Supporting information

Table S1. Orthogonal experimental factors and level assignments.

Factor / Level	A/Glucose concentration (%)	B/Peanut melt concentration (%)	C/Media Starting pH	D/ Inoculation Volume Ratio (%)
1	4.0	1.5	6.5	10
2	5.5	2.5	7.0	12
3	7.0	3.5	7.5	14

Table S2. Orthogonal experimental results and analysis.

Factors / Experiment No.	A	B	C	D	Chemical potency(U/mL)
1	1	1	1	1	268
2	1	2	2	2	7794
3	1	3	3	3	7420
4	2	1	2	3	11943
5	2	2	3	1	8039
6	2	3	1	2	8696
7	3	1	3	2	9675
8	3	2	1	3	9044
9	3	3	2	1	4907
K_1	15667	22072	18193	13399	—
K_2	28863	25061	24829	26350	—
K_3	23811	21208	25319	28592	—
k_1	5164	7291	6002	4404	—
k_2	9559	8296	8219	8721	—

k_3	7871	7007	8373	9469	—
$R_{\text{(Range analysis)}}$	4395	1289	2371	5065	—
Best combination	A_2	B_2	C_3	D_3	—

After the design and execution of the experiments, it could be seen that the strength of impact of the various factors on chemical potency was in the order D>A>C>B, i.e., the most significant influence was that of the inoculation volume ratio, as shown in Table S2. When the range analysis was performed, it was found that the best combination was $A_2B_2C_3$ D_3, so a glucose concentration of 5.5%, peanut melt concentration of 2.5%, initial pH of 7.5 and inoculation volume ratio of 14% were the optimal condition.