PRODUCT SPECIFICATION SHEET

Lactobacillus Selection Agar Base (DM379)

Intended Use

Lactobacillus Selection Agar Base (DM379) is recommended for isolation and enumeration of *Lactobacilli* from foods.

Product Summary and Explanation

Lactobacilli are a major part of the lactic acid bacteria group, named as such because most of its members convert lactose and other sugars to lactic acid. In humans they are present in the vagina and the gastrointestinal tract, where they make up a small portion of the gut flora.[1] They are usually benign, except in the mouth where they have been associated with cavities and tooth decay (dental caries). The production of lactic acid makes its environment acidic, which inhibits the growth of some harmful bacteria.

Lactobacillus Selective Agar Base was developed by Rogosa, Mitchell, and Wiseman[2,3] for isolation, enumeration, and identification of lactobacilli in oral specimens, feces, vaginal cultures, foods and dairy products.[4,5,6] The low pH and high acetate concentrations effectively suppress other bacterial flora allowing lactobacilli to flourish. Traditionally Tomato Juice Medium was used to isolate lactobacilli but it was demonstrated that Lactobacillus Selection Medium is more suitable for growth of lactobacilli. Lactobacilli Selection Media can be further enriched by addition of tomato juice.[7]

Principles of the Procedure

Lactobacillus Selection Agar Base contains casein enzymic hydrolysate which provides nitrogen, amino acids and carbon to support general growth requirements. Yeast Extract is a major source of vitamins. Dextrose is a carbon and energy. Sodium acetate and ammonium citrate inhibit streptococci, moulds, and other oral microbial flora and restrict swarming.[8] Polysorbate 80 provides fatty acids required for the metabolism of Lactobacilli. Addition of acetic acid lowers the pH which is inhibitory to many microorganisms but favours the growth of Lactobacilli. Monopotassium phosphate is the buffering agent. Magnesium sulfate, manganese sulfate and ferrous sulfate are sources of inorganic ions.

Formula / Liter

Ingredients	Gms / Liter
Part A	
Casein enzymic hydrolysate	10.00
Yeast extract	5.00
Dextrose	20.00
Sodium acetate	25.00
Monopotassium hydrogen phosphate	6.00
Ammonium citrate	2.00
Magnesium sulphate	0.575
Manganese sulphate	0.12
Ferrous sulphate	0.034
Agar	15.00
Part B	
Polysorbate 80	1.00
Final pH: 5.5 ± 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 84.73 grams of the medium in one liter of distilled water containing 1.32 ml glacial acetic acid.
2. Heat to boiling, to dissolve the medium completely, with frequent agitation.
3. Heat with frequent stirring. Boil for 1-2 minutes to dissolve the medium completely.
4. DO NOT AUTOCLAVE.
5. If storage is necessary, autoclave at 12 lbs pressure (118°C) for 15 minutes.
6. Mix well and pour into sterile Petri plates.

Quality Control Specifications

Dehydrated Appearance	Cream to yellow homogeneous free flowing powder
Prepared Medium	Yellow coloured slightly opalescent gel forms in Petri plates
Reaction of 8.47% solution	pH 5.5 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 1.5% Agar gel

Expected Cultural Response: Cultural characteristics observed in presence of 3-5% Carbon dioxide (CO_2) after an incubation at 35- 37°C for 48 hours.

Sr. No.	Organisms	Results to be achieved		
		Inoculum (CFU)	Growth	Recovery
1.	*Enterococcus faecalis ATCC 29212*	>=10^3	inhibited	0%
2.	*Lactobacillus acidophilus ATCC 4356*	50-100	good-luxuriant	>=50%
3.	*Lactobacillus casei ATCC 9595*	50-100	good-luxuriant	>=50%
4.	*Lactobacillus plantarum ATCC 8014*	50-100	good-luxuriant	>=50%
5.	*Proteus vulgaris ATCC 13315*	>=10^3	inhibited	0%
6.	*Staphylococcus aureus ATCC 25923*	>=10^3	inhibited	0%
7.	*Escherichia coli ATCC 25922*	>=10^3	inhibited	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

Lactobacillus on this medium appears as large, white colonies. Growth from Lactobacillus Selection Broth Base (DM326) can be isolated on Lactobacillus Selection Agar Base. Since these media are highly selective, they should not be used for maintenance of lactobacilli.

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. Organisms other than lactobacilli may grow on this medium. Isolates must be confirmed by appropriate biochemical tests.
2. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
3. Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : Lactobacillus Selection Agar Base

Product Code : DM379

Available Pack sizes : 500gm

References

1. Dicks, LMT; M. Silvester; PA Lawson; MD Collins (2000). *International Journal of Systematic and Evolutionary Microbiology* (Society for General Microbiology) 50 (3): 1253–8.
2. Rogosa, Mitchell and Wiseman, 1951, J. Bacteriol., 62:132.
3. Rogosa, Mitchell and Wiseman, 1951, J. Dental Res., 30:682.
4. Ellis and Sarles, 1958, J. Bacteriol., 75:272.
5. Speck M. (Ed.), 1984, Compendium of Methods for the Microbiological Examination of Foods, 2nd ed., APHA, Washington,D.C.

6. Richardson (Ed.), 1985, Standard Methods for the Examination of Dairy Products, 15th ed., APHA, Washington, D.C.
7. Sabine D. B. and Vaselekos J., 1965, Nature, 206:960.
8. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.

Further Information

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