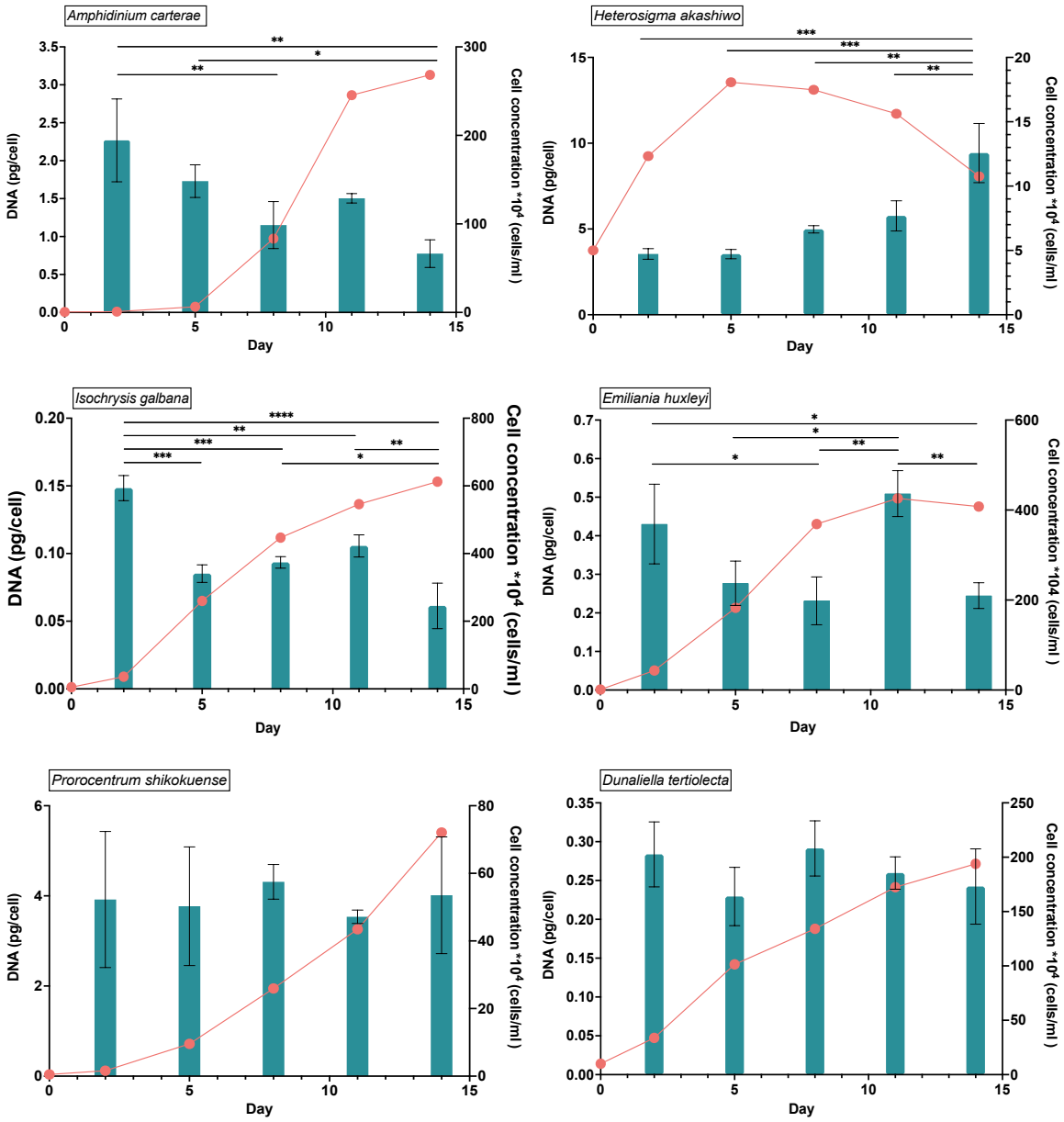
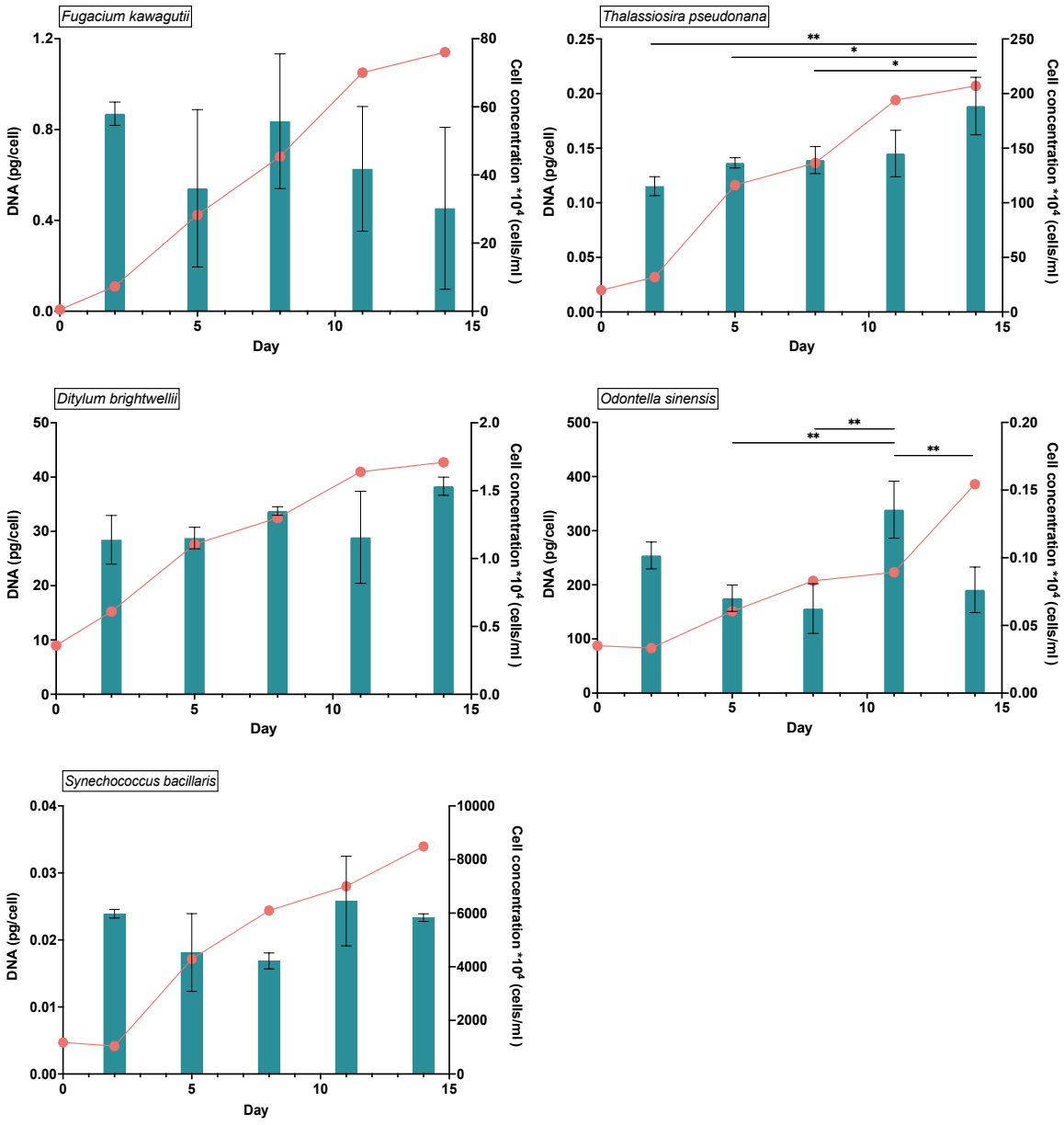
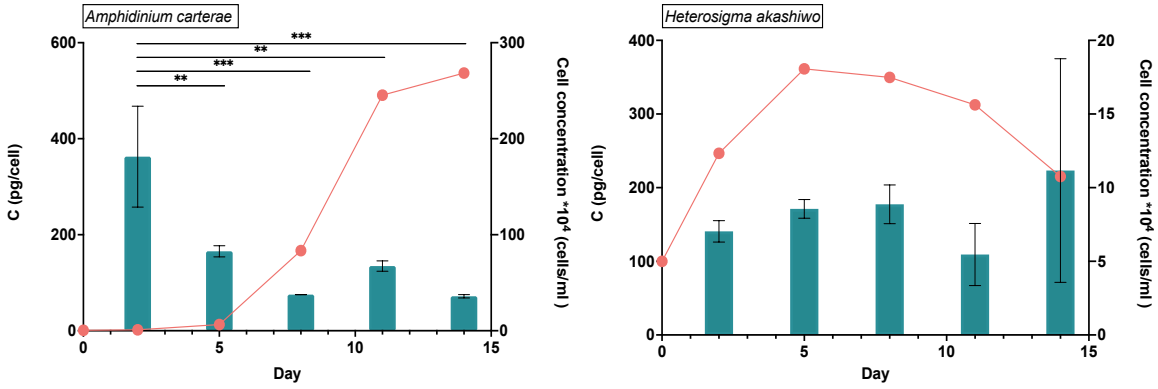
Supporting Information

