Norris Glucose Nitrogen Free Medium M712

Intended Use:

Recommended for cultivation of chemoheterotrophic bacteria that can fix atmospheric nitrogen.

Composition**

Ingredients	Gms / Litre
Dextrose (Glucose)	10.000
Dipotassium hydrogen phosphate	1.000
Magnesium sulphate	0.200
Calcium carbonate	1.000
Sodium chloride	0.200
Sodium molybdate	0.005
Ferrous sulphate	0.100
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 12.5 grams in 1000 ml purified/distilled water. Heat if necessary to dissolve the medium completely. Dispense into tubes or flasks as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.
Note: Due to the presence of calcium carbonate, the prepared medium forms opalescent solution with white precipitate.

Principle And Interpretation

The survival of microorganisms in the laboratory as well as in nature depends on their ability to grow under certain chemical and physical conditions. An understanding of these conditions enables us to characterize isolates and differentiate between different types of bacteria. Such knowledge can also be applied to control the growth of microorganisms in practical situations. Organisms that are generally organotrophic, may also be termed chemoorganotrophs. These organisms may use a variety of organic compounds as both carbon and energy sources. A common sugar so used is glucose. ATP is generated by either substrate-level or oxidative phosphorylation.
The medium contains glucose, which serves as the carbon source. Sodium molybdate in the medium increases the fixation of nitrogen (3). Various salts in the medium serve as buffer as well as essential ions to the chemoheterotrophic bacteria.

Type of specimen

Soil samples

Specimen Collection and Handling

For soil samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards (4). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations

1. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium.
2. Further biochemical and serological testing is required for complete identification.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance
Off-white to yellow homogeneous free flowing powder

Colour and Clarity of Prepared medium
Light yellow coloured clear to slightly opalescent solution with slight precipitate.
Reaction
Reaction of 1.25% w/v aqueous solution at 25°C. pH : 7.0±0.2
pH
6.80-7.20
Cultural Response
Cultural characteristics observed after an incubation at 25-30°C for 48-72 hours.

Organism	Growth
Alternaria solanii ATCC 2101	luxuriant

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 15-25°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (1,2).

Reference

1. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
2. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
3. Ranganayaki S., Mohan C., Effect of Sodium molybdate on microbial fixation of nitrogen, Z. Ally. Microbiol 1981; 21 (8): 607-10.
4. Subba Rao N. S., 1977, Soil Microorganisms and Plant Growth, Oxford and IBH Publishing Co., New Delhi.

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