



Zinc Solubilizing Medium

M2023

Intended use

Recommended for growth and maintenance of zinc solubilizing soil microorganisms.

Composition**

Ingredients	Gms / Litre
Dextrose (Glucose)	10.000
Ammonium sulphate	1.000
Potassium chloride	0.200
Dipotassium hydrogen phosphate	0.100
Magnesium sulphate, heptahydrate	0.200
Zinc oxide	1.000

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 12.40 grams (the equivalent weight of dehydrated medium per litre) 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. Cool to 45-50°C.

Principle And Interpretation

Among all micro nutrients, Zinc is a rather unique element for plant nutrition. Zinc (Zn) is one of the essential micronutrients required for optimum plant growth. Substantial quantity of applied inorganic zinc in soil is converted into unavailable form. Zinc solubilizing bacteria are potential alternates for zinc supplement. Zinc solubilizing bacteria solubilize both the insoluble zinc compounds, though ZnO is more effectively solubilized in comparison to ZnCO₃ (4). Dextrose acts as an energy source. Different salts provides various essential ions required for promoting growth of zinc solubilizers. Solubilization of zinc phosphate occurred by both an increase in the H⁺ concentration of the medium, probably a consequence of ammonia assimilation, and the production of gluconic acid (1).

This medium is recommended for the growth and maintenance of zinc solubilizing bacteria.

Type of specimen

Soil samples

Specimen Collection and Handling:

For soil samples follow appropriate techniques for handling specimens as per established guidelines (1,4).

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. Further biochemical testing must be carried out for further identification.

Performance and Evaluation

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

Quality Control

Appearance

Cream to white homogeneous free flowing powder

Colour and Clarity of prepared medium

Creamish white slightly opalescent solution.

Reaction

Reaction of 1.24% w/v aqueous solution at 25°C.

Cultural Response

Cultural characteristics observed after an incubation at 25-30°C for 3-4 days.

Organisms	Inoculum (CFU)	Growth	Zinc solubilization
<i>Pseudomonas fluorescens</i> ATCC 49838	50-100	Luxuriant	Clearing of the broth
<i>Pseudomonas fluorescens</i> ATCC 13525 (00115*)	50-100	Luxuriant	Clearing of the broth
<i>Bacillus cereus</i> ATCC 10876	50-100	Luxuriant	Clearing of the broth

Key : *Corresponding WDCM numbers.

Storage and Shelf Life

Store below 10-30°C in a tightly closed container and the prepared medium at 2-8°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. Use before expiry date on the label.

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 (2,3).

Reference

1. Biology and Fertility of Soils November 1998, Volume 28, Issue 1, pp 87-94., C. D. Di Simine, J. A. Sayer, G. M. Gadd
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
3. 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.
4. Subba Rao, 1977, Soil Microorganisms and Plant Growth, Oxford and IBH Publishing Co., India.

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Disclaimer :

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