

Supplementary Material for

**LED lighting and high-density planting enhance the cost-
efficiency of *Halimione portulacoides* extraction units for
integrated aquaculture**

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Table S1: Chemical composition of the hydroponic medium

| | Molar mass (g mol⁻¹) | Concentration (mM) |
|---|--|--|
| <i>Molecules</i> | | |
| KNO ₃ | 101.11 | 1.90 |
| Ca(NO ₃) ₂ .4H ₂ O | 236.15 | 1.25 |
| NH ₄ H ₂ PO ₄ | 115.03 | 0.10 |
| MgSO ₄ . 7H ₂ O | 246.48 | 0.25 |
| KCl | 74.56 | 0.05 |
| H ₃ BO ₃ | 61.83 | 0.03 |
| MnSO ₄ . H ₂ O | 169.01 | 2e-3 |
| ZnSO ₄ .7H ₂ O | 287.56 | 2e-3 |
| CuSO ₄ . 5H ₂ O | 249.68 | 5e-4 |
| (NH ₄) ₆ Mo ₇ O ₂₄ . 4H ₂ O | 1235.86 | 5e-4 |
| FeNaEDTA | 367.05 | 0.02 |
| | Atomic mass | Concentration (mg L⁻¹) |
| <i>Chemical elements</i> | | |
| N | 14.00 | 63.00 |
| P | 30.97 | 3.10 |
| S | 32.06 | 8.16 |
| K* | 39.10 | 76.25 |
| Ca* | 40.08 | 50.01 |
| Mg* | 24.31 | 6.08 |
| Fe | 55.85 | 1.12 |
| Cu | 63.55 | 0.03 |
| Zn | 65.38 | 0.13 |
| Mn | 54.94 | 0.11 |
| B* | 10.81 | 0.27 |
| Mo | 95.95 | 0.34 |

* These elements are already present in high concentrations in the base saline solution, which are not accounted for in this table. At 20 ppt, Red Sea® saline water has, according to manufacturer's information: 235-248 mg L⁻¹ Ca; 703-742 mg L⁻¹ Mg and 213-226 mg L⁻¹ K.