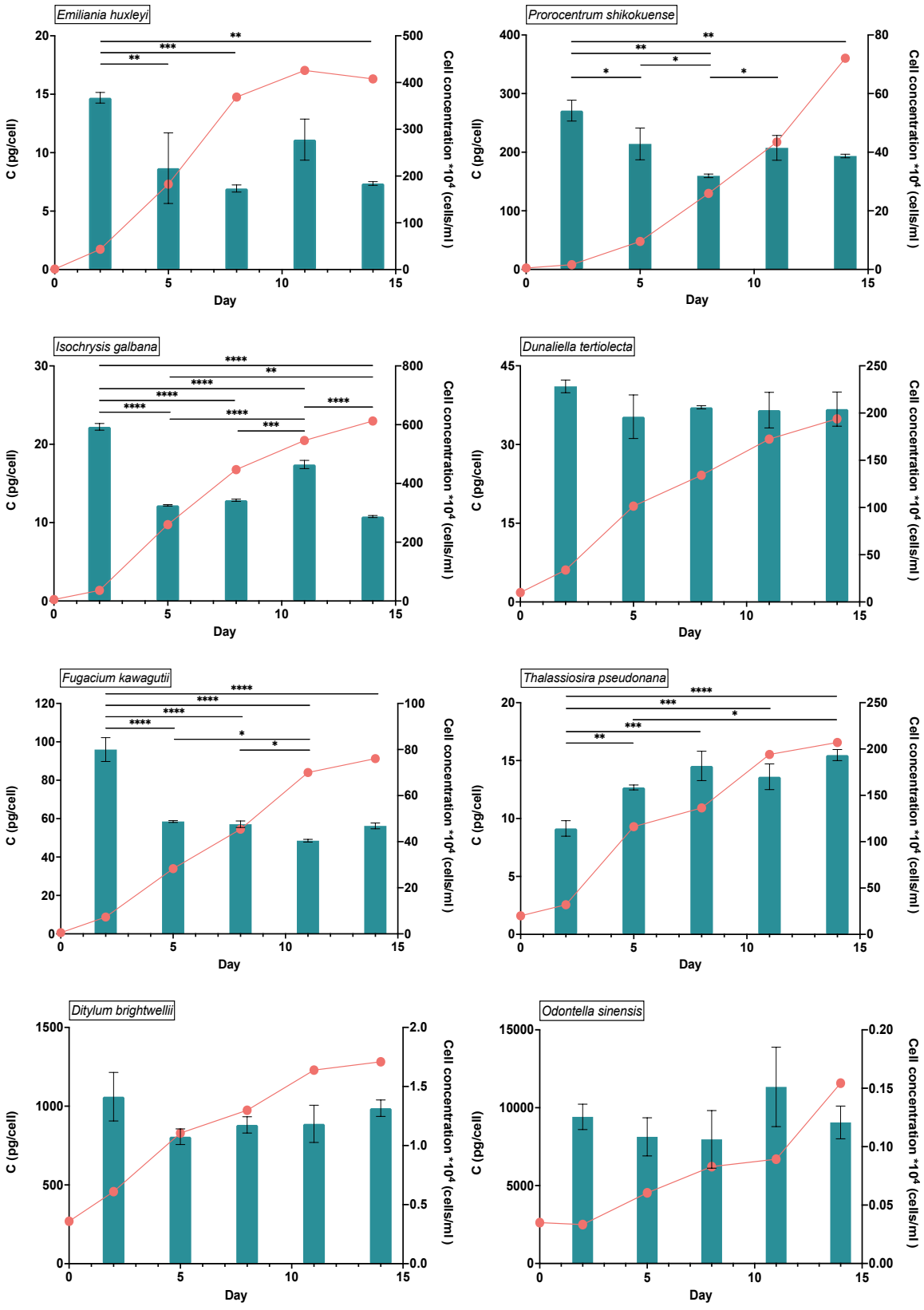
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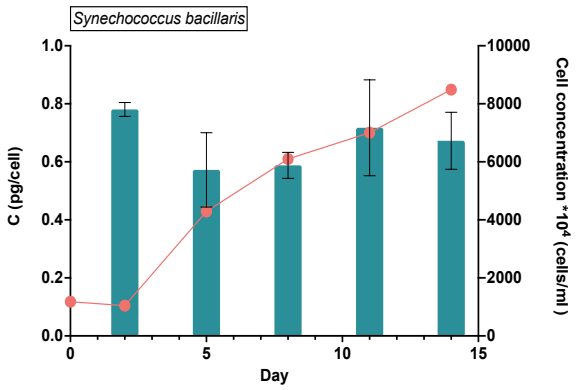



