92412 Yeast Mannitol Agar without Calcium (YMA w/o Ca)

Used for cultivation, isolation, and enumeration of soil microorganisms like *Rhizobium*.

Composition:

Ingredients	Grams/Litre
Yeast extract	1.0
Mannitol	10.0
Dipotassium phosphate	0.5
Magnesium sulfate	0.2
Sodium chloride	0.1
Agar	15.0

Final pH 6.8 +/- 0.2 at 25°C

Store granulated media below 30°C in tightly closed container and the prepared medium at 2- 8°C. Avoid freezing and overheating. Once opened keep powdered medium closed to avoid hydration. Use before expiry date on the label.

Appearance(color): Faint yellow and Faint beige and Faint brown, free flowing powder
Gel strength: Firm, comparable with 1.5% AGAR GEL
Color and Clarity: Faint grey to grey and faint brown to brown colored, transparent, clear to slightly opalescent gel forms in petri plates.

Directions:
Suspend 26.8 g of Yeast Mannitol Agar without Calcium in 1000 ml of distilled water. Boil to dissolve the medium completely. Sterilize by autoclaving at 15 lbs. pressure (121°C) for 15 minutes.

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* (1888), 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.

Cultural characteristics observed after an incubation at 25-30°C for up to 5 days.

Organisms (ATCC)	Growth
Rhizobium leguminosarum (10004)	++
Rhizobium meliloti (9930)	++
Agrobacterium tumefaciens (33970)	++

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.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.