



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 radicola*, 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. | <i>Rhizobium leguminosarum ATCC 10004</i> | good-luxuriant |
| 2. | <i>Rhizobium meliloti ATCC 9930</i> | 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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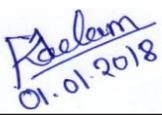
Further Information

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