Fugacium kawagutii
DNA (pg/cell)
Cell concentration *10⁴ (cells/ml)
Day
Thalassiosira pseudonana
**
*
*
Ditylum brightwellii
Odontella sinensis
**
**
**
Synechococcus bacillaris

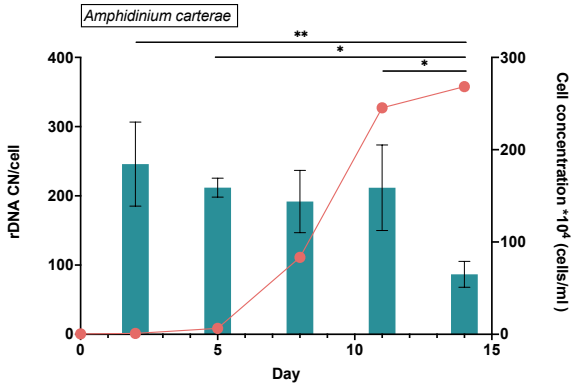
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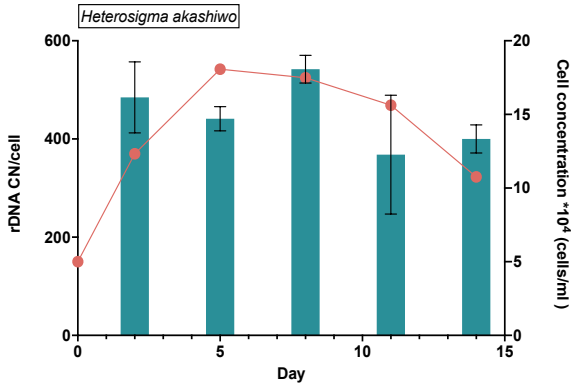

Amphidinium carterae
***
**
***
**
C (pg/cell)
Cell concentration *10⁴ (cells/ml)
Day
Heterosigma akashiwo

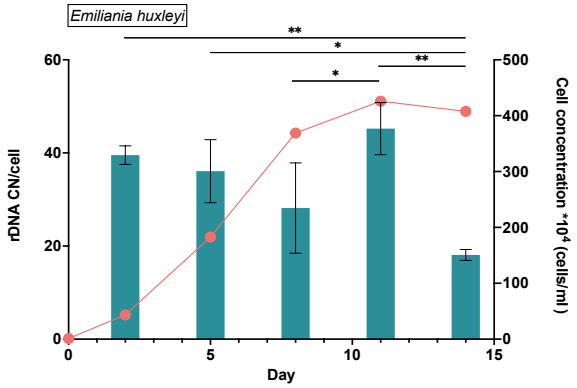

Emiliania huxleyi
Prorocentrum shikokuense
Isochrysis galbana
Dunaliella tertiolecta
Fugacium kawagutii
Thalassiosira pseudonana
Ditylum brightwellii
Odontella sinensis
C (pg/cell)
Cell concentration *10⁴ (cells/ml)
Day

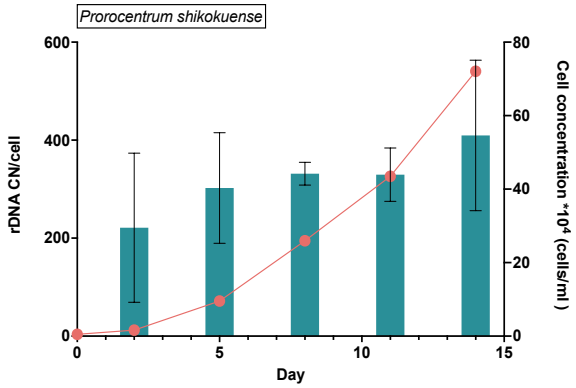

Synechococcus bacillaris
C (pg/cell)
Cell concentration *10⁴ (cells/ml)
Day

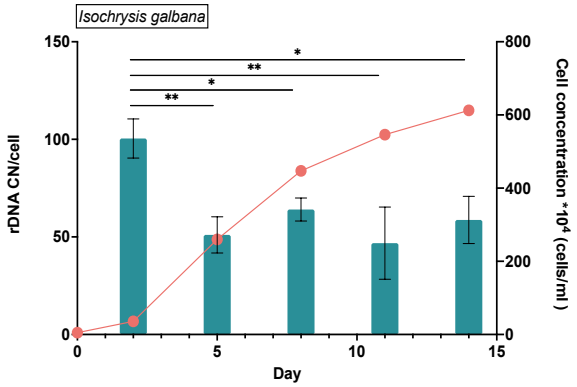
C.

