

Supplementary Information

Table S1. EC₅₀ of apigenin, luteolin and 5,4'-DHF against *Microcystis aeruginosa* after 3-, and 5-d of exposure.

Compound	3 d		5 d	
	EC ₅₀ (mg/L)	95% Confidence Interval	EC ₅₀ (mg/L)	95% Confidence Interval
5,4'-Dihydroxyflavone	0.53	0.49–0.61	0.47	0.40–0.74
Apigenin	2.39	1.57–3.01	3.85	2.33–4.11
Luteolin	2.36	1.62–2.88	1.85	1.38–2.54

Table S2. Morphological characteristics of *M. aeruginosa* cells after exposure to flavonoids.

		1 day		3 day		5 day	
		Percentage (%) ^a	FSC-mean ^b	Percentage (%)	FSC-mean	Percentage (%)	FSC-mean
CK	R1 ^c	85.95 (1.35)	347.9 (2.19)	85.04 (0.23)	334.6 (2.26)	96.43 (2.61)	319.1 (1.27)
	R2 ^d	13.14 (1.24)	105.2 (2.76)	14.90 (0.19)	110.6 (0.35)	2.85 (2.14)	105.8 (3.04)
5,4'-DHF							
1 mg/L	R1	84.45 (0.33)	363.5 (1.48)	64.58 (0.24)	438.3 (0.85)	76.85 (0.88)	401.8 (1.91)
	R2	14.45 (0.26)	102.5 (1.91)	35.06 (0.16)	115.7 (1.20)	23.19 (0.77)	98.0 (0.07)
0.5 mg/L	R1	85.60 (0.36)	351.9 (0.14)	77.66 (0.95)	331.6 (1.63)	90.58 (0.43)	326.5 (0.35)
	R2	13.58 (0.57)	100.6 (0.28)	21.82 (0.59)	109.7 (0.49)	8.19 (0.49)	98.6 (0.28)
0.25 mg/L	R1	86.02 (0.36)	359.1 (2.26)	76.55 (0.29)	333.6 (0.14)	89.28 (0.80)	315.1 (1.27)
	R2	13.04 (0.49)	102.2 (0.07)	23.22 (0.32)	109.4 (0.35)	9.25 (0.13)	97.9 (0.21)
Apigenin							
8 mg/L	R1	73.27 (0.69)	394.8 (1.56)	53.73 (0.62)	443.6 (2.47)	67.42 (0.30)	339.8 (1.41)
	R2	24.77 (0.77)	107.4 (1.34)	45.48 (0.72)	122.4 (0.78)	27.58 (0.50)	95.5 (0.28)
4 mg/L	R1	84.05 (0.30)	373.3 (0.64)	52.84 (0.29)	440.6 (0.64)	81.49 (0.92)	337.2 (3.25)
	R2	14.92 (0.06)	99.6 (0.42)	46.50 (0.32)	116.4 (0.42)	15.43 (0.88)	99.5 (0.42)
2 mg/L	R1	86.33 (0.25)	349.4 (1.91)	64.36 (0.77)	384.6 (0.71)	84.94 (0.47)	286.8 (0.92)
	R2	12.79 (0.18)	99.2 (0.28)	35.27 (0.78)	108.2 (0.85)	12.91 (0.35)	99.7 (0.64)
Luteolin							
4 mg/L	R1	90.36 (1.45)	360.1 (3.32)	77.33 (0.62)	336.6 (0.64)	77.16 (5.13)	312.7 (1.91)
	R2	8.99 (1.48)	103.7 (1.13)	22.35 (0.67)	107.5 (0.92)	22.11 (5.18)	95.5 (1.77)
2 mg/L	R1	88.07 (0.30)	349.8 (2.05)	78.85 (0.78)	318.9 (1.84)	82.02 (0.37)	281.3 (1.34)
	R2	11.25 (0.18)	100.7 (0.05)	20.97 (0.81)	109.4 (0.14)	14.59 (0.35)	100.8 (0.78)
1 mg/L	R1	88.16 (0.20)	334.9 (0.07)	85.45 (0.32)	301.4 (0.88)	83.26 (0.18)	277.7 (0.42)
	R2	10.91 (0.10)	103.4 (0.42)	14.27 (0.94)	101.4 (0.52)	14.07 (0.01)	100.2 (1.06)

^a Data were expressed as cell percentages of the subpopulations; ^b FSC-mean represents the mean fluorescence of forward scatter where higher values would indicate bigger cell volume; ^c R1 represents the subpopulation region consisted of normal or large swollen granular cells; ^d R2 represents the subpopulation region consisted of shrunken cells and cell debris with high granularity.

Table S3. Inhibition rates of 5,4'-DHF, apigenin and luteolin on the growth of *M. aeruginosa*.

Treatment		Inhibition rate (%)			
		1 day	3 day	5 day	7 day
5,4'-DHF	10 mg/L	39.66 ± 13.02 ^a	90.79 ± 4.56	nc ^b	nc
	25 mg/L	37.93 ± 3.68	94.74 ± 2.28	nc	nc
	50 mg/L	56.90 ± 5.97	96.05 ± 3.95	97.90 ± 0.01	nc
Apigenin	10 mg/L	53.06 ± 3.53	84.51 ± 2.44	81.40 ± 0.00	90.21 ± 3.20
	25 mg/L	51.02 ± 6.20	81.55 ± 4.23	90.37 ± 4.65	91.61 ± 4.20
	50 mg/L	55.10 ± 9.35	81.69 ± 10.63	92.95 ± 10.49	nc
Luteolin	10 mg/L	36.84 ± 15.79	80.58 ± 1.68	91.54 ± 4.62	85.62 ± 1.31
	25 mg/L	54.43 ± 10.74	88.66 ± 1.78	94.44 ± 4.96	nc
	50 mg/L	58.23 ± 5.37	93.81 ± 3.09	97.62 ± 2.38	nc

^a Data are expressed as mean ± SD, and all treatments were performed in triplicate; ^b “nc”: no cell was measured, *i.e.*, the treatment induced complete inhibition.

Table S4. Equations and additional information of used photosynthetic parameters.

Model of Eilers and Peeters (1988) [1] for RLCs		
$rETR = \frac{PAR}{aPAR^2 + bPAR + c}$		
The variables a , b , and c are adjustment parameters for the model.		
Parameter:	Definition:	Equations and terms:
alpha	initial slope of the light-limited region	$\alpha = \frac{1}{c}$
$rETR_{max}$	maximum rETR	$rETR_{max} = \frac{1}{b + 2\sqrt{ac}}$

Reference

1. Eilers, P.; Peeters, J. A model for the relationship between light intensity and the rate of photosynthesis in phytoplankton. *Ecol. Model.* **1988**, *42*, 199–215.