

Supplementary Marine drugs

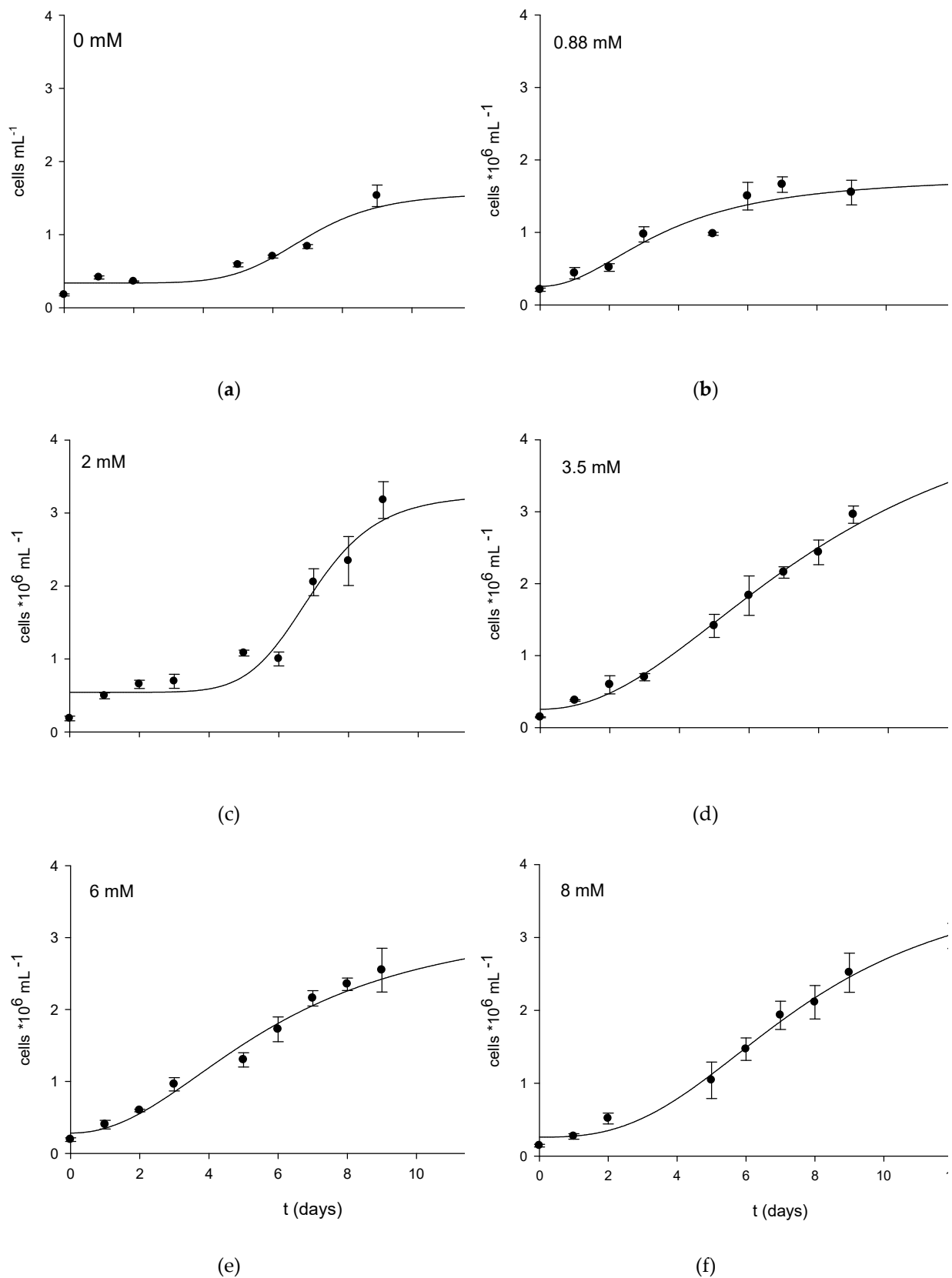


Figure S1. Growth curves of diatom *Nitzschia* sp. S5 grown in f/2 medium with different nitrogen concentrations: (a) 0 mM; (b) 0.88 mM; (c) 2 mM; (d) 3.5 mM; (e) 6 mM; (f) 8 mM.