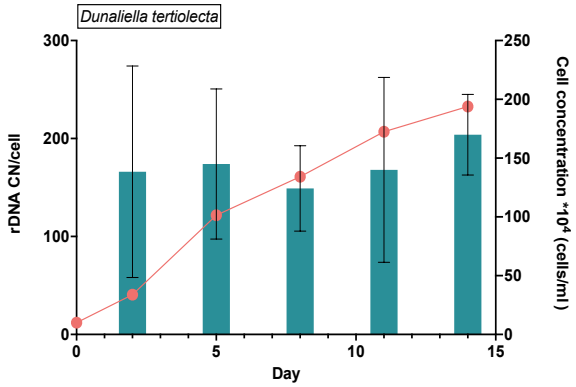

Amphidinium carterae
rDNA CN/cell
Cell concentration *10⁴ (cells/ml)
Day


Heterosigma akashiwo
rDNA CN/cell
Cell concentration *10⁴ (cells/ml)
Day


Emiliania huxleyi
rDNA CN/cell
Cell concentration *10⁴ (cells/ml)
Day


Prorocentrum shikokuense
rDNA CN/cell
Cell concentration *10⁴ (cells/ml)
Day


Isochrysis galbana
rDNA CN/cell
Cell concentration *10⁴ (cells/ml)
Day


Dunaliella tertiolecta
rDNA CN/cell
Cell concentration *10⁴ (cells/ml)
Day

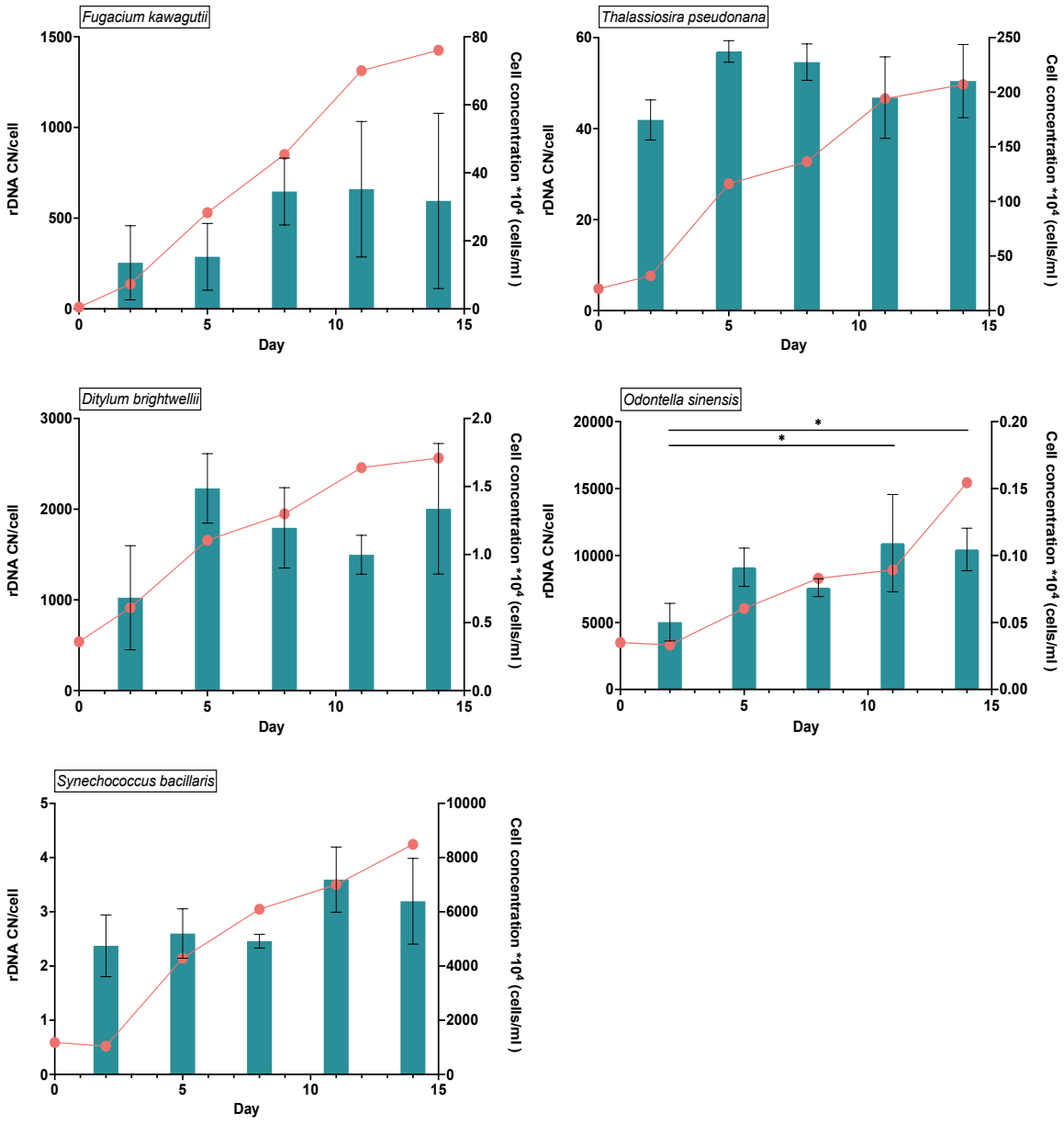
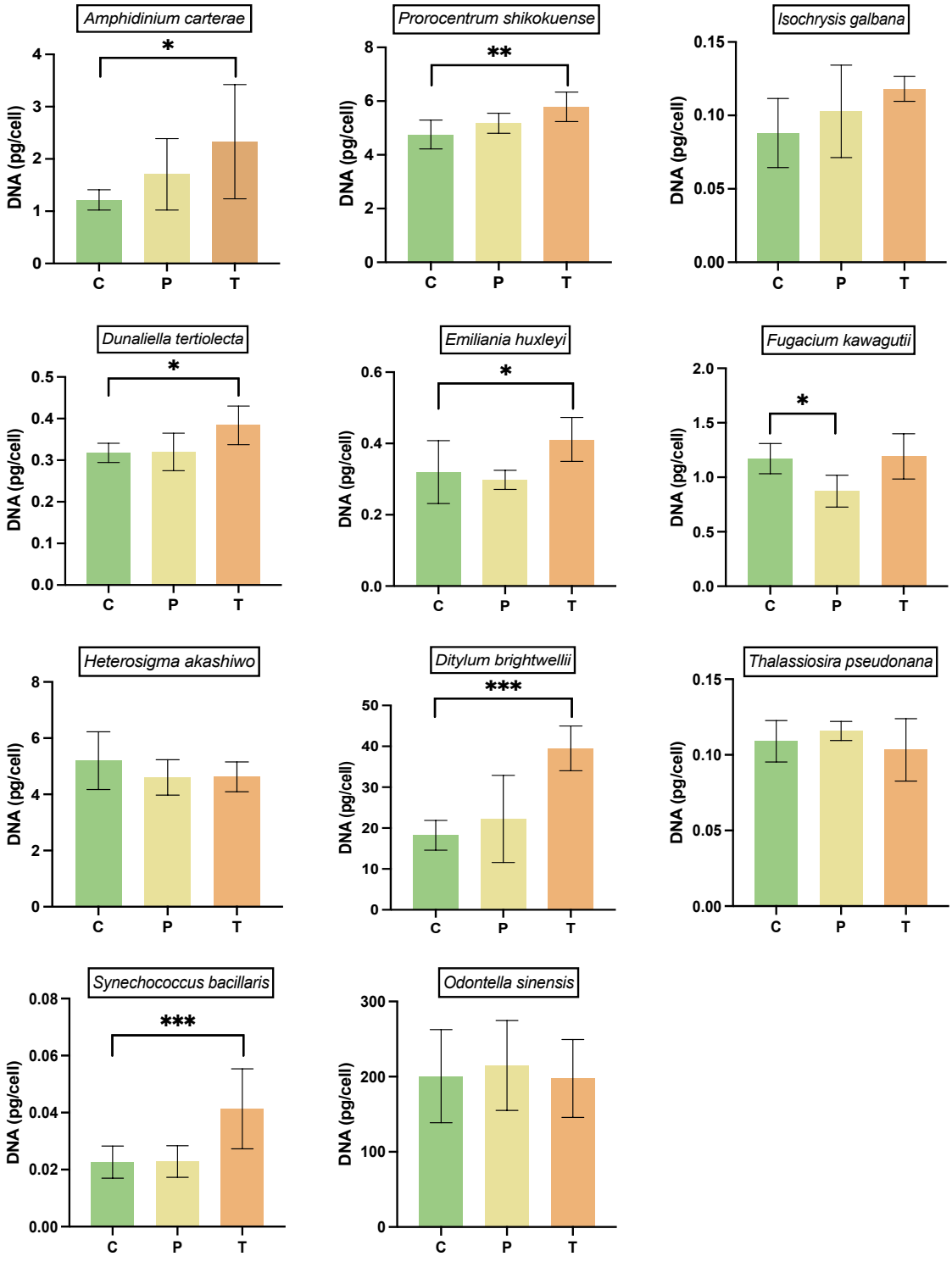
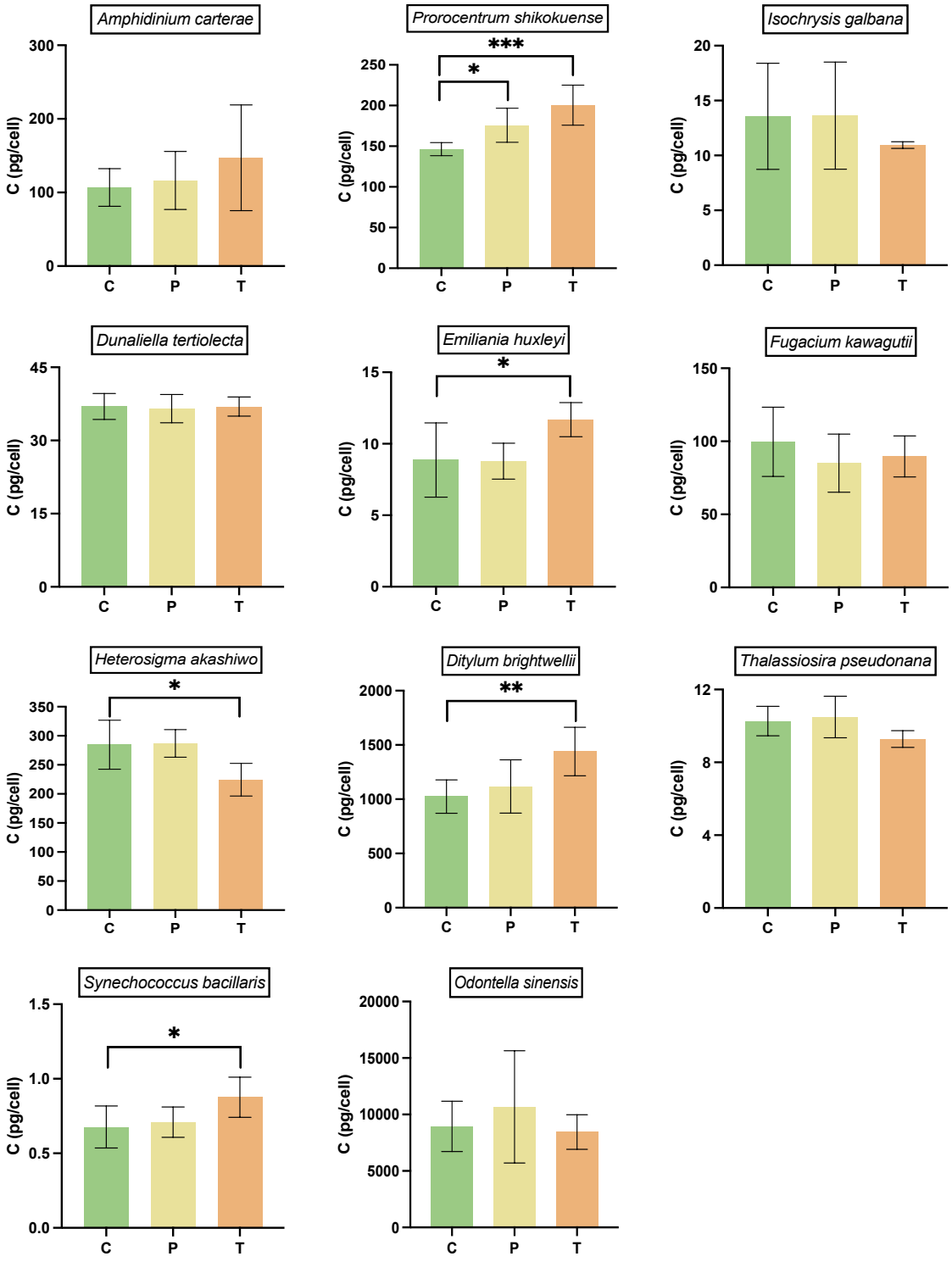


