

Optimisation of seed germination and seedling cultivation conditions for *Bruguiera gymnorrhiza* and *Acanthus ilicifolius* in a plant factory

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ELECTRONIC SUPPLEMENTARY MATERIAL (ESM)

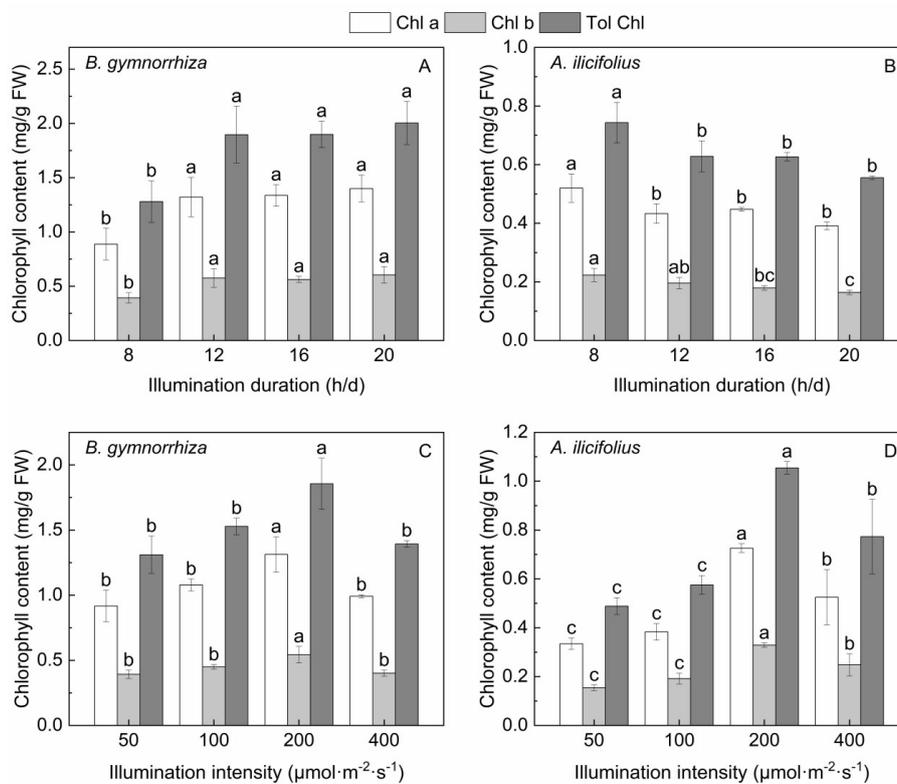
The authors are fully responsible for both the content and the formal aspects of the electronic supplementary material. No editorial adjustments were made.



Figure S1. Schematic diagram and photo of the plant factory culture device

Table S1. Formulations of Ca²⁺/Mg²⁺ and trace elements in this study

Form	Nutrient solution ingredient	Concentration	Additive amount
Ca ²⁺ /Mg ²⁺	MgSO ₄ ·7H ₂ O (mg/kg substrate)	0 (0×), 30.81 (0.5×), 61.62 (1×), 123.24 (2×), 184.86 (3×)	–
	CaCl ₂ (mg/kg substrate)	0 (0×), 27.75 (0.5×), 55.50 (1×), 111.00 (2×), 166.5 (3×)	
Trace element	H ₃ BO ₃ (g/L)	0 (0×), 1.43 (0.5×), 2.860 (1×), 5.72 (2×), 8.58 (3×)	1 mL/kg substrate
	MnSO ₄ (g/L)	0 (0×), 0.5075 (0.5×), 1.015 (1×), 2.03 (2×), 3.045 (3×)	
	CuSO ₄ ·5H ₂ O (g/L)	0 (0×), 0.0395 (0.5×), 0.079 (1×), 0.158 (2×), 0.237 (3×)	
	ZnSO ₄ ·7H ₂ O (g/L)	0 (0×), 0.110 (0.5×), 0.220 (1×), 0.440 (2×), 0.660 (3×)	
	H ₂ MoO ₄ (g/L)	0 (0×), 0.045 (0.5×), 0.090 (1×), 0.180 (2×), 0.270 (3×)	
	FeSO ₄ ·7H ₂ O (g/L)	0 (0×), 2.785 (0.5×), 5.57 (1×), 11.14 (2×), 16.71 (3×)	
	EDTA-Na ₂ (g/L)	0 (0×), 3.725 (0.5×), 7.45 (1×), 14.9 (2×), 22.35 (3×)	