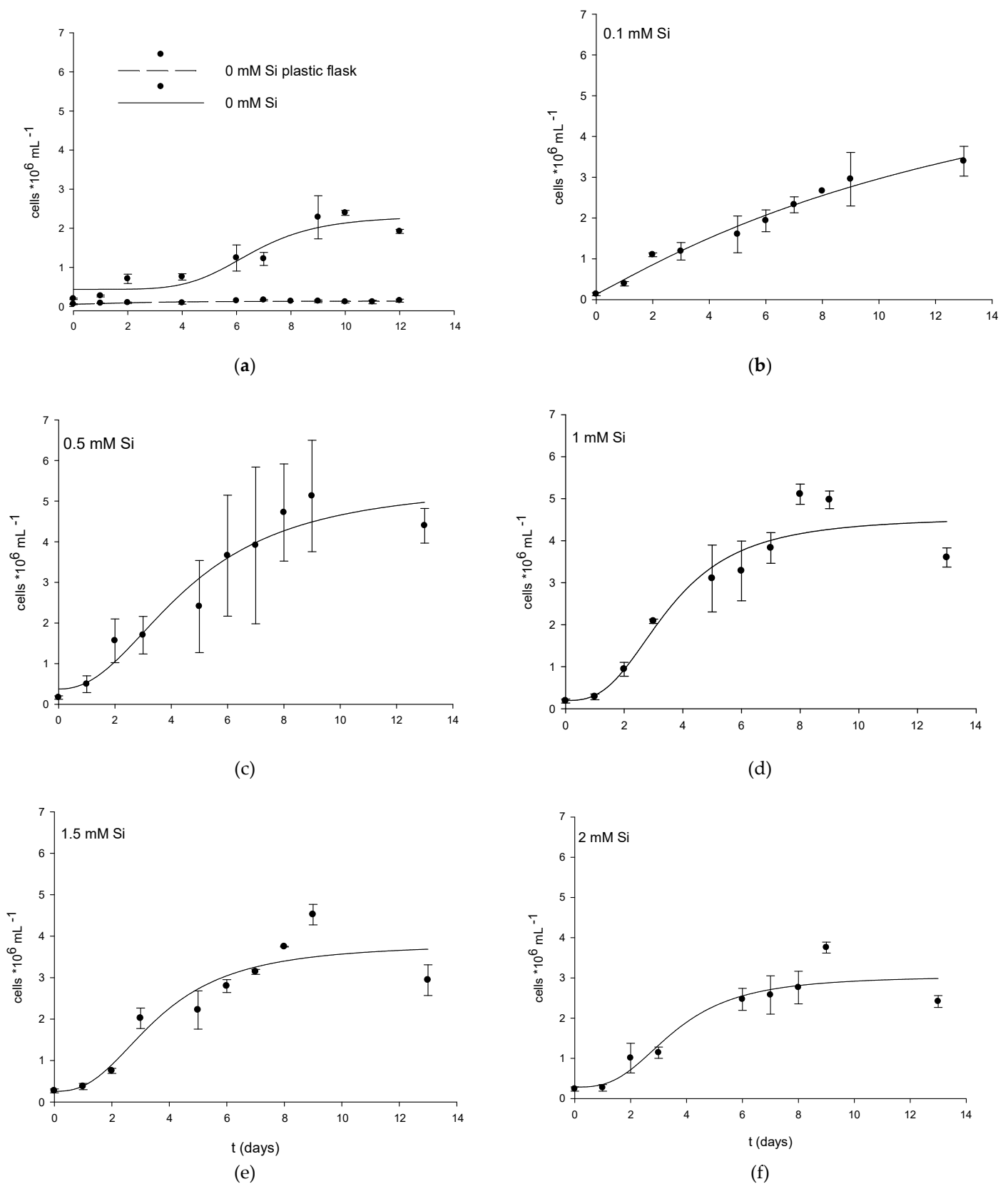


Figure S2. Growth curves of diatom *Nitzschia* sp. S5 in f/2 medium with different silicon concentrations: (a) 0 mM in glass and plastic* Erlenmeyer flasks; (b) 0.1 mM; (c) 0.5 mM; (d) 1 mM; (e) 1.5 mM; (f) 2 mM. *To evaluate the effect of silicon leaching from glass Erlenmeyer flask on diatom

growth under silicon deprivation condition the cultivation was conducted in plastic Erlenmeyer flask.