Figure. S1. Influence from growth stages on DNA content (A), C content (B), and rDNA copy number (C). The red lines were growth curves. Blue bars were the contents of DNA, C, and rDNA. * $p<0.05$.

A.


Amphidinium carterae
*
DNA (pg/cell)
0
1
2
3
4
C
P
T
Prorocentrum shikokuense
**
DNA (pg/cell)
0
2
4
6
8
C
P
T
Isochrysis galbana
DNA (pg/cell)
0.00
0.05
0.10
0.15
C
P
T
Dunaliella tertiolecta
*
DNA (pg/cell)
0.0
0.1
0.2
0.3
0.4
0.5
C
P
T
Emiliania huxleyi
*
DNA (pg/cell)
0.0
0.2
0.4
0.6
C
P
T
Fugacium kawagutii
*
DNA (pg/cell)
0.0
0.5
1.0
1.5
2.0
C
P
T
Heterosigma akashiwo
DNA (pg/cell)
0
2
4
6
8
C
P
T
Ditylum brightwellii
***
DNA (pg/cell)
0
10
20
30
40
50
C
P
T
Thalassiosira pseudonana
DNA (pg/cell)
0.00
0.05
0.10
0.15
C
P
T
Synechococcus bacillaris
***
DNA (pg/cell)
0.00
0.02
0.04
0.06
0.08
C
P
T
Odontella sinensis
DNA (pg/cell)
0
100
200
300
C
P
T

B.


