

Table S1 Factors and levels in the response surface analysis

Factors	Levels		
	-1	0	1
A- Fermentation time (d)	3	4	5
B- Initial pH	6	7	8
C- Liquid-solid ratio (v:w)	20	25	30

Table S2 Box-Behnken design of the response surface analysis

Runs	A: Fermentation time (d)	B: Initial pH	C: Lipid-soild ratio (v:w)	SDF yield (%)
1	5	7	20	16.896
2	4	7	25	19.078
3	3	7	30	17.582
4	4	6	20	15.266
5	5	6	25	15.89
6	3	7	20	15.422
7	4	7	25	19.562
8	4	7	25	19.266
9	5	7	30	17.272
10	4	8	30	17.766
11	4	6	30	16.288
12	3	8	25	15.41
13	4	7	25	19.902
14	5	8	25	17.574
15	4	8	20	16.856
16	3	6	25	15.808
17	4	7	25	18.784

Table S3 ANOVA for the response surface model.

Source	Sum of Squares	df	Mean Square	F-value	p-value	Significance ^a
Model	36.97	9	4.11	21.54	0.0003	**
A-Time	1.45	1	1.45	7.62	0.0281	*
B-pH	2.37	1	2.37	12.43	0.0097	**
C-ratio	2.5	1	2.5	13.09	0.0085	**
AB	1.08	1	1.08	5.68	0.0486	*
AC	0.7957	1	0.7957	4.17	0.0804	
BC	0.0031	1	0.0031	0.0164	0.9016	
A ²	8.85	1	8.85	46.39	0.0003	**
B ²	12.15	1	12.15	63.69	< 0.0001	**
C ²	4.87	1	4.87	25.56	0.0015	**
Residual	1.33	7	0.1907			
Lack of Fit	0.5889	3	0.1963	1.05	0.4614	not significant
Pure Error	0.7461	4	0.1865			
Cor Total	38.31	16				
R ²	0.9652					
Adjusted R ²	0.9203	□	□	□	□	□

