

Product Data Sheet

AZOBACTER MEDIUM (MANNITOL)

Product No. GB-DCM-00054-1A

INTENDED USE

For isolation, cultivation and identification of mannitol positive Azotobacter species from soil.

PRODUCT SUMMARY

Bacteria of the family Azotobacteraceae constitute the majority of heterotrophic free-living nitrogen fixing bacteria. Azotobacter is a genus of free-living diazotrophic bacteria which have the highest metabolic rate compared to any other microorganisms. Azotobacters have generated a good deal of interest in the scientific community because of their unique mode of metabolism, by which they can fix nitrogen aerobically. Azotobacter Agar (Mannitol) is used for isolation and cultivation of mannitol positive Azotobacter species from soil. It is also useful for maintenance of Azotobacter species by adding extra 1% Mannitol to the medium as specified by the American Type Culture Collection.

Product Specifications

Ingredients	Gms / Ltr
Mono Potassium phosphate	0.1
Calcium chloride.2H ₂ O	0.1
Magnesium sulphate.7H ₂ O	0.1
Calcium Carbonate	5.000
Mannitol	5.000
Agar	15.000
Sodium Molybdate .2H ₂ O	0.005
Di Potassium Phosphate	0.9
Ferrous sulphate.7H ₂ O	0.01
Glucose	5.000



PRINCIPLE

Azotobacter medium (mannitol) is composed of mannitol and glucose, a carbon source for Azotobacter. Dipotassium phosphate, Magnesium sulphate and ferrous sulphate provide essential ions for bacterial growth while sodium chloride maintains osmotic equilibrium of media. Calcium carbonate acts as buffer to neutralize the acid produced by the strain. Sodium Molybdate .2H₂O role is to fix nitrogen which is important for microorganisms. The actual physiological function of calcium is unknown Nitrogen as the sole nitrogen source in the air. Phosphates are used as buffering agents. Magnesium presumably functions as an activator of phosphorylation, and may therefore be active at several different stages in the respiration. Equal concentrations of calcium are necessary for growth with free nitrogen, nitrate, ammonia, and asparagine.

INSTRUCTION FOR USE

- Dissolve 41.4 grams in 1000 ml of purified / distilled water.
- Heat to boiling to dissolve the medium completely.
- Cool to 45-50°C
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.
- If slight precipitate occurs after autoclaving, distribute it evenly before pouring into sterile Petri plates.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder: Off-white to beige homogeneous free flowing powder.

Appearance of prepared medium : Yellow coloured, clearly to slightly opalescent gel with precipitate forms in Petridishes.

pH (at 25°C) : 7.3

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers below 25°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.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Incubation Temperature	Incubation Period
Azotobacter beijerinckii	12981	50-100	Luxuriant	$\geq 50\%$	25 - 30°C	24-48 Hours
Azotobacter nigricans	35009	50-100	Luxuriant	$\geq 50\%$	25 - 30°C	24-48 Hours

This product is for research use only.