Kropat's Trace Elements Solutions

from Kropat J, Hong-Hermesdorf A, Casero D, Ent P, Castruita M, Pellegrini M, Merchant SS, Malasarn D (2011) A revised mineral nutrient supplement increases biomass and growth rate in Chlamydomonas reinhardtii. Plant J. 66:770-80

Revised Trace Elements Recipe

Make preliminary concentrated stock solutions in Part A first, and, where indicated, use these to make the individual stock solutions in Part B listed below. Only solutions in Part B are added directly to media.

A. Preliminary concentrated stock solutions

Pre-1. EDTA-Na_2 concentrate	125 mM	13.959 g in ~ 250 ml, titrate to pH 8.0 with trace element grade KOH (~1.7 g), and bring up to a volume of 300 ml
Pre-2. $(NH_4)_6Mo_7O_{24}$ concentrate	285 µM	$(NH_4)_6Mo_7O_{24}\cdot 4H_2O$: 0.088 g, bring up to a volume of 250 mL
Pre-3. Na_2SeO_3 concentrate	1 mM	Na_2SeO_3: 0.043 g, bring up to a volume of 250 mL

B. Individual Stock Solutions for medium (1000×)

Bring each stock solution up to 250 mL in water. Use 1 mL of each individual stock solution in 1 L medium.

Stock Solution	Concentration in stock	Composition
1. EDTA-Na_2	25 mM	EDTA-Na_2: 50 mL of 125 mM EDTA-Na_2 concentrate (Pre-1) from Step A
2. $(NH_4)_6Mo_7O_{24}$	28.5 µM*	$(NH_4)_6Mo_7O_{24}\cdot 4H_2O$: 25 mL of 285 µM $(NH_4)_6Mo_7O_{24}$ concentrate (Pre-2) from Step A
3. Na_2SeO_3	0.1 mM	Na_2SeO_3: 25 mL of 1 mM Na_2SeO_3 concentrate (Pre-3) from Step A
4. Zn·EDTA	2.5 mM 2.75 mM	$ZnSO_4\cdot 7H_2O$: 0.18 g EDTA-Na_2: 5.5 mL of 125 mM EDTA-Na_2 concentrate (Pre-1) from Step A

5. Mn·EDTA	6 mM	$MnCl_2·4H_2O$: 0.297 g
	6 mM	EDTA-Na_2: 12 mL of 125 mM EDTA-Na_2 concentrate (Pre-1) from Step A
6. Fe·EDTA	20 mM	$FeCl_3·6H_2O$: 1.35 g
	22 mM	EDTA-Na_2: 2.05 g
	22 mM	Na_2CO_3 (sodium carbonate): 0.58 g
	(Combine EDTA-Na_2 with sodium carbonate in water and mix. Add $FeCl_3·6H_2O$ after the first two components dissolve. Do Not Use Pre-1.)	
7. Cu·EDTA	2 mM	$CuCl_2·2H_2O$: 0.085 g
	2 mM	EDTA-Na_2: 4 mL of 125 mM EDTA-Na_2 concentrate (Pre-1) from Step A

Notes:
*The final [Mo] in the 1× medium is 0.2 µM
Total [EDTA] in 1× medium: (25 + 2.75 + 6 + 22 + 2) = 57.75 µM