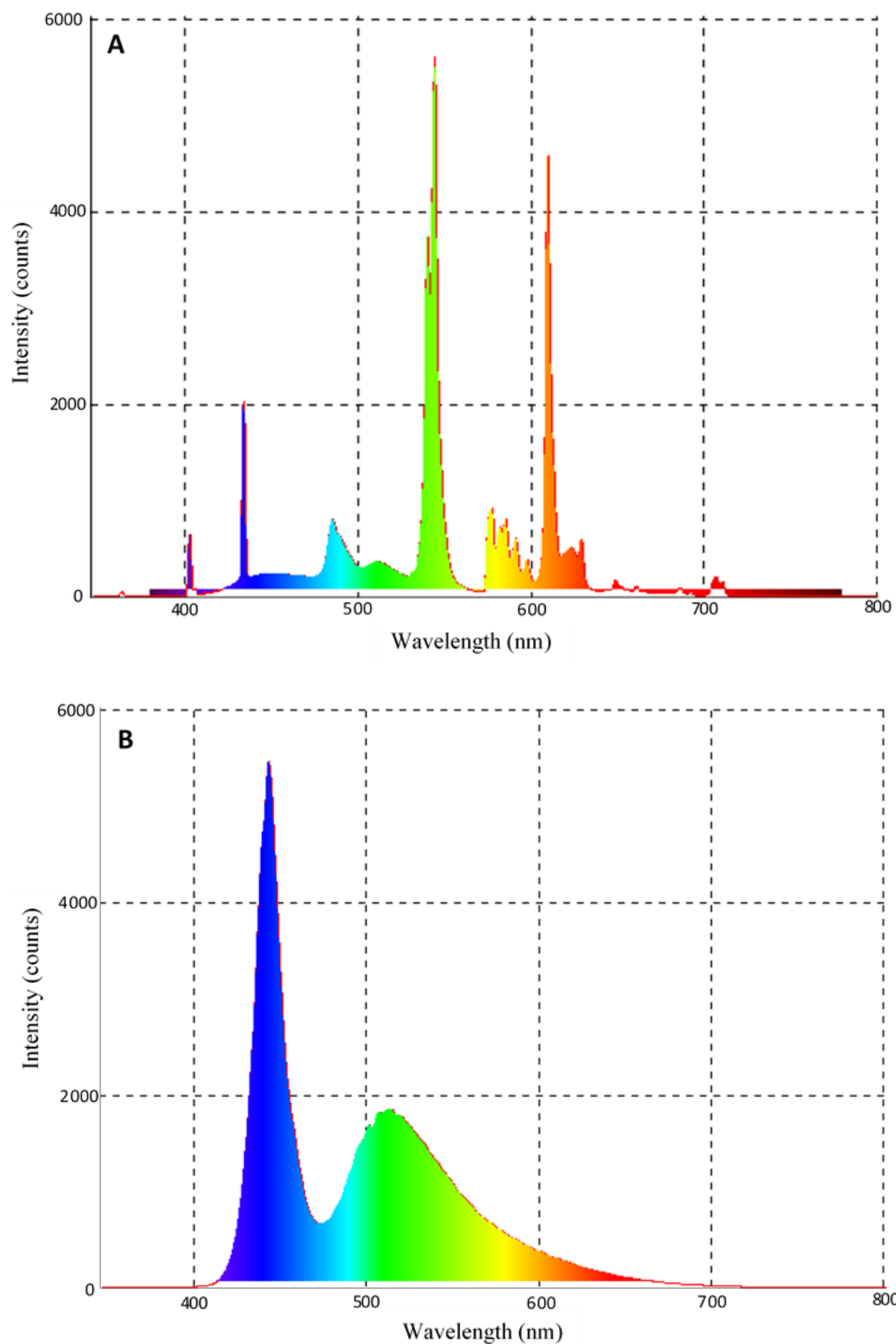


Figure S1: Light spectra of A) fluorescent lamps and B) LED measured with an Ocean Optics modular spectrometer, model FLAME-T-VIS-NIR (Ocean Optics Inc., Dunedin, FL, USA)

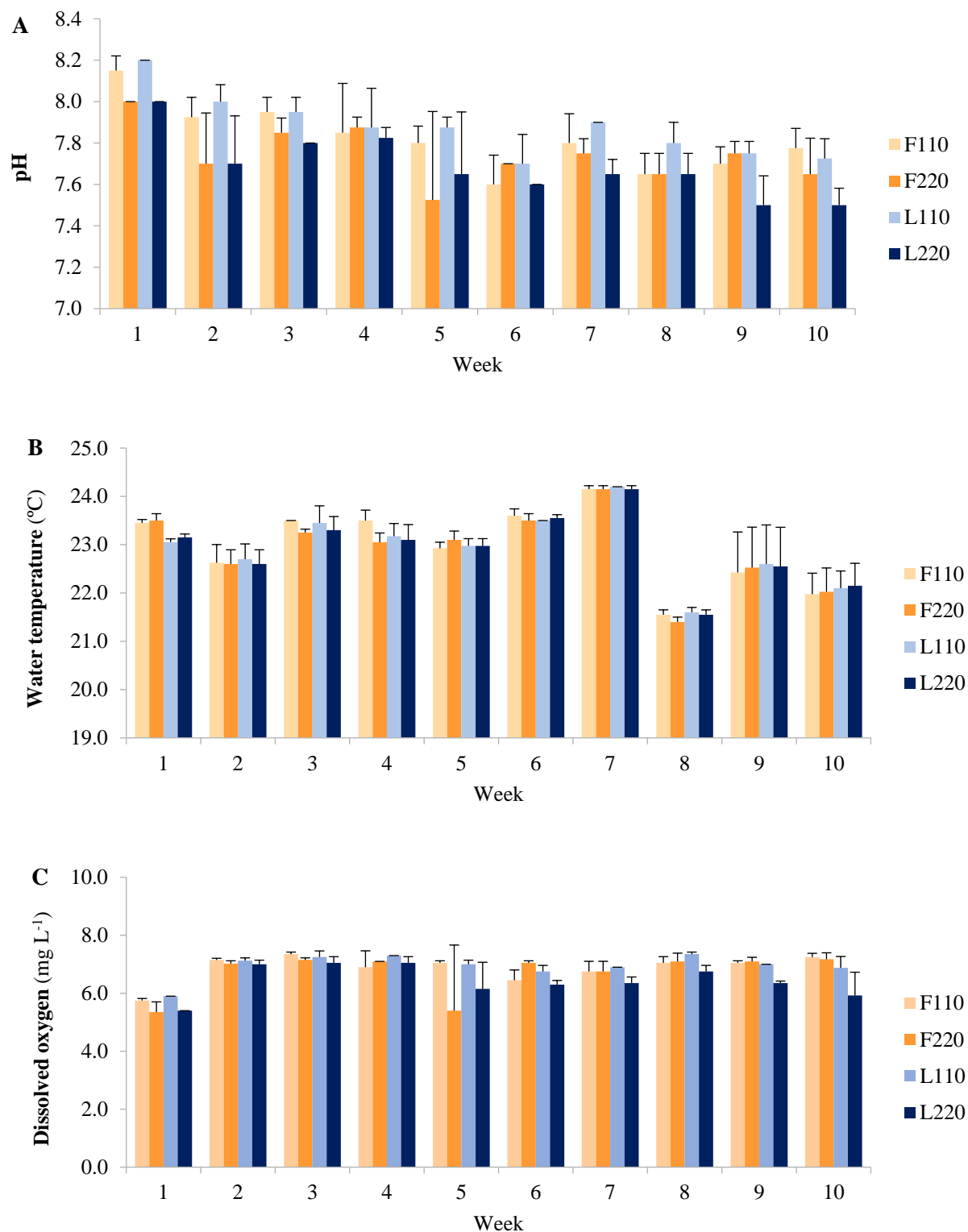


Figure S2: Average water A) pH, B) temperature and C) dissolved oxygen. Bars represent standard deviations. F110 = fluorescent lights & 110 plants m⁻²; F220 = fluorescent lights & 220 plants m⁻²; L110 = LEDs & 110 plants m⁻²; L220 = LEDs & 220 plants m⁻²