^a Significance: * $P < 0.05$, ** $P < 0.01$,

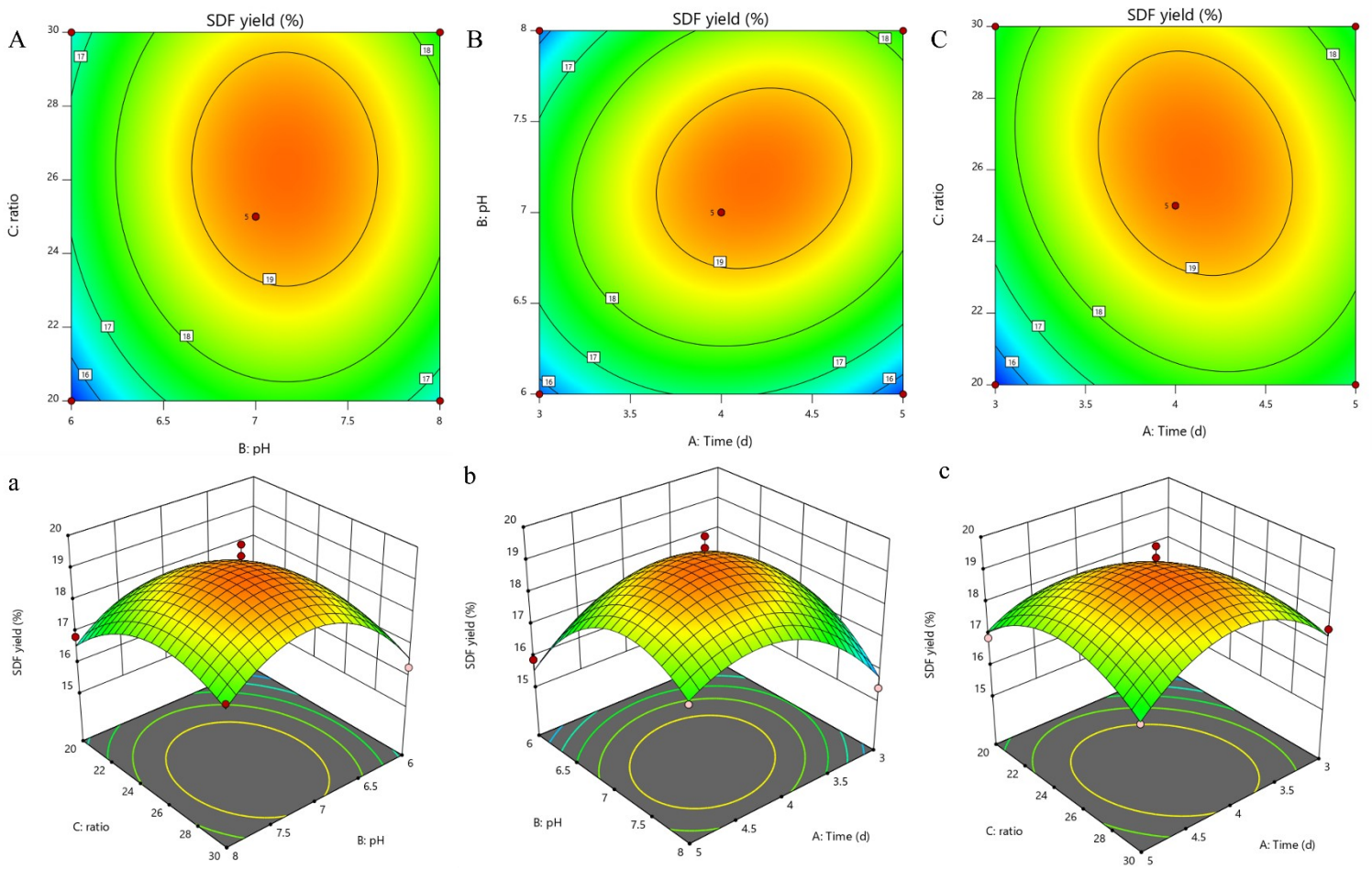


Figure S1 Response surface plots. (A, a) effect of lipid-solid ratio and initial pH on the yield of SDF; (B, b) effect of initial pH and fermentation time on the yield of SDF; (C, c) effect of lipid-solid ratio and fermentation time on the yield of SDF.

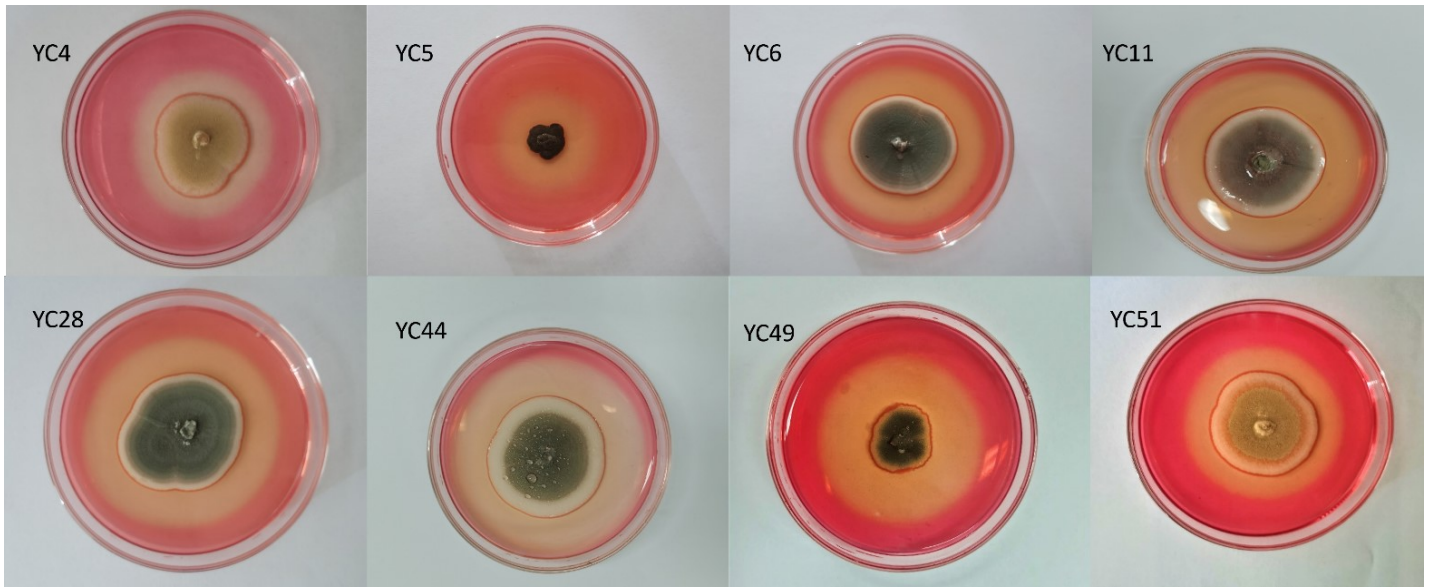


Figure S2. Congo red staining results of the eight strains entering the re-screening