Figure S2. Chlorophyll *a*, *b* and total chlorophyll contents of *Bruguiera gymnorrhiza* and *Acanthus ilicifolius* seedlings under different illumination (A, B) durations and (C, D) intensities

^{a,b,c}different letters indicate significant differences ($P < 0.05$)

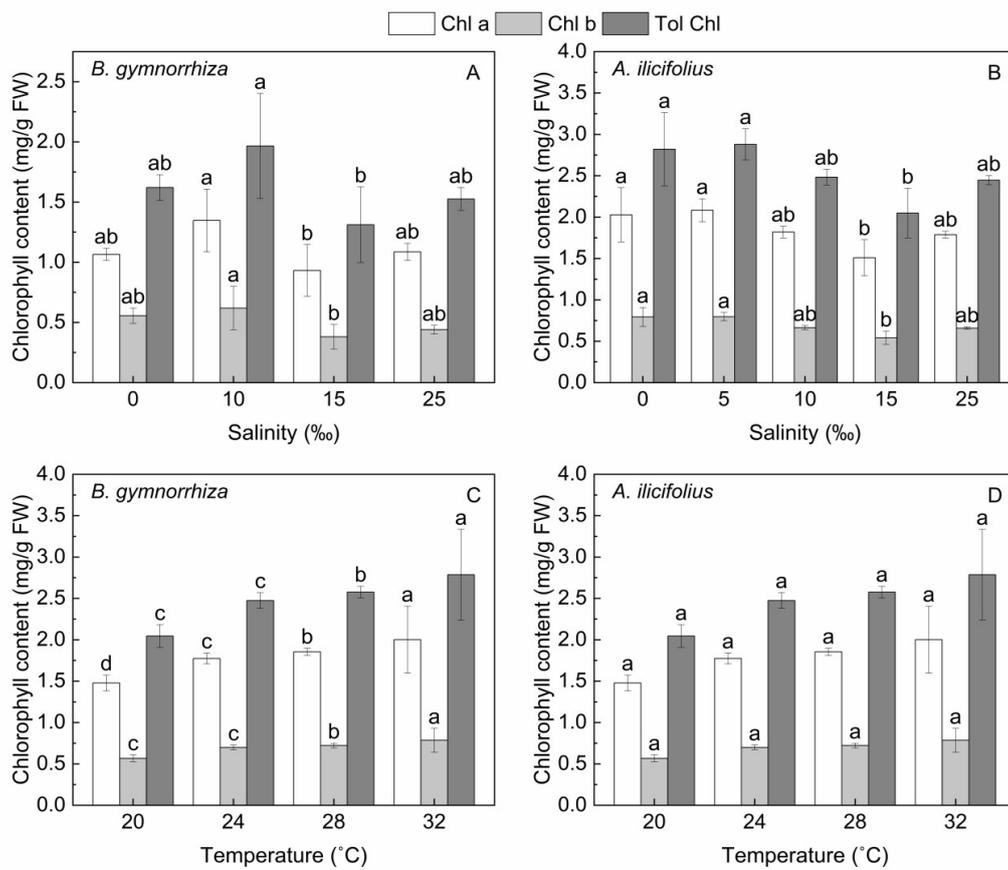


Figure S3. Chlorophyll *a*, *b* and total chlorophyll contents of *Bruguiera gymnorrhiza* and *Acanthus ilicifolius* seedlings under different (A, B) salinities and (C, D) temperatures ^{a-d}different letters indicate significant differences ($P < 0.05$)

