

PRODUCT SPECIFICATION SHEET

Agar Medium F (Crystal Violet, Neutral red, Bile Agar with Glucose) (DM1327I)

Intended Use

Agar Medium F (Crystal Violet, Neutral red, Bile Agar with Glucose) (DM1327I) is recommended for detection and enumeration of Enterobacteria in compliance with BP.

Product Summary and Explanation

The *Enterobacteriaceae* group includes lactose-fermenting coliform bacteria, lactose-nonfermenting strains of *E. coli*, and lactose-nonfermenting species, such as *Salmonella* and *Shigella*. When examining some foods, it is desirable to detect *Enterobacteriaceae* rather than the coliform bacteria.^(1,2) Mossel et al^(3,4,5) added glucose to the medium observing improved detection of coliforms. Depending upon the group of *Enterobacteriaceae* to be recovered, the incubation can be carried out at different temperatures and incubation time.⁽⁶⁾ This is a selective medium recommended and cited as Agar Medium F (Crystal violet, neutral red, bile agar with glucose). It is recommended for detection of *Enterobacteriaceae* species by British Pharmacopoeia from food, pharmaceutical and dietary supplement preparations.⁽⁷⁾

Principles of the Procedure

Agar Medium F (Crystal Violet, Neutral red, Bile Agar with Glucose) contains pancreatic digest of gelatine and yeast extract which provides nitrogenous compounds, vitamins, amino acids and other nutrients essential for bacterial metabolism. Bile salts and crystal violet are inhibitors that make the medium selective. Crystal violet inhibits gram-positive organisms especially *Staphylococci*. Lactose monohydrate and glucose monohydrate are fermentable carbohydrate. Neutral red indicator helps to detect lactose monohydrate and dextrose monohydrate fermentation. Lactose and glucose fermenting strains grow as red or pink and may be surrounded by a zone of acid precipitated bile. Sodium chloride maintains the osmotic equilibrium in the medium. The red colour is due to absorption of neutral red and a subsequent colour change of the dye when the pH of medium falls below 6.8.

Formula / Liter

Ingredients	Gms / Liter
Pancreatic digest of Gallatin	7.00
Yeast extract	3.00
Lactose monohydrate	10.00
Bile salts	1.50
Glucose monohydrate	10.00
Sodium chloride	5.00
Neutral red	0.03
Crystal violet	0.002
Agar	15.00
Final pH: 7.4 ± 0.2 at 25°C	
Formula may be adjusted and/or supplemented as required to meet performance specifications	

Precautions

1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

1. Suspend 50.12 grams (the equivalent weight of dehydrated medium per liter) in one liter of purified/distilled water.
2. Heat to boiling to dissolve the medium completely.
3. DO NOT HEAT IN AN AUTOCLAVE.
4. Mix well and pour into sterile Petri plates.

Quality Control Specifications

Dehydrated Appearance	Light yellow to pink homogeneous free flowing powder
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Prepared Medium	Reddish purple coloured clear to slightly opalescent gel forms in Petri plates
Reaction of 5.01% solution	pH 7.4 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 1.5% Agar gel

Growth Promotion Test

Growth Promotion is carried out in accordance with British Pharmacopoeia and cultural characteristics are observed after an incubation at 35-37°C for 18-24 hours.

Expected Cultural Response:

Sr. No.	Organisms	Results to be achieved				
		Inoculum (CFU)	Growth	Observed Lot value (CFU)	Recovery	Colour of colony
1.	<i>Enterobacter aerogenes</i> ATCC 13048	50-100	good-luxuriant	25 -100	≥50 %	pink-red
2.	<i>Escherichia coli</i> ATCC 25922	50-100	good-luxuriant	25 -100	≥50 %	pink-red
3.	<i>Salmonella Enteritidis</i> ATCC 13076	50-100	good-luxuriant	25 -100	≥50 %	light pink
4.	<i>Staphylococcus aureus</i> ATCC 25923	≥10 ³	inhibited	0	0 %	--
5.	<i>Escherichia coli</i> ATCC 8739	50-100	good-luxuriant	25 -100	≥50 %	pink-red
6.	<i>Staphylococcus aureus</i> ATCC 6538	≥10 ³	inhibited	0	0 %	--

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure

Refer to appropriate references for standard test procedures.

Results

Refer to appropriate references and standard test procedures for interpretation of results.

Storage

Store the sealed bottle containing the dehydrated medium at 10 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

Expiration

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedure

1. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
2. Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : Agar Medium F (Crystal Violet, Neutral red, Bile Agar with Glucose)

Product Code : DM1327B

Available Pack sizes : 500gm

References

1. Draft Standard Methods for Microbiological Examination of Meat Products. 1977. Part 3: Detection and enumeration of *Enterobacteriaceae*. BS5393: Part 3, ISO/DIS 5552.

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2. Mossel, D. A. A. 1985. Media for *Enterobacteriaceae*. Int. J. Food Microbiol. 2:27.
3. Mossel D.A.A., Mengerink W.H.J. & Scholts H.H., 1962, J. Bacteriol, 84 : 381.
4. Mossel D.A.A. et al, 1978, Lab. practice, 27 No. 12 : 1049
5. Mossel D.A.A. et al, 1979, Food Protect., 42 : 470.
6. Mossel D.A.A. et al, 1986, J. Appl. Bact., 60 : 289.
7. The British Pharmacopoeia 2008, The Stationery Office. British Pharmacopoeia.

Further Information

For further information please contact your local MICROMASTER Representative.



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