



PRODUCT SPECIFICATION SHEET

APT Agar (DM542)

Intended Use

APT Agar (DM542) is a high thiamine content medium, is recommended for cultivation of heterofermentative Lactobacilli and other organisms.

Product Summary and Explanation

Historically, the lactic acid bacteria, a group of acid-producing bacteria, included the genera *Streptococcus*, *Leuconostoc*, *Pediococcus* and *Lactobacillus*. Currently, taxonomists include a number of additional genera (e.g., *Weissella*). These organisms are widespread in nature and are responsible for bacterial spoilage of foods such as dairy, meat and vegetable products.⁽³⁾

Evans and Niven⁽¹⁾ investigated cultivating the heterofermentative lactobacilli that cause the faded or greenish discoloration of cured meat products, while Deibel, Evans and Niven⁽²⁾ investigated thiamine requiring bacteria, specifically *Lactobacillus viridescens* ATCC 12706. Their formulations led to the development of APT (All purpose Tween 80) Agar. APT Agar is used for cultivating these heterofermentative lactic acid bacteria from food products and in the microbiological assay of thiamine. In the assay, APT Agar is the maintenance medium that preserves the viability and sensitivity of *Weissella viridescens* ATCC 12706.

Principles of the Procedure

APT Agar contains casein enzymic hydrolysate, which acts as a source of carbon, nitrogen, vitamins and minerals. Yeast extract provides vitamin and B-complex nutrients, which which stimulate bacterial growth. Dextrose is the carbohydrate source. Manganese chloride, magnesium sulphate and ferrous sulphate provide ions used in replication by lactobacilli. Polysorbate 80 is a source of fatty acids required by lactobacilli.

Formula / Liter

Ingredients	Gms / Liter
Part A	
Casein enzymic hydrolysate	12.50
Yeast extract	7.50
Dextrose	10.00
Sodium citrate	5.00
Sodium chloride	5.00
Dipotassium phosphate	5.00
Magnesium sulphate	0.80
Manganese chloride	0.14
Ferrous sulphate	0.04
Thiamine hydrochloride	0.001
Agar	15.00
Part B	
Polysorbate 80	0.20
Final pH: 6.7 ± 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 61.18 grams of the medium in one liter of distilled water.
2. Heat to boiling, to dissolve the medium completely.
3. Dispense as desired.
4. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
5. AVOID EXCESSIVE HEATING.



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Quality Control Specifications

Dehydrated Appearance	Cream to yellow homogeneous free flowing powder
Prepared Medium	Yellow coloured clear to slightly opalescent gel forms in Petri plates
Reaction of 6.12% Solution	pH : 6.7 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 1.5% Agar gel

Expected Cultural Response: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours

Sr. No.	Organisms	Results to be achieved		
		Inoculum (CFU)	Growth	Recovery
1.	<i>Lactobacillus acidophilus</i> ATCC 4356	50 -100	good-luxuriant	≥50%
2.	<i>Lactobacillus viridescens</i> ATCC 12706	50 -100	good-luxuriant	≥50%
3.	<i>Leuconostoc mesenteroides</i> ATCC 12291	50 -100	good-luxuriant	≥50%
4.	<i>Lactobacillus casei</i> ATCC 9595	50 -100	good-luxuriant	≥50%
5.	<i>Lactobacillus plantarum</i> ATCC 8014	50 -100	good-luxuriant	≥50%

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

Test Procedure

1. Stock Culture Maintenance

For maintaining stock cultures of *Weissella viridescens* ATCC 12706 prepare a stab inoculation. Prepare stock cultures in triplicate at monthly intervals. One of the transfers is saved for the preparation of stock cultures. The others are used to prepare inoculum in APT Broth for assay as needed. Store stock cultures at 2-8°C, following incubation at 35-37°C for 24-48 hours.

2. Refer to appropriate references for specific test procedures.

Results

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

Storage

Store the sealed bottle containing the dehydrated medium at 2 - 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

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

Packaging

Product Name : APT Agar

Product Code : DM542

Available Pack sizes : 500gm

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References

1. Hall, Ledenbach and Flowers. 2001. *In* Downes and Ito (ed.), *Compendium of methods for the microbiological examination of foods*, 4th ed. American Public Health Association, Washington, D.C.
2. Evans and Niven. 1951. *J. Bacteriol.* 62:599.
3. Deibel, Evans and Niven. 1957. *J. Bacteriol.* 74:818.

Further Information

For further information please contact your local MICROMASTER Representative.



MICROMASTER LABORATORIES PRIVATE LIMITED

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Unit 38/39, Kalpataru Industrial Estate,
Off G.B. Road, Near 'R-Mall', Thane (W) - 400607. M.S. INDIA.
Ph: +91-9320126789/9833630009/9819991103
Email: sales@micromasterlab.com

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