



PRODUCT SPECIFICATION SHEET

Lactic Bacteria Differential Agar (DM404)

Intended Use

Lactic Bacteria Differential Agar (DM404) is recommended for differentiation of homo-fermentative and hetero-fermentative lactic acid bacteria.

Product Summary and Explanation

Lactic acid bacteria are gram-positive, rod-shaped, non-spore forming bacteria. Lactic acid bacteria can be divided into two groups based upon the products produced from the fermentation of glucose. Heterofermentative lactic acid bacteria produce CO_2 , lactic acid, acetic acid, ethanol and mannitol. Homofermentative lactic acid bacteria produce only lactic acid. These bacteria have limited biosynthetic ability, requiring preformed amino acids, B vitamins, purines, pyrimidines and typically a sugar as carbon and energy source. McDonald et al⁽¹⁾ developed Lactic Bacteria Differential Agar for differentiation of homofermentative lactobacilli and heterofermentative streptococci. Lactobacilli and Streptococci are used as starter cultures in food and dairy industry. Streptococci grow first and produce metabolites, lowering the redox potential which enables Lactobacilli to grow. Lactobacilli synthesize products, which stimulate growth of Streptococci.

Principles of the Procedure

Lactic Bacteria Differential Agar contains casein acid hydrolysates, papaic digest of soyabean meal and yeast extract which provides all the necessary nutrients including vitamins, carbonaceous and nitrogenous substances for the growth of lactic bacteria. Fructose is the fermentable carbohydrate in the medium. Monopotassium phosphate acts as a buffering agent. Bromo cresol green is the pH indicator.

Formula / Liter

Ingredients	Gms / Liter
Casein enzymic hydrolysate	10.00
Papaic digest of soyabean meal	1.50
Casein acid hydrolysate	3.00
Yeast extract	1.00
Fructose	2.50
Monopotassium phosphate	2.50
Bromocresol green	0.055
Agar	15.00
Final pH : 7.0 ± 0.2 at $25^\circ C$	
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 35.56 grams of the medium in one liter of distilled water. Add 1 gram of polysorbate 80.
2. Heat to boiling to dissolve the medium completely.
3. Autoclave at $121^\circ C$, 15 psi pressure, for 15 minutes / validated cycle.
4. Mix well and pour into sterile Petri plates.

Quality Control Specifications

Dehydrated Appearance	Light yellow to bluish grey homogeneous free flowing powder
Prepared Medium	Blue coloured clear to slightly opalescent gel forms in Petri plates





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Reaction of 3.56% Solution	pH : 7.0 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 1.5% Agar gel

Expected Cultural Response: Cultural characteristics observed with added polysorbate 80, after an incubation at 35-37°C for 18-48 hours.

Sr. No.	Organisms	Results to be achieved			Colour of colony
		Inoculum (CFU)	Growth	Recovery	
1.	<i>Lactobacillus casei</i> ATCC 9595	50 -100	good-luxuriant	≥50%	green
2.	<i>Lactobacillus plantarum</i> ATCC 8014	50 -100	good-luxuriant	≥50%	green
3.	<i>Streptococcus thermophilus</i> ATCC 14485	50 -100	good-luxuriant (incubated at 45°C)	≥50%	bluish-green
4.	<i>Streptococcus cremoris</i> ATCC 19257	50 -100	good -luxuriant (incubated at 30°C)	≥50%	blue

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

1. Homofermentative lactic acid bacteria produce lactic acid from fructose and are indicated by yellow colour formation. Heterofermentative lactic acid bacteria induce lesser acidification and thus vary in the colour formation by the indicator in the medium.
2. Homofermentative bacteria cultivated on this medium form bluish-green colony on agar while heterofermentative bacteria do not form much-coloured colony on agar surface.
3. Refer to appropriate references and 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 : Lactic Bacteria Differential Agar

Product Code : DM404

Available Pack sizes : 500gm

References

1. McDonald L.C., McFecters R.F., Daeschel M.A. and Fleming H.P., 1987, Appl. Environ. Microbiol., 53:1382.





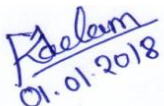
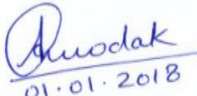

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Further Information

For further information please contact your local MICROMASTER Representative.



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