

TABLE 1. Ultrastructure, pigmentation and optical properties of HL- and LL-acclimated (650 and $30 \mu\text{mol quanta}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$, respectively) cells of *Nannochloropsis sp.*

Parameter	HL	LL	$k^a \text{ h}^{-1}$	LL/HL
I_g , growth irradiance, $\mu\text{mol quanta}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	650	35		0.05
Chlorophyll <i>a</i> , $\text{pg}\cdot\text{cell}^{-1,d}$	0.039 ± 0.005	0.171 ± 0.01		4.38
Mitochondria ^{b,c}	7.75 ± 1.7	6 ± 1.4		0.77
Nucleus ^{b,c}	2.46 ± 1.2	11.1 ± 2		4.5
Vacuoles ^{b,c}	1.89 ± 0.8	1.45 ± 0.3		0.77
Accumulation bodies ^{b,c}	3.77 ± 1.1	0	$0.0106 (r^2 = 0.95)$	
Chloroplasts ^{b,c}	29 ± 3.2	57 ± 4.5	$0.0028 (r^2 = 0.932)$	1.96
Stacks per chloroplast ^c	4.5 ± 1.7	9 ± 0.47	$0.0038 (r^2 = 0.87)$	2
Thylakoids per stack	1–3	1–3		1
Thylakoid area per cell, μm^2	170.1	427.2	$0.0063 (r^2 = 0.88)$	2.51
Projected area of cell, μm^2 ^c	5.92 ± 1.4	6.06 ± 1.8		1.02
Thylakoid area/projected area of cell	28.7	70.5		2.45
Cell volume, μm^3 ^c	10.26 ± 2.5	10.74 ± 3		1.05
PSU density, $\text{PSU}\cdot\mu\text{m}^{-2}$	39	84		2.15
σ_{PSU} , <i>in vivo</i> optical absorption cross-section of PSU, $\mu\text{m}^2\cdot\text{PSU}^{-1}$	2.09×10^{-4}	7.39×10^{-5}		0.35
σ_{cell} , cross-section of cell, $\mu\text{m}^2\cdot\text{cell}^{-1}$ ^d	1.62 ± 0.6	2.7 ± 0.8		1.67
$\sigma_{\text{cell}}/\text{surface area of thylakoids}$	9.5×10^{-3}	6.3×10^{-3}		0.66

^a Rate constants are given for those parameters where change followed first-order kinetics.

^b Relative volume of organelle to cell volume, %.

^c Average, S.E. (n = 20)

^d Average, S.D. (n = 5)