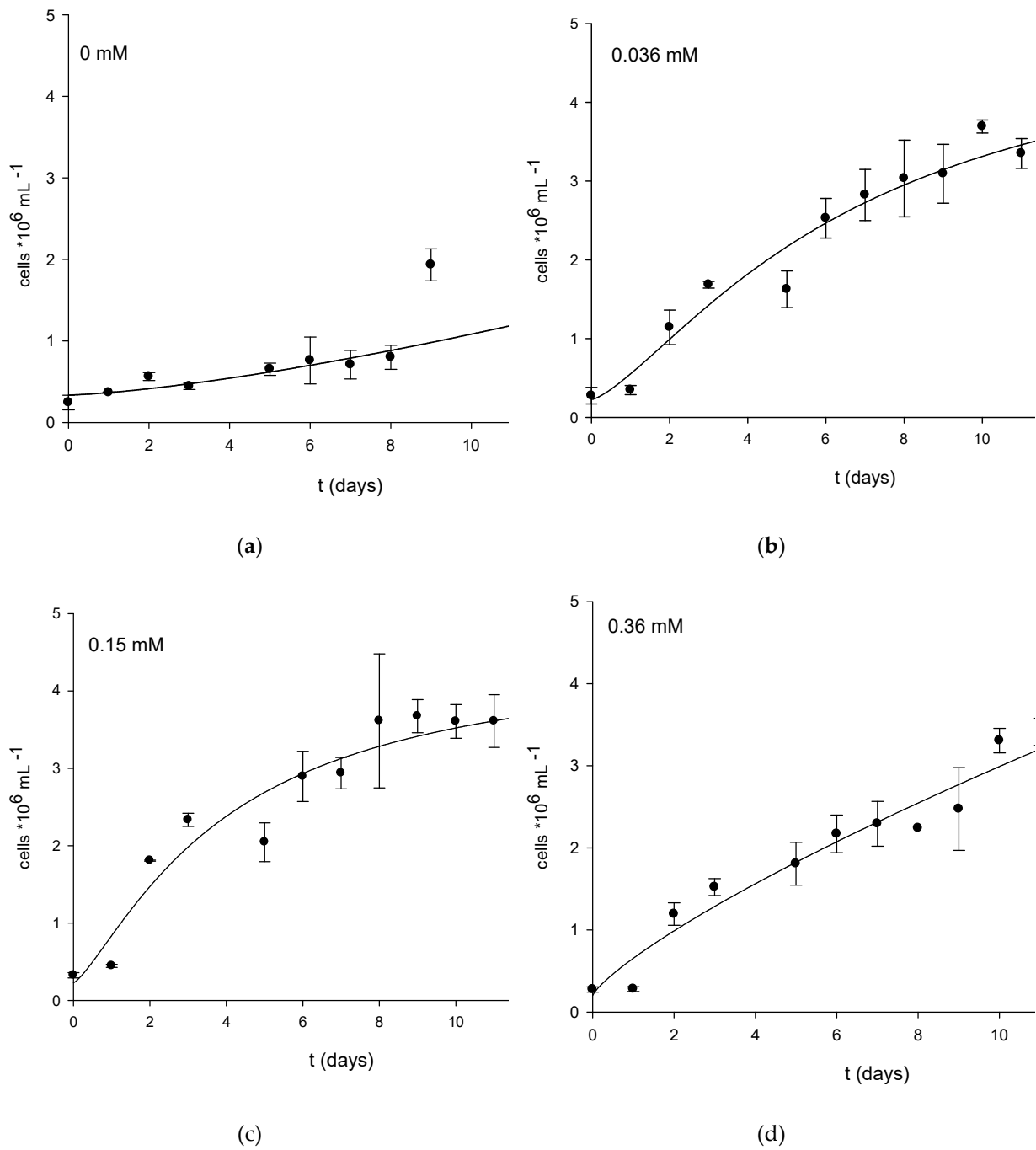


Figure S3. Growth curves of diatom *Nitzschia* sp. S5 at different phosphate concentrations in f/2 medium: (a) 0 mM; (b) 0.036 mM; (c) 0.15 mM; (d) 0.36 mM.

