



Jun 12,
2019

BG11 medium

Roscoff Culture Collection¹

¹CNRS-Sorbonne Université, Station Biologique, Place G. Tessier 29680 Roscoff FRANCE

Working

dx.doi.org/10.17504/protocols.io.s2pegdn

Roscoff Culture Collection



Daniel Vaultot

Station Biologique, Roscoff, France



ABSTRACT

Medium to grow freshwater cyanobacteria.

STEPS MATERIALS

NAME	CATALOG #	VENDOR
BG11 medium	C3061-500ML	Sigma – Aldrich

Prepare using Sigma Aldrich stock

- Under hood, to 1L of sterile water, add 20 mL of Cyanobacteria BG-11 Freshwater Solution from Sigma
 - Filter the medium on 0,2 microns



BG11 medium

by Sigma – Aldrich

Catalog #: C3061-500ML

Prepare from base chemicals

2



Recipe for standard BG-11 media
by Anna AB. Behle,
Institute for Synthetic Microbiology

PREVIEW

RUN

2.1

- CaCl₂ 2H₂O (3.6 g · L⁻¹)
- Citric acid (0.6 g · L⁻¹)
- NaNO₃ (149.58 g · L⁻¹)
- MgSO₄ · 7 H₂O (7.49 g · L⁻¹)
- 0.25 M Na₂-EDTA, pH 8.0 (0.56 ml · L⁻¹)

For 100x BG11 Stock -N:

- Omit NaNO₃.

2.2

- 1000x Na₂CO₃: 20 mg L⁻¹

- 100x TES-buffer, pH 8.0 (1M), adjust with KOH
- 1000x $\text{K}_2\text{HPO}_4 \times 3 \text{ H}_2\text{O}$: 30 mg · mL⁻¹
- 1000x Fe(III) ammonium citrate (6 mg · L⁻¹)
- 5000x $\text{CuSO}_4 \cdot 5 \text{ H}_2\text{O}$ (395 ng · mL⁻¹) (sterilize using a filter)

2.3 1000x concentration:

- H_3BO_3 (2.86 g · L⁻¹)
- $\text{MnCl}_2 \cdot 4 \text{ H}_2\text{O}$ (1.81 g · L⁻¹)
- $\text{ZnSO}_4 \cdot 7 \text{ H}_2\text{O}$ (0.222 g · L⁻¹)
- $\text{Na}_2\text{MoO}_4 \cdot 2 \text{ H}_2\text{O}$ (0.390 g · L⁻¹)
- $\text{Co}(\text{NO}_3)_2 \cdot 6 \text{ H}_2\text{O}$ (0.049 g · L⁻¹)

For BG11 lacking certain metals (e.g. for working with metal inducible promoters P_{petE} , P_{coaT} , P_{ziaA} etc., trace metal mix can be prepared lacking these chemicals and used instead of standard trace metal mix.

2.4 Fill 1 L bottle with 500 mL ultra pure water. Add stock solutions as shown below.

Stock solution	Volume
100x BG11 Stock	10 mL
1000x Na_2CO_3	1 mL
1000x $\text{K}_2\text{HPO}_4 \times 3 \text{ H}_2\text{O}$	1 mL
100x TES-buffer	10 mL
1000x Trace Metal Mix	1 mL

Add ultra pure water to 1 L.

Autoclave.

After autoclaving, add 1 mL 1000x Fe(III) ammonium citrate.

Optional: After autoclaving, add 200 µL 5000x CuSO_4

2.5 Fill 1 L bottle with 500 mL ultra pure water. Add stock solutions as shown below.

Stock solution	Volume
100x BG11 Stock -N	10 mL
1000x Na_2CO_3	1 mL
1000x $\text{K}_2\text{HPO}_4 \times 3 \text{ H}_2\text{O}$	1 mL
100x TES-buffer	10 mL
1000x Trace Metal Mix	1 mL

Add ultra pure water to 1 L.

Autoclave.

After autoclaving, add 1 mL sterile 1000x Fe(III) ammonium citrate.

Optional: After autoclaving, add 200 µL sterile 5000x CuSO_4

2.6 Fill 500 mL bottle with 250 mL ultra pure water. Add stock solutions as shown below.

Stock solution	Volume
100x BG11 Stock -N	10 mL
1000x Na_2CO_3	1 mL
1000x $\text{K}_2\text{HPO}_4 \times 3 \text{ H}_2\text{O}$	1 mL
100x TES-buffer, pH = 8.0	10 mL

1000x Trace Metal Mix	1 mL
-----------------------	------

Add ultra pure water to 500 mL.

Autoclave.

After autoclaving, add 1 mL sterile 1000x Fe(III) ammonium citrate.

Optional: After autoclaving, add 200 µL sterile 5000x CuSO₄

2.7 Prepare 1.5 % agar: Weigh 4.5 g Bacto Agar. Fill up to 300 mL. Autoclave.

Microwave agar until liquid. Let cool.

2.8 In a 50 mL Falcon, add 1 vol 2x BG11 and 1 vol liquid 1.5 % agar. (Note: Usually, one plate requires 30-40 mL total volume.)

2.9 When mixture is hand warm, add appropriate antibiotics, if required. Quickly pour plate, avoiding air bubbl



This is an open access protocol distributed under the terms of the [Creative Commons Attribution License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited