



Mineral Modified Glutamate Medium Base

M643A

Mineral Modified Glutamate Medium (Double Strength) is used for the enumeration of coliform bacteria in water and waste water samples.

Composition**

Ingredients	Gms / Litre
Lactose	20.000
Dipotassium phosphate	1.800
Sodium formate	0.500
L-Cystine	0.040
L-Aspartic acid	0.048
L-Arginine	0.040
Thiamine	0.002
Nicotinic acid	0.002
Pantothenic acid	0.002
Magnesium sulphate	0.200
Ferric ammonium citrate	0.020
Calcium chloride	0.020
Bromo cresol purple	0.020
Final pH (at 25°C)	6.7±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 22.7 grams in 1000 ml distilled water containing 12.7 grams of sodium glutamate and 5 grams of ammonium chloride. Heat if necessary to dissolve the medium completely. Dispense in tubes containing inverted Durham's tubes. Sterilize by autoclaving at *115°C for 10 minutes.

*- Correspond to 10 lbs pressure

Principle And Interpretation

Mineral Modified Glutamate Medium is used for enumeration of coliforms in water and wastewater samples. Folpners first described a chemically defined medium based on glutamic acid for enumerating coliforms in water (1). However in the early days following its discovery, it was seen that the medium containing glucose gave many false positive results in 48 hours (2).

It was then modified by Gray who incorporated formate and lactose in the medium which gave improved performance (3). This medium can also be used for detecting *Escherichia coli* in chlorinated waters and is better than Lauryl Tryptose Lactose Broth for the detection of small numbers of *Escherichia coli* .

This medium contains a variety of nutrients including salts, amino acids and vitamins. Lactose is the fermentable carbohydrate and bromo cresol purple is the pH indicator. Because of the nutrients, this medium is superior for enumerating coliforms in water and wastewater as it satisfies most of the nutritional requirements of coliforms.

Presumptive positive tubes must be subcultured into Lauryl Tryptose Mannitol Broth (M1070) and Brilliant Green Bile Broth (M121) and incubated at 44°C to detect indole formation at this temperature before identifying *Escherichia coli* .

Quality Control

Appearance

Light yellow to green homogeneous free flowing powder

Colour and Clarity of prepared medium

Purple coloured clear solution without any precipitate

Reaction

Reaction of the medium :(mixture of 2.27% w/v of medium M643A , 1.27% w/v Sodium glutamate & 0.5% w/v ammonium chloride) is at 25°C. pH : 6.7±0.2

pH

6.50-6.90

Cultural Response

M643A: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Growth	Acid	Gas
<i>Enterobacter aerogenes</i> ATCC 13048	Luxuriant	Positive reaction	Negative reaction
<i>Enterococcus faecalis</i> ATCC 29212	Inhibited		
<i>Escherichia coli</i> ATCC 25922	Luxuriant	Positive reaction	Positive reaction
<i>Salmonella Typhi</i> ATCC 6539	luxuriant	Negative reaction	Negative reaction
<i>Shigella flexneri</i> ATCC 12022	Luxuriant	Negative reaction	Negative reaction
<i>Staphylococcus aureus</i> ATCC 25923	Inhibited		

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

1.Folpmers T., 1948, Ant. V. Leeuwenhoek, J. Microbiol. Serol., 14:58. 2. „Public Health Laboratory Service, Water Committee, 1958, J. Hyg. Camb., 56:377. 3. „Gray R.D., 1959, J. Hyg. Camb., 57:249.

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