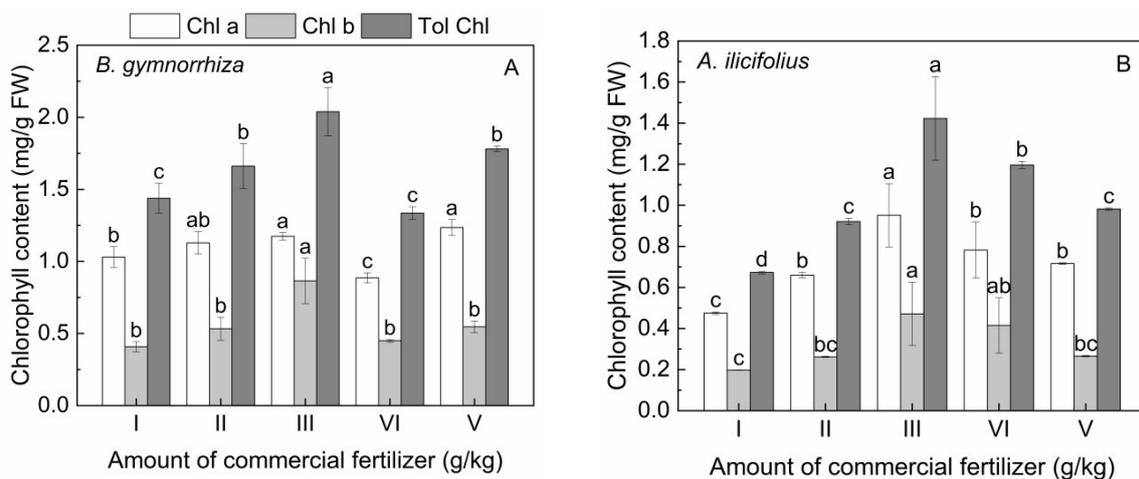


Figure S4. Chlorophyll *a*, *b* and total chlorophyll contents of *Bruguiera gymnorrhiza* and *Acanthus ilicifolius* seedlings under different additions of commercial fertiliser I–V – different additive amounts of fertiliser for *B. gymnorrhiza* (0, 0.27, 0.53, 1.07 and 1.60 g/kg substrate of Stanley commercial fertiliser, respectively), and for *A. ilicifolius* (0, 2.70, 5.39, 10.77 and 21.54 g/kg substrate of Yuanlv commercial fertiliser, respectively) ^{a-d}different letters indicate significant differences ($P < 0.05$)

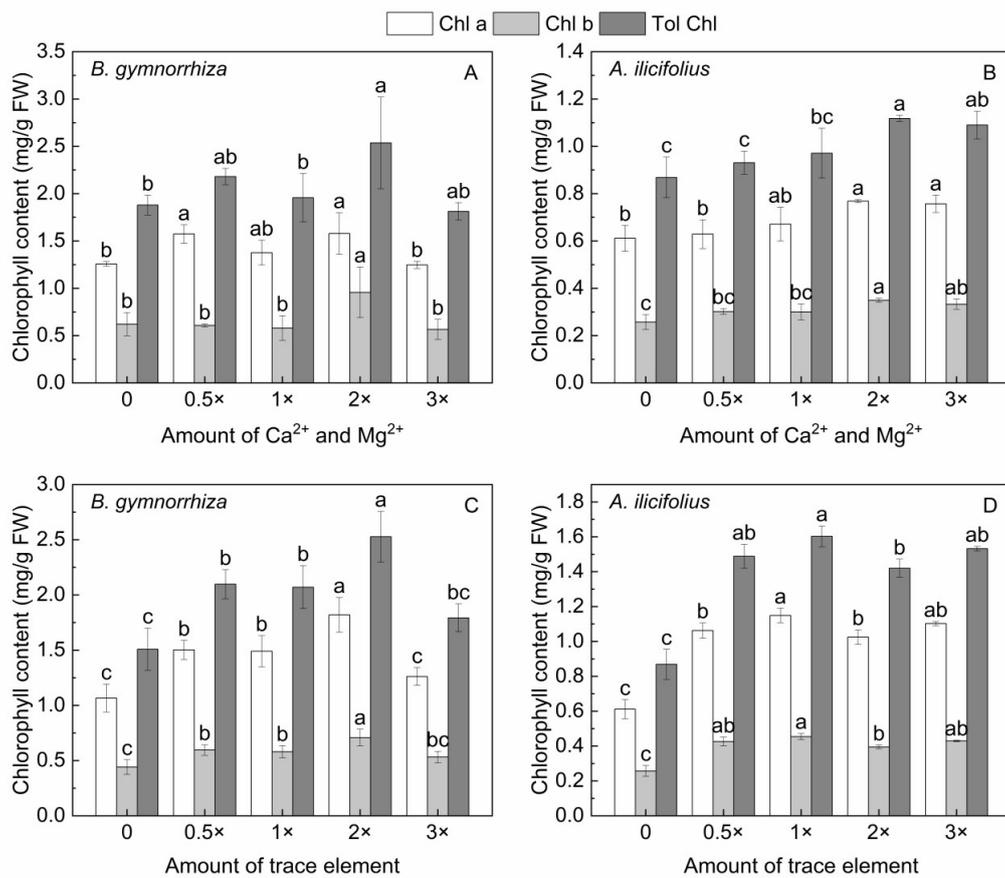


Figure S5. Chlorophyll *a*, *b* and total chlorophyll contents of *Bruguiera gymnorrhiza* and *Acanthus ilicifolius* seedlings under different additions of (A, B) $\text{Ca}^{2+}/\text{Mg}^{2+}$ and (C, D) trace elements
^{a,b,c}different letters indicate significant differences ($P < 0.05$)