

BG-11 Medium (modified)

Allen and Stanier 1968, Rippa et al. 1979, Watanabe 2005

This medium has an exceptionally high concentration of nitrate and phosphate. No vitamins are included in the recipe originally designed for cyanobacteria, but vitamins should be added for growing many eukaryotic algae. First, prepare the Fe citrate stock solution by dissolving citrate and ferric ammonium citrate in 1-liter dH₂O. To prepare BG-11 medium, begin with 900 mL of dH₂O, add 1 mL of the Fe Citrate solution, and then add the remaining components. Autoclave. Final pH 7.4 after cooling and CO₂ equilibration.

Component	Stock Solution	Quantity	Molar Concentration in Final Medium
<i>Fe Citrate solution</i>		1 mL	
Citric acid	6.0 g L ⁻¹ dH ₂ O	---	3.12 x 10 ⁻⁵ M
Ferric ammonium citrate	6.0 g L ⁻¹ dH ₂ O		~3 x 10 ⁻⁵ M
<i>Macronutrients</i>			
NaNO ₃	---	1.5 g	1.76 x 10 ⁻² M
K ₂ HPO ₄ · 3H ₂ O	40.0 g L ⁻¹ dH ₂ O	1 mL	1.75 x 10 ⁻⁴ M
MgSO ₄ · 7H ₂ O	75.0 g L ⁻¹ dH ₂ O	1 mL	3.04 x 10 ⁻⁴ M

CaCl ₂ 2H ₂ O	36.0 g L ⁻¹ dH ₂ O	1 mL	2.45 x 10 ⁻⁴ M
Na ₂ CO ₃	20.0 g L ⁻¹ dH ₂ O	1 mL	1.89 x 10 ⁻⁴ M
trace metals solution	(see recipe below)	1 mL	---

Trace Metals Solution

This is also known as A5 + Co trace metals solution. To 950mL of d H₂O add the EDTA and the other components and bring to a final volume of 1liter.

Component	Stock Solution	Quantity	Molar Concentration in Final Medium
MgNa ₂ EDTA 3H ₂ O	---	1.000 g	2.26 x 10 ⁻⁶ M
H ₃ BO ₃	---	2.860 g	4.63 x 10 ⁻⁵ M
MnCl ₂ 4H ₂ O	---	1.810 g	9.15 x 10 ⁻⁶ M
ZnSO ₄ 7H ₂ O	---	0.220 g	7.65 x 10 ⁻⁷ M
CuSO ₄ 5H ₂ O	79.0 g L ⁻¹ dH ₂ O	1 mL	3.16 x 10 ⁻⁷ M

Na ₂ MoO ₄ · 2H ₂ O	---	0.391g	1.61 x 10 ⁻⁶ M
Co(NO ₃) ₂ · 6H ₂ O	49.4 g L ⁻¹ dH ₂ O	1 mL	1.70 x 10 ⁻⁷ M

Allen, M.M. & Stanier, R.Y. 1968. Growth and division of some unicellular blue-green algae. *J. Gen. Microbiol.* **51**: 199-202.

Hughes, E.O., Gorham, P.R. & Zehnder, A. 1958. Toxicity of a unialgal culture of *Microcystis aeruginosa*. *Can. J. Microbiol.* **4**: 225-36.

Watanabe, M. 2005. "Freshwater culture media." *Algal Culturing Techniques* (Elsevier, Amsterdam.)