Amphidinium carterae
C (pg/cell)
300
200
100
0
C
P
T
Prorocentrum shikokuense
***
*
250
200
150
100
50
0
Isochrysis galbana
20
15
10
5
Dunaliella tertiolecta
45
30
15
Emiliania huxleyi
Fugacium kawagutii
150
Heterosigma akashiwo
350
300
250
200
150
100
50
Ditylum brightwellii
**
2000
1500
1000
500
Thalassiosira pseudonana
12
8
4
Synechococcus bacillaris
1.5
1.0
0.5
0.0
Odontella sinensis
20000
15000
10000
5000

C.

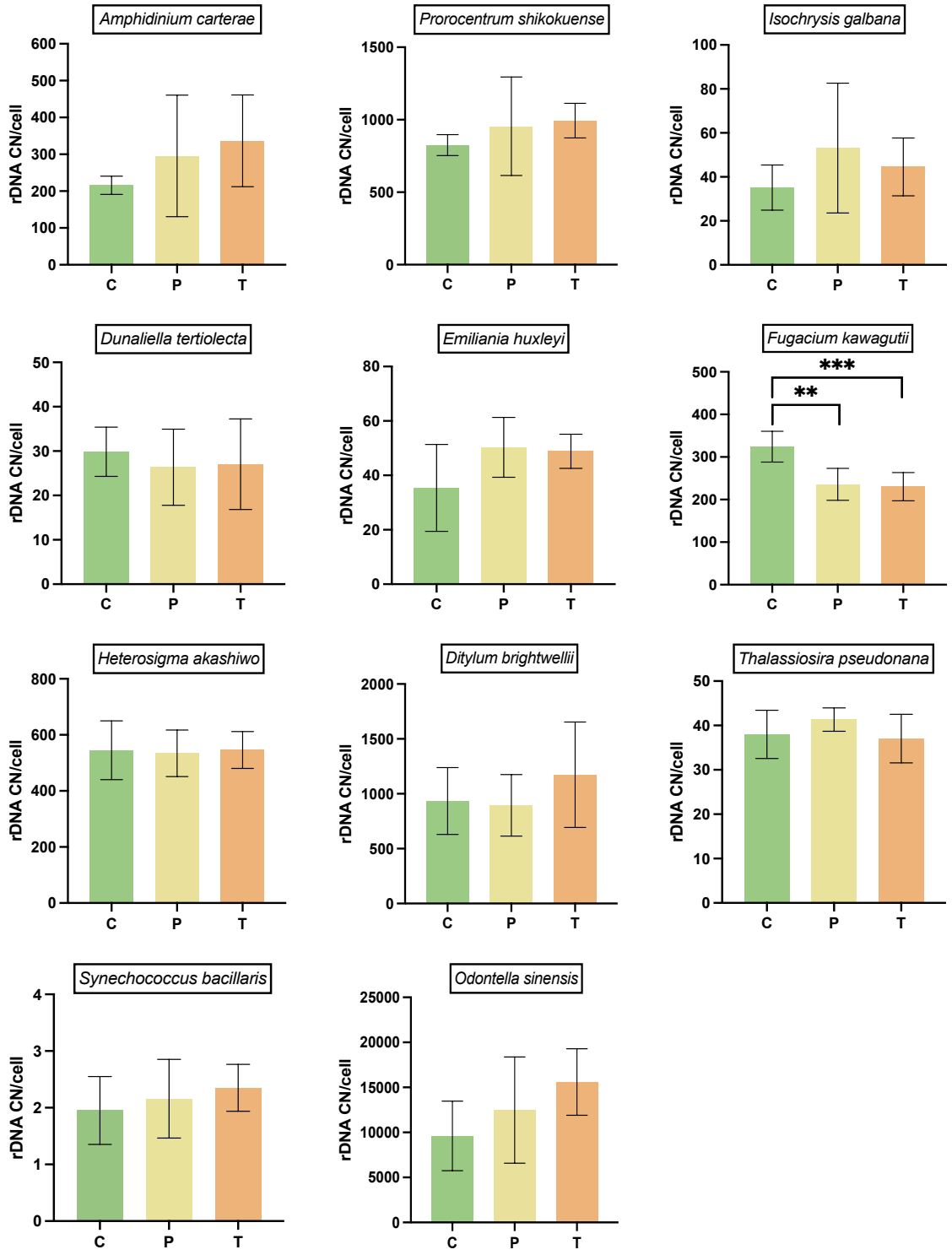
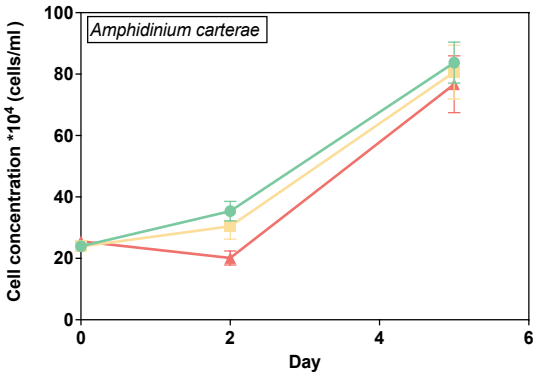
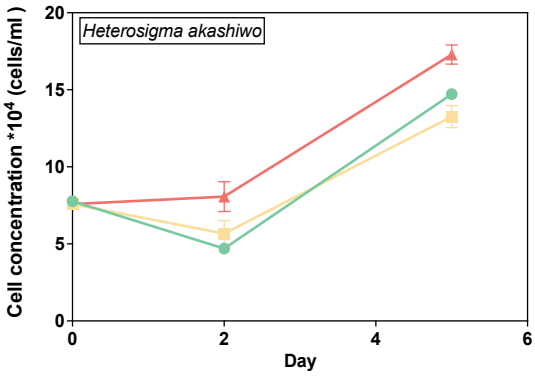
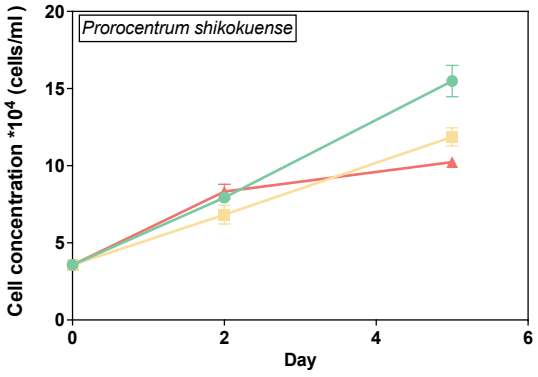
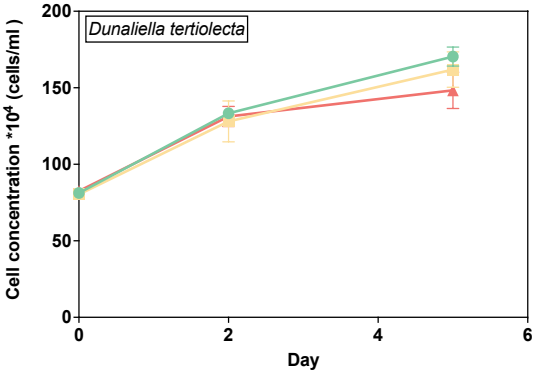


