

Supporting information for
**Enhanced Phenazine-1-Carboxamide Production
in *Pseudomonas chlororaphis* H5 Δ *fleQ* Δ *relA*
through Fermentation Optimization**

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Supplementary Table captions

Table S1. Factors and levels of the central composite design.

Table S2. Primers for qRT-PCR.

Supplementary Figure captions

Figure S1. Three-dimensional response surface for the effects of independent variables on PCN production. (a) glycerol and soy peptone; (b) glycerol and soybean cake; (c) soy peptone and soybean cake.

Figure S2. Time profiles of OD₆₀₀ and specific cell growth rate (a), PCN production and PCN productivity (b), and glycerol concentration and glycerol consumption rate (c) with a constant fermentation pH of 7.2 in 1 L bioreactor.

Figure S3. Influence of the initial glycerol concentration on cell growth (a), PCN production (b), PCN productivity (c) and glycerol consumption (d) during fermentation in 1 L bioreactor. The purple hollow circles represent that the initial glycerol concentration was 9 g/L; the green solid squares represent that the initial glycerol concentration was 18 g/L; the red solid triangles represent that the initial glycerol concentration was 39.04 g/L (the glycerol concentration of the optimal medium).

Table S1. Factors and levels of the central composite design.

Factor	Variable	Level				
		-1.682	-1	0	1	1.682
Glycerol (g/L)	X ₁	35.0	37.0	40.0	43.0	45.0
Soy peptone (g/L)	X ₂	27.3	32.8	40.8	48.8	54.3
Soybean cake (g/L)	X ₃	24.0	29.5	37.5	45.5	51.0

Table S2. Primers for qRT-PCR.

Primer	Sequence(5' to 3')
<i>phzD</i> -F	TTCCATCGATAGTCCCTTA
<i>phzD</i> -R	ATTGCTCACCACCTTGTC
<i>phzE</i> -F	CCTGCTGGATGTGCTGAT
<i>phzE</i> -R	ATTGCTGCTCGGTGATGT
<i>phzH</i> -F	GTTGTTCAAGGAAATTCG
<i>phzH</i> -R	GTCGGCATTGATAAAACC
<i>phzI</i> -F	GCACCAGAATGAGAAGAT
<i>phzI</i> -R	CTTTCAATAATGTGTCGGAC
<i>gacA</i> -F	TGGTGTTCAAGTCATTCC
<i>gacA</i> -R	CGGTAACGGTAGGTATTC
<i>aceE</i> -F	TACGAACCTGAAAGATTC
<i>aceE</i> -R	TGGAAGAAGTAGTTGAAG
<i>zwf</i> -F	GCCGTCGCACTACATCTT
<i>zwf</i> -R	GCCTTGTTCTTGATCATCA
<i>gltA</i> -F	ATGTTACCGTGATCTTC
<i>gltA</i> -R	TTACTTGCGATCTTCCAG
<i>glnA</i> -F	GTCGGTTCAACTCATCAA
<i>glnA</i> -R	GAAGAAGTCGTCATCCAG
<i>ccoO</i> -2-F	GTACAACGACGAGGATAT
<i>ccoO</i> -2-R	CACCTCTTGCTCTTGATC
<i>ccoQ</i> -2-F	GTCTTGAACCTCGATACCG
<i>ccoQ</i> -2-R	GATTGAGCGTCATCAGAT
16S-F	ACTCCTACGGGAGGCAGCA
16S-R	GGACTACTGGGGTTTCTAAT

