PRODUCT SPECIFICATION SHEET

Yeast Mannitol Agar w/ 1.5% Agar (DM725)

Intended Use
Yeast Mannitol Agar w/ 1.5% Agar (DM725) is recommended for cultivation, isolation and enumeration of soil microorganisms, especially *Rhizobium* species.

Product Summary and Explanation
Yeast Mannitol Agar w/ 1.5% Agar is used for cultivation, enumeration and isolation of soil microorganism like Rhizobium species. Bacteria belonging to the genus *Rhizobium* live freely in soil and in the root region of both leguminous and non-leguminous plants. However they can enter into symbiosis only with leguminous plants by infecting their roots and forming nodules on them. Rhizobium present in root nodules fixes atmospheric nitrogen i.e. gaseous nitrogen from air to organic nitrogen compounds, which is absorbed by plants. Hence role of Rhizobium is significant for their major contributions to soil fertility. Yeast mannitol agar is used for the cultivation of symbiotic nitrogen fixing organisms. Isolation and cultivation of an aerobic gram negative rod-shaped microorganism from the nodules of legume was first done by Beijerinck. He named it Bacillus radicicola, which was subsequently placed under the genus Rhizobium.[1]

Principles of the Procedure
Yeast Mannitol Agar w/ 1.5% Agar contains yeast extract which serves as a good source of amino acids, vitamin B complex and accessory growth factors for Rhizobia. It also poises oxidation - reduction potential of medium in the range favorable for Rhizobia and serves as hydrogen donor in respiratory process.[2] Mannitol is the fermentable sugar alcohol source. Calcium and magnesium provide cations essential for the growth of Rhizobia

Formula / Liter

Ingredients	Gms / Liter
Yeast extract	1.00
Mannitol	10.00
Dipotassium phosphate	0.50
Magnesium sulphate	0.20
Sodium chloride	0.10
Calcium carbonate	1.00
Agar	15.00
Final pH: 6.8 ± 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.
3. Due to presence of calcium carbonate, the prepared medium forms opalescent solution with white precipitate.

Directions
1. Suspend 27.8 grams of the medium in one litre distilled water.
2. Heat just to boiling.
3. Autoclave at 15 lbs pressure (121°C) for 15 minutes.
4. Mix well and pour into sterile Petri plates.

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Quality Control Specifications

Dehydrated Appearance	White to cream homogeneous free flowing powder
Prepared Medium	Whitish buff coloured opalescent gel forms in Petri plates
Reaction of 2.78% solution	pH : 6.8 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 1.5% Agar gel

Expected Cultural Response: Cultural characteristics observed after an incubation at 25-30°C for upto 5 days.

Sr. No.	Organisms	Results to be achieved
		Growth
1.	*Rhizobium leguminosarum ATCC 10004*	good-luxuriant
2.	*Rhizobium meliloti ATCC 9930*	good-luxuriant

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 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 : Yeast Mannitol Agar w/ 1.5% Agar
Product Code : DM725
Available Pack sizes : 100gm / 500gm

References

1. Subba Rao N.S., 1977, Soil Microorganisms and Plant Growth, Oxford and IBG Publishing Company.
2. Allen. E.K. and Allen. O.N., 1950, Bacteriol. Rev., 14:273.

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Further Information

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