

## Galdieria-Medium

Original recipe as in:

Gross & Schnarrenberger (1995), modified according to Allen's *Cyanidium* Medium, modified (Allen 1959, Watanabe *et al.* 2000).

further references:

Allen, M.B. (1959): Studies with *Cyanidium caldarium*, an anomalously pigmented chlorophyte. - *Arch. Mikrobiol.* **32**(3): 270-277.

Gross, W. & Schnarrenberger, C. (1995): Heterotrophic growth of two strains of the acido-thermophilic red alga *Galdieria sulphuraria*. - *Plant Cell Physiol.* **36**(4): 633-638.

Watanabe *et al.* 2000: > see present online-catalogue of NIES collection

For 1000 mL final culture medium add the following quantities (Volume/Mass) of stock solutions (SL) prepared at the given concentrations to 850 mL dd-H<sub>2</sub>O. Add **one component after the other until each one has completely mixed** and finally fill up to 1000 mL.

All stock solutions can be stored unsterilised at 4 °C. Store sterile-filtered vitamin mix (SL 12) at -20 °C.

Stock Solution (SL)	Volume or Mass	Component	Concentration in SL	Concentration in final Medium
-	1.50 g	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	-	1.1 · 10 <sup>-2</sup> M
-	0.30 g	MgSO <sub>4</sub> · 7H <sub>2</sub> O	-	1.2 · 10 <sup>-3</sup> M
-	0.30 g	KH <sub>2</sub> PO <sub>4</sub>	-	2.2 · 10 <sup>-3</sup> M
-	1 mL	CaCl <sub>2</sub> · 2H <sub>2</sub> O	2 g · 100 mL <sup>-1</sup>	1.3 · 10 <sup>-4</sup> M
Fe-EDTA	2.07 mL	EDTA (not as Na-salt)	0.52 g · 100 mL <sup>-1</sup>	3.66 · 10 <sup>-5</sup> M
		FeSO <sub>4</sub> · 7H <sub>2</sub> O	0.5 g · 100 mL <sup>-1</sup>	3.70 · 10 <sup>-5</sup> M
		KOH 1n	5.4 mL · 100 mL <sup>-1</sup>	1.11 · 10 <sup>-6</sup> M
Trace elements solution (Allen metals)	1 mL	ZnSO <sub>4</sub> · 7H <sub>2</sub> O	220 mg · 1 L <sup>-1</sup>	7.65 · 10 <sup>-7</sup> M
		H <sub>3</sub> BO <sub>3</sub>	2860 mg · 1 L <sup>-1</sup>	4.63 · 10 <sup>-5</sup> M
		CoCl <sub>2</sub> · 6H <sub>2</sub> O	40 mg · 1 L <sup>-1</sup>	1.68 · 10 <sup>-7</sup> M
		CuSO <sub>4</sub> · 5H <sub>2</sub> O	79 mg · 1 L <sup>-1</sup>	6.40 · 10 <sup>-6</sup> M
		(NH <sub>4</sub> ) <sub>6</sub> Mo <sub>7</sub> O <sub>27</sub> · 6H <sub>2</sub> O	130 mg · 1 L <sup>-1</sup>	2.10 · 10 <sup>-7</sup> M
		NaVO <sub>3</sub>	40 mg · 1 L <sup>-1</sup>	3.28 · 10 <sup>-7</sup> M
		MnCl <sub>2</sub> · 4H <sub>2</sub> O	1790 mg · 1 L <sup>-1</sup>	9.04 · 10 <sup>-6</sup> M

Combine all trace elements in one SL. Dissolve each component completely one after the other. It may need autoclaving to dissolve. Trace elements solution should **not** be stored in glass containers, but instead in teflon or polycarbonate containers to prevent adsorption of metals to container surface.

**Adjust medium to final pH of 1.8 or as desired with 0.5 M H<sub>2</sub>SO<sub>4</sub> and autoclave at 121 °C for 20 min.**

For stock cultures on agar slants add 1.0-1.3 % Agar (e.g. purified high strength, 1000 g · cm<sup>-2</sup>) to prepared medium before autoclaving. The pH must be lowered to 4-4.5, otherwise the agar will not solidify.

1 % glucose may be added for heterotrophic cultivation in the dark.