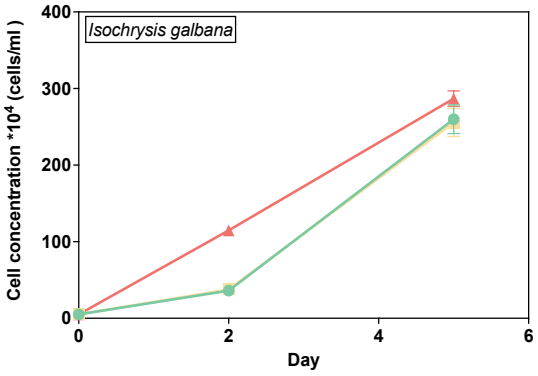
Fig S2. Comparison of the DNA content (A), C content (B), and rDNA copy number (C) from the optimal condition (green bars), P-limited condition (yellow bars), and elevated temperatures condition (orange bars). * P<0.05.

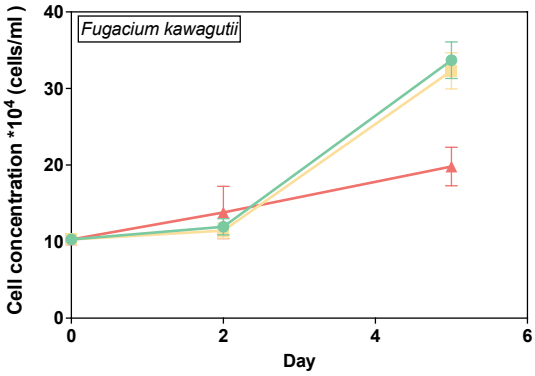

Amphidinium carterae
Cell concentration *10⁴ (cells/ml)
Day


Heterosigma akashiwo
Cell concentration *10⁴ (cells/ml)
Day


Prorocentrum shikokuense
Cell concentration *10⁴ (cells/ml)
Day


Dunaliella tertiolecta
Cell concentration *10⁴ (cells/ml)
Day


Isochrysis galbana
Cell concentration *10⁴ (cells/ml)
Day


Fugacium kawagutii
Cell concentration *10⁴ (cells/ml)
Day

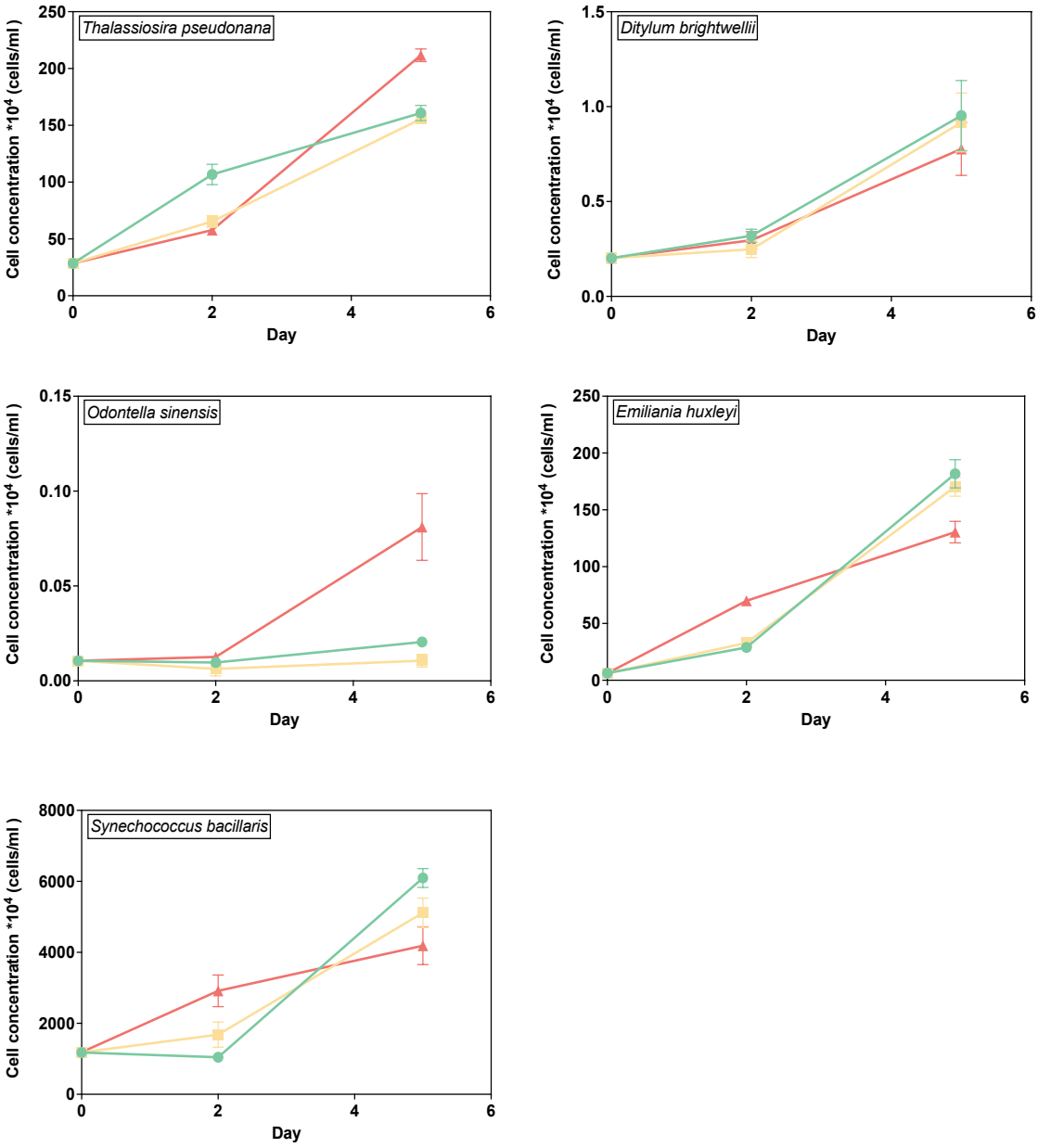


Fig. S3. Comparison of growth curves from optimal condition (green lines), P-limited condition (yellow lines), and elevated temperatures condition (red lines).

