

Enhancement of lycopene synthesis by *Brassica trispora* by low frequency alternating magnetic field

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Figure S1: Lycopene standard curve.

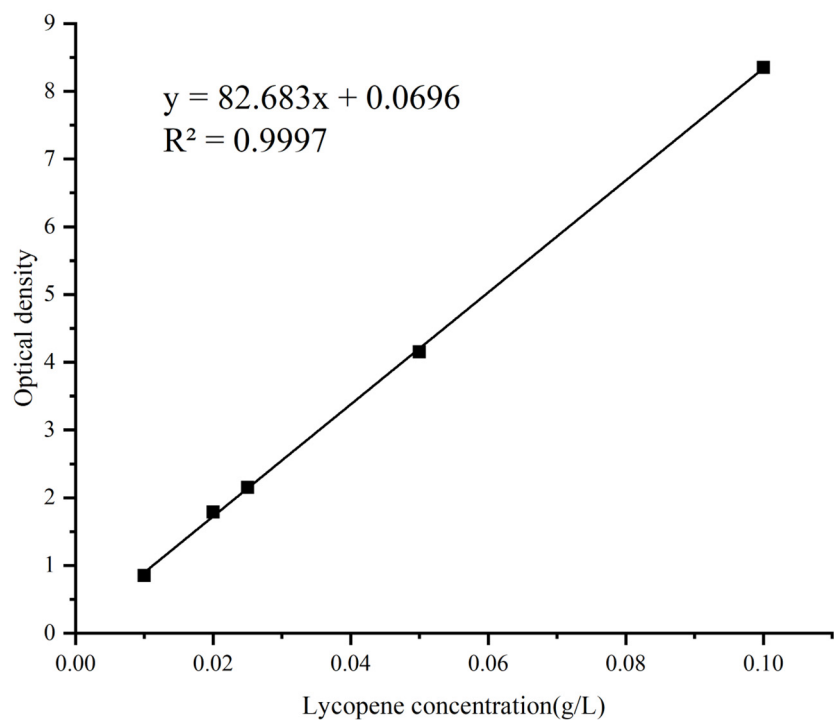


Table S1: effect of magnetic field intensity on lycopene yield.

Magnetic field intensity(mT)	Lycopene production(mg/L)	
	AVG	SD
0	466.2 ^c	32.2
0.2	597.2 ^c	33.7
0.5	870.2 ^a	45.5
0.7	658.2 ^b	24.8
1	387.5 ^d	26.3

Note :The lowercase alphabet with different right shoulder in the same column showed significant difference ($p<0.05$); AVG:average value;SD:Standard Deviation.

Table S2: fermentation curve of *Brassica trisporea* under the optimal magnetic field conditions.

Time(h)	Biomass(g/L)				Lycopene production(mg/L)			
	Control		Treatment		Control		Treatment	
	AVG	SD	AVG	SD	AVG	SD	AVG	SD
48	31.2	3.5	31.2	3.5	193.6	33.5	193.6	33.5
72	48.5	2.8	43	2.5	283.3	47.2	438.4**	51.5
96	59.6	4.5	54	4.7	367.8	52.6	857.8**	69.7
120	68.2	2.4	66	2.3	453.2	68.3	1421.2**	84.9
144	72.1	2.3	70	3.9	466.4	72.6	1473.6**	99.2
168	72.5	3.9	70	3.2	467.8	77.2	1477.8**	102.3

Note:**means extremely significant ($p< 0.01$) difference between the control group and the magnetic treatment group;AVG:average value;SD:Standard Deviation.

Table S3: The effect of magnetic fields on ROS-related enzyme activity in the lycopene synthesis pathway of *Brassica trisporea*.

Time(h)	SOD activity(U/mg)				CAT activity(U/mg)			
	Control		Treatment		Control		Treatment	
	AVG	SD	AVG	SD	AVG	SD	AVG	SD
48	18.3	2.1	18.3	2.1	13.2	1.9	13.2	1.9
72	23.3	1.2	26.5	1.3	15.4	1.2	18.4	1.1
96	26.2	1.3	30.3	1.1	18.3	2.1	24.1	1.9
120	32.1	1.4	35.2	1.2	23.3	1.8	29.3	1.9
144	29.2	1.1	31.3	1.4	19.2	2.2	24.1	1.6

Note:AVG:average value;SD:Standard Deviation.

Table S4: The effect of magnetic fields on crucial enzymes activity in the lycopene synthesis pathway of *Brassica trisporea*.

Time(h)	PDS activity(U/mg)			
	Control		Treatment	
	AVG	SD	AVG	SD
48	13.2	1.9	13.2	1.9
72	15.4	1.2	18.4	1.1
96	18.3	2.1	24.1	1.9
120	23.3	1.8	29.3	1.7
144	19.2	2.2	24.1	1.6

Note:AVG:average value;SD:Standard Deviation.

Table S5: The effect of magnetic fields on intracellular ROS in the lycopene synthesis pathway of *Brassica trispora*.

Time(h)	ROS(FI/ μ g)			
	Control		Treatment	
	AVG	SD	AVG	SD
48	2.1	0.12	2.1	0.12
72	3.8	0.15	2.5	0.13
96	4.4	0.23	3.1	0.24
120	4.9	0.25	3.6	0.26
144	5.2	0.28	4.4	0.29

Note:AVG:average value;SD:Standard Deviation.

Table S6: The effect of magnetic fields on cellular membrane permeability in the lycopene synthesis pathway of *Brassica trispora*.

Time(h)	Relative conductivity(%)			
	Control		Treatment	
	AVG	SD	AVG	SD
48	32.1	1.4	32.1	1.4
72	43.3	2.8	40.2	2.1
96	55.4	3.4	48.8	2.3
120	69.3	2.6	57.2	3.7
144	80.1	3.7	66.7	4.5

Note:AVG:average value;SD:Standard Deviation.