



## Azotobacter Broth (Mannitol)

M1722

Azotobacter Broth (Mannitol) is recommended for cultivation of mannitol positive *Azotobacter* species from soil.

### Composition\*\*

Ingredients	Gms / Litre
Dipotassium phosphate	1.000
Magnesium sulphate	0.200
Sodium chloride	0.200
Ferrous sulphate	TRACE
Soil extract	5.000
Mannitol	20.000
Final pH ( at 25°C)	8.3±0.2

\*\*Formula adjusted, standardized to suit performance parameters

### Directions

Suspend 26.4 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Dispense as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Slight precipitate may occur after autoclaving, however it will not interfere with growth performance nor interfere with the interpretation of results.

### Principle And Interpretation

*Azotobacter* is a free-living nitrogen-fixing bacterium (3), which is used as a biofertilizer in the cultivation of most crops. *Azotobacter* is found on neutral to alkaline soils, in aquatic environments, in the plant rhizosphere and phyllosphere. *Azotobacter* species are gram-negative aerobic soil-dwelling bacteria and are usually motile, oval, or spherical bacteria, form thick-walled cysts, and may produce large quantities of capsular slime. They are typically polymorphic, i.e. of different sizes and shapes. Their size of the cells ranges from 2-10 µm long and 1-2 µm wide. Plant needs nitrogen for its growth and *Azotobacter* fixes atmospheric nitrogen non-symbiotically. Therefore, all plants, trees, vegetables, get benefited. Beyond *Azotobacter* is used as a model it has biotechnological applications like use for alginate production and for nitrogen production in batch fermentations. This medium contains necessary nutrients for growth of *Azotobacter* species. For cultivation of mannitol positive *Azotobacter* species from soil, Azotobacter broth (Mannitol) can be used (1). It is used for cultivation of mannitol positive *Azotobacter* species from soil. It can also be useful for maintenance of *Azotobacter* species by adding extra 1% Mannitol to the medium containing agar i.e solid media as specified by the American Type Culture Collection (2).

### Quality Control

#### Appearance

White to Cream homogeneous free flowing powder

#### Colour and Clarity of Prepared medium

Colourless to off-white coloured clear to slightly opalescent solution with slight precipitate forms intubes

#### Reaction

Reaction of 2.64% w/v aqueous solution at 25°C. pH : 8.3±0.2

#### pH

8.10-8.50

#### Cultural Response

Cultural characteristics observed after an incubation at 25-30°C for 24-48 hours.

#### Cultural Response

Organism	Inoculum (CFU)	Growth
<b>Cultural Response</b> <i>Azotobacter beijerinckii</i> <i>ATCC 12981</i>	50-100	luxuriant

*Azotobacter nigricans* ATCC 50-100 luxuriant  
35009

### 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. Pelczar M. Jr., 1957, Manual of Microbiological Methods.
2. ATCC Catalogue of Bacteria and Bacteriophages, 1992, 18th ed, American Type Culture Collection, Rockville, MD.
3. Subba Rao N. S., 1977, Soil Microorganisms and Plant Growth, Oxford and IBH Publishing Co., New Delhi.

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