Technical Information

Inorganic Salt Medium (Modified Raggios Medium)

Product Code: - DM 1723

Application: - Inorganic Salt Medium (Modified Raggios Medium) is used for studying soil microorganisms such as *Rhizobium* species.

Composition**

Ingredients	Gms / Litre
Calcium carbonate	3000.000
Calcium chloride, 6H2O	446.000
Potassium chloride	165.000
Monopotassium phosphate	200.000
Magnesium sulphate. heptahydrate	700.000
Sodium sulphate	200.000
Potassium iodide	0.750
Iron (III) Chloride, 6H2O	2.500
Boric acid	1.500
Sodium molybdate, 2H2O	0.250
Manganese sulphate, 4H2O	6.640
Zinc sulphate, 7H2O	2.670
Copper sulphate, 5H2O	0.070

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Rhizobia are nitrogen-fixing bacteria, which live freely in soil and in the root region of both leguminous and non-leguminous plants. These bacteria are capable of forming symbiotic relationships with only leguminous plants in which the bacteria infect the plant roots and induce the formation of specialized structures called nodules. In the nodules, the bacteria multiply, form specialized cells called bacteroids and subsequently convert atmospheric nitrogen to ammonia. Energy for the reduction of nitrogen to bacteroides is provided by the plant, through photosynthesis and the resultant product provides a nitrogen source for the plant [(1)]. Inorganic Salt Medium [(2)] modified as per Bunting and Horrocks [(3)] is used for studying and isolation of soil microorganisms, such as *Rhizobium* species.

Calcium stimulates nodulation when present as chloride or sulphate. Molybdenum is essential for symbiotic nitrogen fixation and stimulates the nitrogen fixing activity of the nodular tissue. Inorganic Salt Medium is used to moisten the sand (or used as such) into which the suspended roots grow.

Methodology

Suspend 4.14 grams of dehydrated medium in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and dispense as desired.

Note: Due to presence of calcium carbonate, the medium forms opalescent solution with white precipitate.

Quality Control

Physical Appearance
White to light yellow homogeneous free flowing powder

Colour and Clarity of prepared medium
Light yellow clear solution with heavy white precipitate at bottom.

Cultural Response/Characteristics
DM 1723: Cultural characteristics observed after an incubation at 25-30°C for upto 7 days

Organism	Growth
Rhizobium leguminosarum *ATCC 10004*	luxuriant
Rhizobium phaseoli *ATCC 14482*	luxuriant
Rhizobium trifolii *ATCC 14480*	luxuriant

Storage and Shelf Life

Dried media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1.Balows A., Truper H. G., Dworkin M., Harder W., Schleifer K. H., (Eds.), The Prokaryotes, 2nd Edition, Vol. III, Springer-Verlag.

2. Subba Rao N. S., 1977, Soil Microorganisms and Plant Growth, Oxford and IBH publishing Co., New Delhi. 3.Bunting A. H. and Horrocks J., 1964, Ann. Bot., 28:229.

Disclaimer :

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