Table S1. Consumption of nitrogen, silicon and phosphate at beginning and at the end of cultivation of *Nitzschia* sp. S5 with different macronutrient concentrations in f/2 medium and their ratios.

C (mM)	$\gamma_{N-NO_3^-}$ (mg L ⁻¹)		γ_{Si} (mg L ⁻¹)		$\gamma_{PO_4^{3-}}$ (mg L ⁻¹)	
	t ₀	t _{final}	t ₀	t _{final}	t ₀	t _{final}
N-NO ₃ ³⁻	0.00	0		0.07±0.03		0.00±0.00
	0.88	12.32		0.19±0.05		0.00±0.00
	2.00	28.01	2.81*	0.01±0.004	3.42*	0.00±0.00
	3.50	49.02		0.30±0.23		0.00±0.00
	6.00	84.04		0.99±0.42		0.00±0.00
	8.00	112.05		0.97±0.11		0.00±0.00
Si	0.0**		0	0.05±0.03		0.00±0.00
	0.0		0	0.04±0.03		0.00±0.00
	0.1		2.81	0.17±0.07		0.00±0.00
	0.5	12.32*	14.04	0.37±0.52	3.42*	0.00±0.00
	1.0		28.09	1.56±0.28		0.00±0.00
	1.5		42.13	1.32±0.10		0.00±0.00
	2.0		56.17	1.22±0.07		0.00±0.00
PO ₄ ³⁻	0			0.00±0.00	0.00	0.00±0.00
	0.036	12.32*	2.81*	0.00±0.00	3.42	0.00±0.00
	0.15			0.00±0.00	14.25	0.00±0.00
	036			0.04±0.02	34.19	3.79±0.76
Modified f/2						
Ratio 1	28.01	2.67±0.70	11.23	0.20±0.06	3.42	0.04±0.01
Ratio 2	28.01	3.48±0.85	11.23	0.07±0.02	13.68	0.70±0.29
Ratio 3	49.02	3.95±0.92	28.09	0.20±0.13	13.68	0.12±0.05
Ratio 4	84.04	3.48±2.84	28.09	0.20±0.09	13.68	0.07±0.06
Ratio 5	49.02	11.99±1.13	28.09	2.08±1.42	20.51	1.41±0.69
Ratio 6	49.02	8.07±0.56	28.09	2.11±0.47	27.35	1.91±0.15
Control	12.33	8.72±0.42	2.81	0.10±0.08	3.42	0.24±0.12

*same concentration of macronutrient for experimental set.

**plastic Erlenmeyer flasks were used.

Table S2. Consumption of nitrogen, silicon and phosphate during fed- batch cultivation of diatom *Nitzschia* sp. S5.

Cultivation mode	$\gamma_{N-NO_3^-}$ (mg L ⁻¹)		γ_{Si} (mg L ⁻¹)		$\gamma_{PO_4^{3-}}$ (mg L ⁻¹)	
	t ₀	t _{final}	t ₀	t _{final}	t ₀	t _{final}
Batch	49.02	17.23	28.09	0.42	13.68	1.87±0.07
Fed batch						
I nutrient addition	35.83	9.26±0.77	11.62	1.86±0.88	7.48	1.31±0.08
II nutrient addition	27.86	12.50±2.18	13.06	1.12±0.52	6.92	1.33±0.05
III nutrient addition	33.21	14.61±0.79	12.32	3.02±0.78	6.99	1.37±0.05
IV nutrient addition	39.95	21.35±0.38	15.19	3.40±0.23	7.11	1.49±0.18