

## TM 1983 – AZOTOBACTER BROTH (MANNITOL)

### INTENDED USE

For cultivation of mannitol positive *Azotobacter* species from soil.

### PRODUCT SUMMARY AND EXPLANATION

*Azotobacter* is a free-living nitrogen-fixing bacterium, 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. 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.

### COMPOSITION

Ingredients	Gms / Ltr
Dipotassium hydrogen phosphate	1.000
Magnesium sulphate	0.200
Sodium chloride	0.200
Ferrous sulphate	Trace
Soil extract	5.000
Mannitol	20.000
Agar	15.000

### PRINCIPLE

The medium contains mannitol which acts as a source of energy. The salts present maintain the osmotic balance.

### INSTRUCTION FOR USE

- Dissolve 26.4 grams in 1000 ml distilled water.
- Heat if necessary to dissolve the medium completely.
- Dispense as desired. Sterilize by autoclaving at 15 psi 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.

### QUALITY CONTROL SPECIFICATIONS

<b>Appearance of Powder</b>	: White to Cream homogeneous free flowing powder.
<b>Appearance of prepared medium</b>	: Colourless to off-white coloured clear to slightly opalescent solution with slight precipitate forms in tubes
<b>pH (at 25°C)</b>	: 8.3±0.2



## INTERPRETATION

Cultural characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Incubation Temperature	Incubation Period
<i>Azotobacter beijerinckii</i>	12981	50-100	Luxuriant	>=70%	25-30°C	24-48 Hours
<i>Azotobacter nigricans</i>	35009	50-100	Luxuriant	>=70%	25-30°C	24-48 Hours

## PACKAGING:

In pack size of 500 gm bottles.

## STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.










**Product Deterioration:** Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

## DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

## REFERENCES

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.

 Good Manufacturing Practices Certified	 Best Before	 Quantity	 Catalogue Number	 Manufacturer
 Temperature Unit	 Lot / Batch Number	 Consults Instructions for Use	 QR Code	

**NOTE:** Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

**\*For Lab Use Only**  
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