BG11 Broth w/ Minerals

M1958

Intended Use:

A universal medium for the cultivation and maintenance of blue green algae (cyanobacteria).

Composition**

Ingredients	Gms / Litre
Sodium nitrate ($NaNO_3$)	1.500
Dipotassium hydrogen phosphate (K_2HPO_4)	0.040
Magnesium sulphate, heptahydrate ($MgSO_4$)	0.075
Calcium chloride dihydrate	0.036
Citric acid	0.006
Ferric ammonium citrate	0.006
EDTA, disodium salt	0.001
Sodium carbonate	0.020
Trace metal mix	1.000 ml

Trace metal mix	Gms / Litre
Boric acid (H_3BO_3)	2.860
Manganese chloride, tetrahydrate	1.810
Zinc sulphate, heptahydrate	0.222
Sodium molybdate, dihydrate	0.390
Copper sulphate, pentahydrate	0.079
Cobalt nitrate, hexahydrate	0.0494
Final pH (at 25°C)	7.10

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 1.642 grams (the equivalent weight of dehydrated medium per litre) in 1000 ml purified / distilled water. Heat if necessary to dissolve the medium. It is recommended to adjust pH with 1 M NaOH or HCl if it does not achieve 7.1. Dispense in flasks or as desired. Sterilize by autoclaving at 121°C for 15 minutes. Cool the medium to room temperature. For marine species make as solution of 10 g/L sodium chloride and 1 g/L Vitamin B12. Add 20 ml of this solution (sterile filtered) to 1000 ml D/W.

Principle And Interpretation

This medium supports growth of photoautotrophic blue green algae (1,5). This medium with added trace metals is cited in ATCC as Medium 616 for maintenance of *Synechocystis* species (2).
They require light as source of energy. Synthetic nitrogen and carbon sources and other inorganic salts comprise this medium. Exposure to light intensity of 2,000 to 3,000 lux is optimal for cultivation of blue green algae. Neon light source is found to be sufficient to provide this illumination. For maintenance of blue green algae exposure for period of 24 hours a day is optimal. Often the flasks kept for incubation may be covered with grease proof paper. They grow optimally at room temperature between range of 20-25°C.

Type of specimen

Soil Sample.

Specimen Collection and Handling

For soil samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(2,6)
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. Due to nutritional variations certain strains may show poor growth.

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 cream homogeneous free flowing powder

Colour and Clarity of Prepared medium
Colourless clear to slightly opalescent solution forms in tubes (with slight precipitate may occur.)

Reaction
Reaction of 0.164% w/v aqueous solution at 25°C. pH : 7.10

pH
7.10

Cultural Response

Cultural characteristics observed after an incubation at 20-25°C for 1 week.

Organism	Inoculum (CFU)	Growth
Synechcystis species PCC6803 ATCC 27184	50-100	good-luxuriant

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium 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 (3,4).

Reference

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4. 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.
5. R.Y. Stanier,R. Kunisawa,M. Mandel, & Cohen-Bazire,G. Bacteriol.Rev. 35: 171-205 (1971).
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