

Table S1. The yield and activity of protoplasts under six-factor and five-level orthogonal experiment

Treatment	Cellulase	Macerozyme	Mannitol	enzymolysis	enzymolysis	centrifugal	Protoplast yield ($\times 10^6$	Protoplast
No.	R-10 (%)	R-10 (%)	(mol/l)	time (h)	temperature ($^{\circ}\text{C}$)	gravity ($\times g$)	protoplasts $\cdot g\text{ FW}^{-1}$)	viability (%)
1	1.5	0.6	0.3	2	23	60	2.33	84.31
2	1.5	0.7	0.6	6	24	90	5.82	79.89
3	1.5	0.8	0.4	5	25	70	3.25	89.62
4	1.5	0.9	0.7	4	26	100	4.38	73.33
5	1.5	1	0.5	3	27	80	4.67	78.73
6	2	0.6	0.5	5	26	90	4.20	87.90
7	2	0.7	0.3	4	27	70	3.95	78.98
8	2	0.8	0.6	3	23	100	5.75	74.20
9	2	0.9	0.4	2	24	80	3.32	80.43
10	2	1	0.7	6	25	60	3.62	69.16
11	2.5	0.6	0.7	3	24	70	4.50	74.39
12	2.5	0.7	0.5	2	25	100	3.80	87.12
13	2.5	0.8	0.3	6	26	80	5.03	79.04
14	2.5	0.9	0.6	5	27	60	4.28	76.11
15	2.5	1	0.4	4	23	90	6.74	76.59
16	3	0.6	0.4	6	27	100	4.71	84.78
17	3	0.7	0.7	5	23	80	4.45	70.59
18	3	0.8	0.5	4	24	60	7.41	82.12
19	3	0.9	0.3	3	25	90	5.25	71.61
20	3	1	0.6	2	26	70	3.58	66.48
21	3.5	0.6	0.6	4	25	80	7.12	74.61
22	3.5	0.7	0.4	3	26	60	5.92	82.59
23	3.5	0.8	0.7	2	27	90	3.15	72.39
24	3.5	0.9	0.5	6	23	70	6.84	78.90
25	3.5	1	0.3	5	24	100	8.51	63.07