Technical Information

Chlorella Agar

Product Code: DM 1768

Application: - Chlorella Agar is recommended for cultivation and maintenance of *Chlorella* species.

Composition**

Ingredients	Gms / Litre
Cupric sulphate	0.0000078
Sodium molybdate	0.00005
Zinc sulphate	0.00022
Boric acid	0.00028
Manganese sulphate	0.0014
Ferrous sulphate	0.0015
Potassium citrate	0.032
Potassium sulphate	0.217
Magnesium sulphate	2.400
Monopotassium phosphate	2.450
Potassium nitrate	2.500
Dextrose	10.000
Agar	17.000
Final pH (at 25°C)	4.5±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Chlorella is a genus of single-celled green algae, belonging to the phylum Chlorophyta. *Chlorella* contains the green photosynthetic pigments chlorophyll-a and chlorophyll b in its chloroplast. It depends on photosynthesis for growth and multiplies rapidly, requiring only carbon dioxide, water, sunlight, and a small amount of minerals. *Chlorella* has been researched as a potential source of food and energy, because its efficiency of photosynthesis can reach 8%, (1) which is comparable with other highly efficient crops such as sugarcane. *Chlorella* media were originally formulated by Shrift (2) and further modified for cultivation and maintenance of *Chlorella* species.

All algae utilize inorganic phosphates and sulphates. There is a fairly high requirement of molybdate as a trace metal in nitrogen fixation. Algae require calcium, magnesium, potassium and probably sodium. Most algae grow poorly on agar and it is best to let them become established in liquid culture before adapting them to the more rigorous conditions of an agar slant.

Chlorella being photosynthetic green algae, should be cultivated in the presence of light. Bright diffuse light; fluorescent light and sunlight are satisfactory sources of light for the growth of *Chlorella*. The inoculated tubes/flasks should be incubated in the presence of light at 25-27°C for a week to permit good growth and pigmentation (3). *Chlorella* cultures can be maintained at room temperature for 2-3 months without subculturing.

Methodology

Suspend 34.6 grams of dehydrated media in 1000 ml distilled water. Mix thoroughly & heat to boil to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates

Quality Control

Appearance
White to cream homogeneous free flowing powder.

Gelling
Firm, comparable with 1.7% Agar gel.

Colour and Clarity
Amber coloured, clear to slightly opalescent gel forms in Petri plates.

Reaction
Reaction of 3.46% w/v aqueous solution at 25°C. pH : 4.5±0.2

pH Range
4.30-4.70

Cultural Response
DM1768: Cultural characteristics observed in presence of light, after an incubation at 25-27°C for 7 days.

Organism	Growth
Chlorella vulgaris ATCC 9765	good-luxuriant
Euglena gracilis ATCC 12716	good-luxuriant

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and the prepared medium at 2-8°C .Use before expiry date on the label.
Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Zelitch I., Photosynthesis, Photorespiration and Plant Productivity, Academic Press, 1971, p.275.
2. Shrift, 1954, Am. J. Botany, 41:223-230.
3. Norris J. R. & Ribbons D. W., (Ed.), 1963, Methods in Microbiology,Volume 3B, Academic press, London, pg. 269.

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