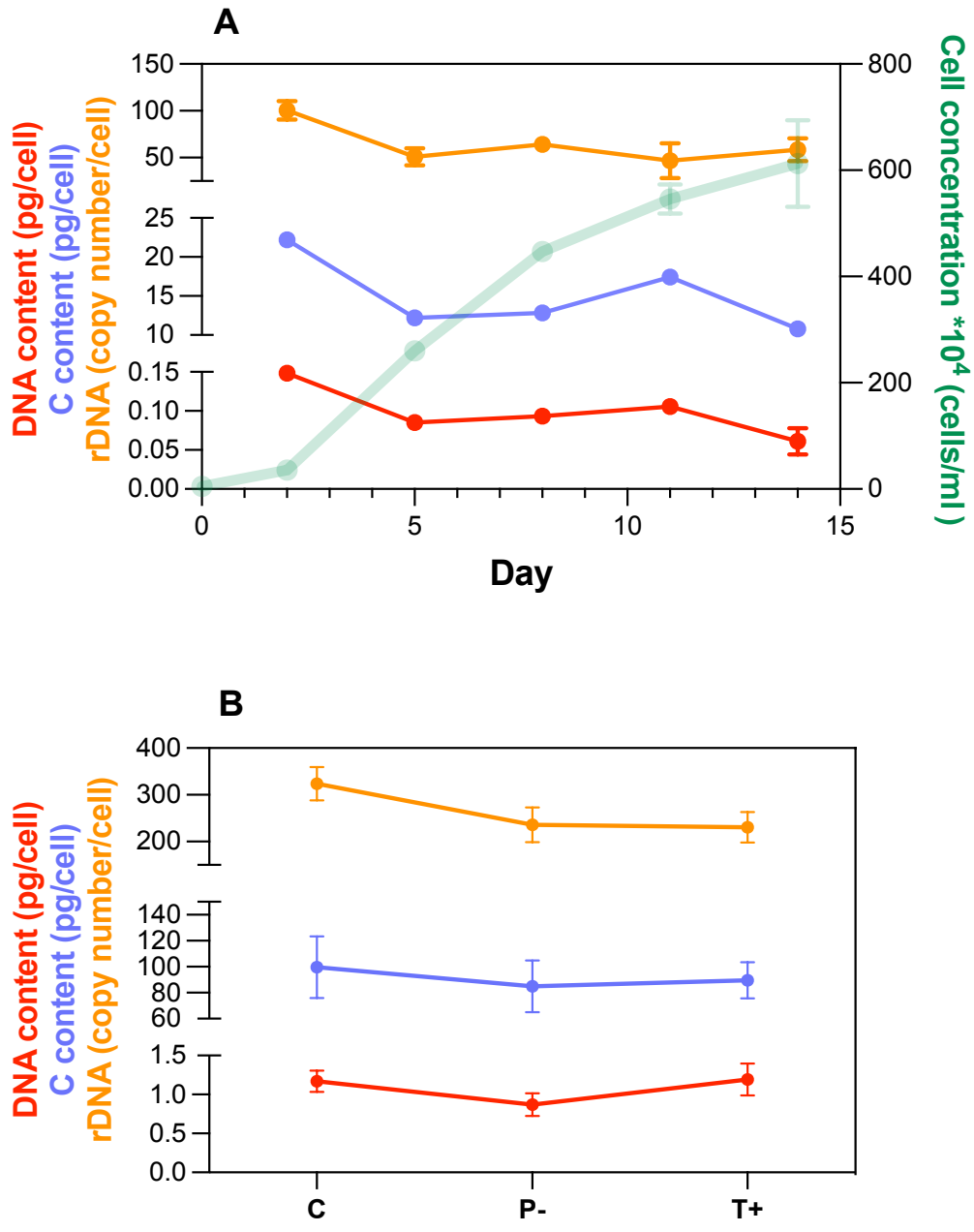


Fig. S4. DNA content, carbon content, and rDNA copy number of (A) *Isochrysis galbana* over 14-day experimental period. X-axis shows different days. The green line represents the cell concentration and indicates different growth phases. (B) *Fugacium kawagutii* under optimal growth condition (C), P-limited condition (P-), elevated temperature condition (T+).

Table S1. Primers for each phytoplankton.

Species	Name of Primers F=forward, R=reverse	Sequence
Amphidinium carterae	Ampca18SF	GATCAGATACCGTCCTAGTCTTAACCAT
	Ampca18SR	TTCAGCCTTGCGACCATACTCC
Isochrysis galbana	Isoga18SF	GGAGTATGGTCGCAAGGCTGAA
	Isoga18SR	CTCTCAATCTGTCAATCCTCACAATGTC
Odontella sinensis	Odosi18SF	GGAGTATGGTCGCAAGGCTGAA
	Odosi18SR	GCTCTCAATCTGTCAATCCTCACTATG
Ditylum brightwellii	DitbrF	GCCGTTCTTAGTTGGTGGAGTG
	DitbrR	AATCGCAGCAGCAATACAGATGAT
Dunaliella tertiolecta	Dunte18SF	GAATAACACGATAGGACTCTGGCTTA
	Dunte18SR	GGTTGAGACTACGACGGTATCTAATC
Emiliania huxleyi	EhuxF	CGGTTGCGTGCTGAGTCATAA
	EhuxR	CTGCTGCCTTCCTTGGATGTG
Heterosigma akashiwo	Hetak18SF	TGGTGAATCATAGTAACTGTGCGAATC
	Hetak18SR	GCTGCCTTCCTTGGATGTGGTA
Prorocentrum shikokuense	Prodo18SF	GGAGTATGGTCGCAAGGCTGAA
	Prodo18SR	AGCAGGTTAAGGTCTCGTTCGTTA
Fugacium kawagutii	SymkaF	AACACGGACCAAGGAGTCTAGC
	SymkaR	CTTCGCAGGCATAGTTCACCATC
Thalassiosira pseudonana	Thaps18SF	GCCGTTCTTAGTTGGTGGAGTG
	Thaps18SR	ACCTGTTATTGCCGCCATCTTC
Synechococcus bacillaris	SynbaF	ACATGACGGTACTTGAGGAATAAGC
	SynbaR	CCTTCGCCACTGGTGTTCTTC