

Technical Information

APT Agar

Product Code: DM 1226

Application: APT Agar is used for the cultivation of heterofermentative lactic acid bacteria and other organisms requiring high thiamine content.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	12.500
Yeast extract	7.500
Dextrose	10.000
Sodium citrate	5.000
Sodium chloride	5.000
Dipotassium phosphate	5.000
Magnesium sulphate	0.800
Manganese chloride	0.140
Ferrous sulphate	0.040
Polysorbate 80	0.200
Thiamine hydrochloride	0.001
Agar	15.000
Final pH (at 25°C)	6.7±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Evans and Niven formulated APT (All purpose Tween 80) Agar medium for cultivation and maintenance of Lactobacilli. ⁽¹⁾ which is also used in the microbiological assay of thiamine. Lactobacillus forms a major part of lactic acid bacteria group which are abundant in nature. They convert lactose and other sugars to lactic acid and therefore are named as *Lactobacillus*. They are responsible for spoilage of foods like meat, dairy product etc. However APT Agar can also be used for cultivation of heterofermentative lactic acid bacteria requiring high thiamine content ⁽²⁾. APT Agar is also used as a maintenance medium for pre serving the viability and sensitivity of *Lactobacillus viridescens* ATCC 12706. This medium contains casein enzymic hydrolysate, which acts as a source of carbon, nitrogen, vitamins and minerals. Yeast extract provides vitamin and B-complex nutrients, which is required for the growth of bacteria. 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.

Methodology

Suspend 61.18 grams of powder media in 1000 ml distilled water. Shake well and heat to boil to dissolve the medium completely.

Dispense as pre requirement. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. AVOID EXCESSIVE HEATING.

Quality Control

Physical Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Yellow coloured clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 6.12% w/v aqueous solution at 25°C. pH : 6.7±0.2

pH Range:- 6.50-6.90

Cultural Response/Characteristics

DM 1226: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Recovery
<i>Lactobacillus acidophilus</i> ATCC 4356	50-100	good-luxuriant	>=50%
<i>Lactobacillus viridescens</i> ATCC 12706	50-100	good-luxuriant	>=50%
<i>Leuconostoc mesenteroides</i> ATCC 12291	50-100	good-luxuriant	>=50%
<i>Lactobacillus casei</i> ATCC 9595	50-100	good-luxuriant	>=50%
<i>Lactobacillus plantarum</i> ATCC 8014	50-100	good-luxuriant	>=50%

Storage and Shelf Life

Dried media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Evans and Niven, 1951, J. Bact., 62:599.
2. Downes F. P. and Ito K. (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th ed., APHA, Washington D.C.

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