

PRODUCT SPECIFICATION SHEET



Azotobacter Agar (Glucose) (DM222)

Intended Use

Azotobacter Agar (Glucose) (DM222) is recommended for isolation and cultivation of glucose positive *Azotobacter* species from soil.

Product Summary and Explanation

Azotobacter is a genus aerobic, free-living soil microbes which play an important role in the nitrogen cycle in nature, binding atmospheric nitrogen, which is inaccessible to plants, and releasing it in the form of ammonium ions into the soil (nitrogen fixation).⁽¹⁾ They are diazotrophic bacteria which have the highest metabolic rate compared to any other microorganisms. *Azotobacter* species are Gram-negative bacteria found in neutral and alkaline soils, in water, and in association with some plants. Due to their unique mode of metabolism, by which they can fix nitrogen aerobically, *Azotobacter* have generated a good deal of interest in the scientific community. *Azotobacter* respire aerobically, receiving energy from redox reactions, using organic compounds as electron donors. *Azotobacter* can use a variety of carbohydrates, alcohols, and salts of organic acids as sources of carbon. *Azotobacter* can fix at least 10 µg of nitrogen per gram of glucose consumed. Azotobacter Agar (Glucose) is used for isolation and cultivation of glucose positive *Azotobacter* species from soil.⁽²⁾ By addition of extra 1% mannitol to the medium as specified by the American Type Culture Collection, it can also be useful for maintenance of *Azotobacter* species.⁽³⁾

Principles of the Procedure

Azotobacter Agar (Glucose) contains various organic substances and glucose which serve as a carbon source. Phosphate added acts as a buffering agent. Sodium chloride maintains the osmotic balance of the medium.

Formula / Liter

Ingredients	Gms / Liter
Dipotassium phosphate	1.00
Magnesium sulphate	0.20
Sodium chloride	0.20
Ferrous sulphate	0.005
Soil extract	5.00
Glucose	10.00
Agar	15.00
Final pH: 7.6 ± 0.2 at 25°C	
Formula may be adjusted and/or supplemented as required to meet performance specifications	

Precautions

1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

1. Suspend 31.4 grams of the medium in one litre of distilled water.
2. Heat to boiling to dissolve the medium completely.
3. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
4. If slight precipitate occurs after autoclaving, distribute it evenly before pouring into sterile Petri plates.

Quality Control Specifications

Dehydrated Appearance	Off white to beige homogeneous free flowing powder
Prepared Medium	Yellow coloured clear to slightly opalescent gel with slight precipitate forms in Petri plates
Reaction of 3.14% Solution	pH: 7.6 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 1.5% Agar gel



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Expected Cultural Response: Cultural characteristics observed after an incubation at 25-30°C for 24-48 hours or longer.

Sr. No.	Organisms	Results to be achieved
		Growth
1.	<i>Azotobacter beijerinckii</i> ATCC 12981	good-luxuriant
2.	<i>Azotobacter nigricans</i> ATCC 35009	good-luxuriant

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure

Refer appropriate references for standard test procedures.

Results

Refer appropriate references and test procedures for interpretation of results.

Storage

Store the sealed bottle containing the dehydrated medium at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

Expiration

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedure

1. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
2. Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : Azotobacter Agar (Glucose)

Product Code : DM222

Available Pack sizes : 500gm

References

1. Subba Rao N. S., 1977, Soil Microorganisms and Plant Growth, Oxford and IBH Publishing Co., New Delhi.
 2. Pelczar M. Jr., 1957, Manual of Microbiological Methods.
 3. ATCC Catalogue of Bacteria and Bacteriophages, 1992, 18th Ed, American Type Culture Collection, Rockville, MD.
- For further information please contact your local MICROMASTER Representative.



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