Yeast Mannitol Agar w/ 1.5% Agar

M715

Yeast Mannitol Agar w/ 1.5% Agar is used for cultivation, isolation and enumeration of soil microorganisms like *Rhizobium* species.

Composition**

Ingredients	Gms / Litre
Yeast extract	1.000
Mannitol	10.000
Dipotassium phosphate	0.500
Magnesium sulphate	0.200
Sodium chloride	0.100
Calcium carbonate	1.000
Agar	15.000
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 27.8 grams in 1000 ml distilled water. Heat just to boiling. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and pour into sterile Petri plates.

Note : Due to presence of calcium carbonate, the prepared medium forms opalescent solution with white precipitate.

Principle And Interpretation

Beijerinck was first to isolate and cultivate an aerobic gram negative rod-shaped microorganism from the nodules of legume. He named it *Bacillus radicicola* , which was subsequently placed under the genus *Rhizobium* . 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 these root nodules fixes atmospheric nitrogen i.e. gaseous nitrogen from air to organic nitrogen compounds, which is absorbed by plants. Thus role of *Rhizobium* is noteworthy for their major contributions to soil fertility. Yeast Mannitol Agar is used for the cultivation of symbiotic nitrogen fixing organisms viz. *Rhizobium* species (1)

Yeast extract serves as a good source of readily available 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.

Quality Control

Appearance
White to cream homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel.

Colour and Clarity of prepared medium
Whitish buff coloured opalescent gel forms in Petri plates.

Reaction
Reaction of 2.78% w/v aqueous solution at 25°C. pH : 6.8±0.2

pH
6.60-7.00

Cultural Response
M715: Cultural characteristics observed after an incubation at 25-30°C for upto 5 days.

Organism	Growth

Rhizobium leguminosarum ATCC 10004	luxuriant
Rhizobium meliloti ATCC 9930	luxuriant

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2- 8°C. Use before expiry date on the label.

Reference

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.

Revision : 02 / 2015