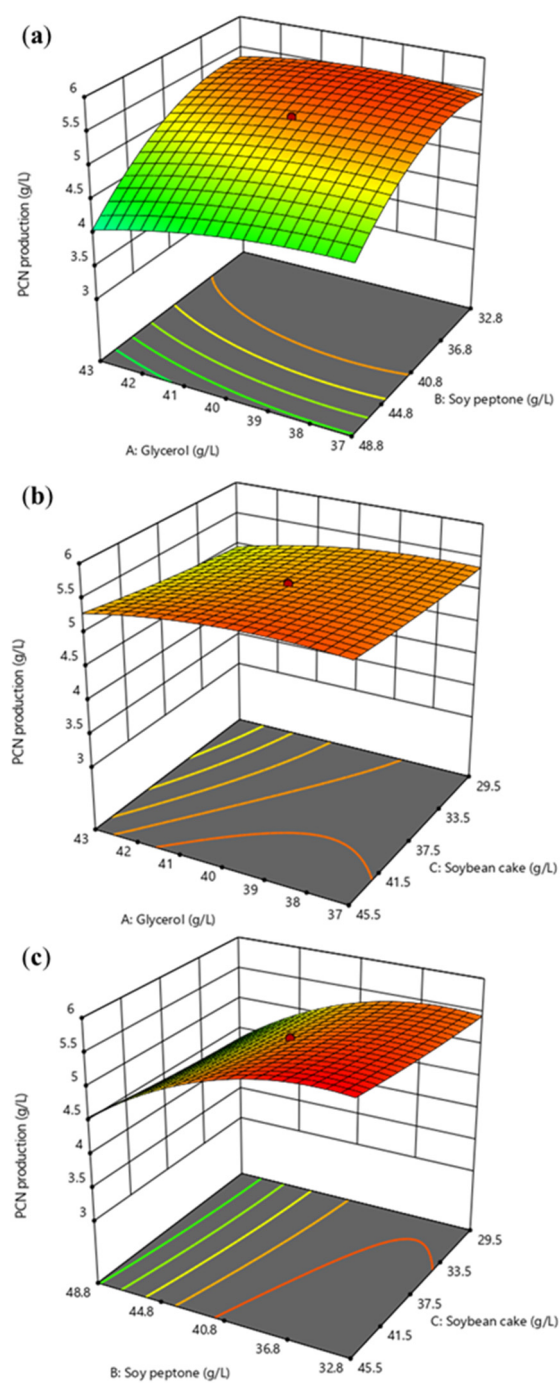


Figure S1. Three-dimensional response surface for the effects of independent variables on PCN production. (a) glycerol and soy peptone; (b) glycerol and soybean cake; (c) soy peptone and soybean cake.

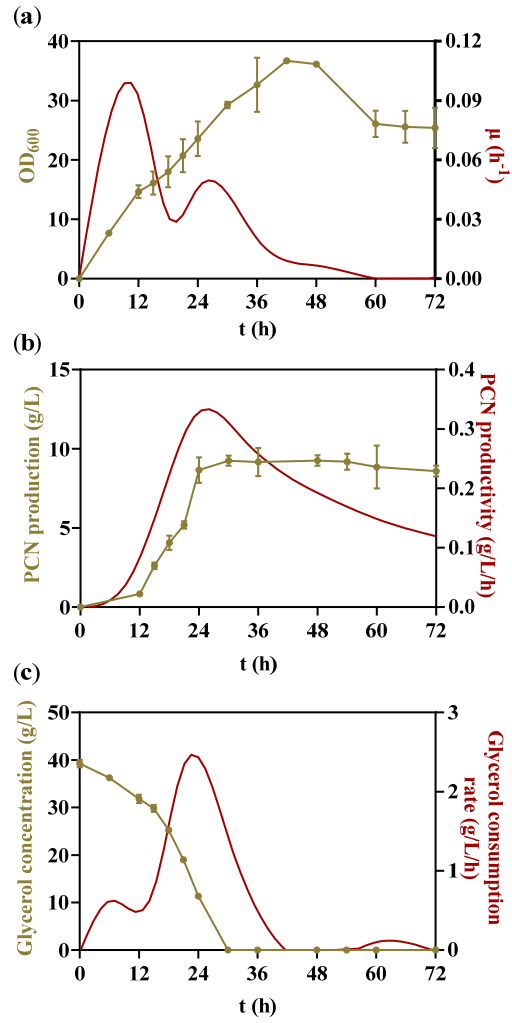


Figure S2. Time profiles of OD₆₀₀ and specific cell growth rate (a), PCN production and PCN productivity (b), and glycerol concentration and glycerol consumption rate (c) with a constant fermentation pH of 7.2 in 1 L bioreactor.

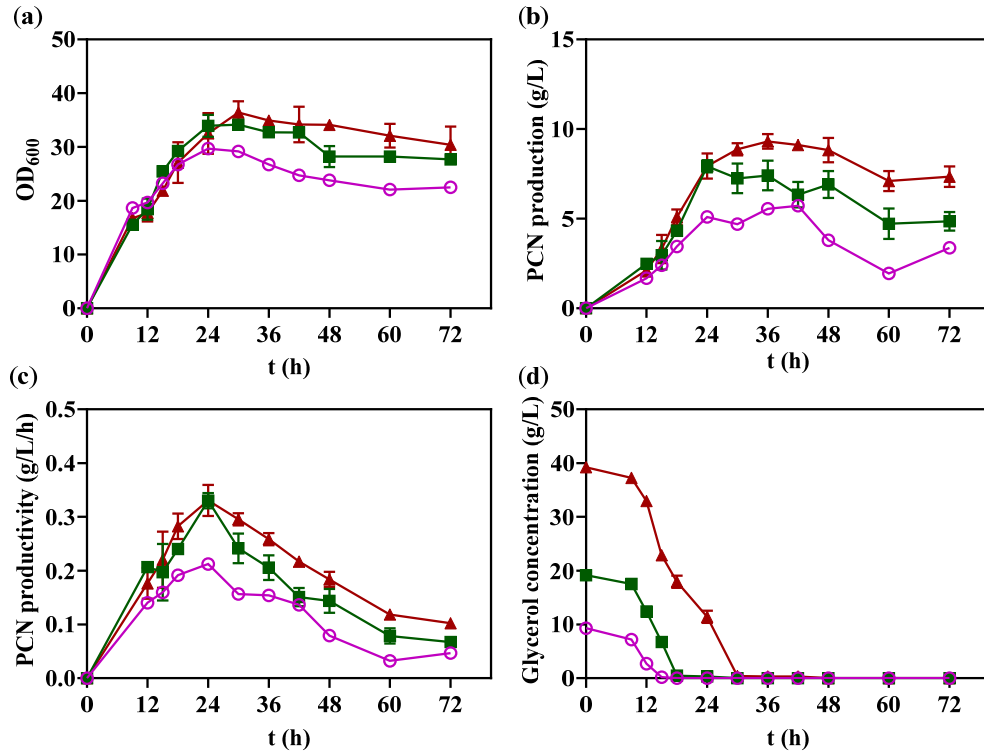


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