽¹⁾, which differentiated Aerobacter (now Enterobacter) from Escherichia species where Enterobacter utilizes malonate and Escherichia does not. Ewing et al further modified this medium by the addition of yeast extract, a source of vitamins, and a relatively small amount of dextrose, a minimal carbon source, to stimulate the growth of some organisms⁽²⁾ that cannot utilize malonate or ammonium salt.

An organism that can simultaneously utilize sodium malonate as its carbon source and ammonium sulfate as its nitrogen source produces alkalinity due to the formation of sodium hydroxide⁽³⁾. The alkali changes the color of the bromothymol blue indicator in the medium to light blue and finally to prussian blue. The color of the medium remains unchanged in the presence of an organism that cannot utilize these substances. Some malonate-negative strains produce a yellow color due to the fermentation of dextrose only, which results in increased acidity causing the pH indicator to change to yellow at a pH of 6.0. 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⁽³⁾.

Methodology

Dissolve 9.27 grams of powder of media in 1000 ml distilled water. Dispense and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Avoid the addition of carbon and nitrogen from other sources.

Quality Control

Physical Appearance

Light yellow to light green homogeneous free flowing powder

Colour and Clarity of prepared medium

Bluish green coloured clear solution without any precipitate

Reaction

Reaction of 0.93% w/v aqueous solution at 25°C. pH:- 6.7±0.2

pH range 6.50-6.90

Cultural Response/ characteristics

DM 1779: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Malonate Utilization.
Enterobacter aerogenes ATCC 13048	50-100	luxuriant	positive reaction, dark blue colour
Escherichia coli ATCC 25922	50-100	luxuriant	negative reaction
Klebsiella pneumoniae ATCC 13883	50-100	luxuriant	positive reaction, dark blue colour
Salmonella Arizonae ATCC 13314	50-100	luxuriant	positive reaction, dark blue colour
Salmonella Typhimurium ATCC 14028	50-100	luxuriant	negative reaction

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Leifson, 1933, J. Bact., 25:329.
2. Ewing W., Davis B. and Reavis R., 1957, Public Hlth. Lab., 15:153.
3. MacFaddin J., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conform solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is true and accurate
- **Central Drug House Pvt. Ltd.** reserves the right to make changes to specifications and information related to the products at any time.
- Products are not intended for human or animal diagnostic or therapeutic use but for laboratory, research or further manufacturing of diagnostic reagents extra.
- Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.
- Do not use the products if it fails to meet specifications for identity and performance parameters.