

Table S1. Experimental Design for Five-Level-Six-Factor Central Composite Design.

Run	Factors					
	X ₁ Diphenylamine (mg/L)	X ₂ 2-methyl imid- azole (mg/L)	X ₃ Terbinafine (mg/L)	X ₄ Addition time of inhibitor (h)	X ₅ Fermentation time (h)	X ₆ (+)/(-) strain ratio
1	20.4	176.0	0.00	33.8	122.0	0.275
2	20.4	176.0	45.8	67.6	122.0	0.275
3	20.4	176.0	45.8	33.8	122.0	0.275
4	11.8	102.0	65.0	19.6	76.00	0.350
5	20.4	176.0	45.8	33.8	122.0	0.275
6	29.0	250.0	65.0	48.0	76.00	0.200
7	11.8	250.0	65.0	48.0	76.00	0.350
8	11.8	250.0	65.0	48.0	168.0	0.200
9	0.00	176.0	45.8	33.8	122.0	0.275
10	29.0	102.0	26.5	19.6	76.00	0.350
11	11.8	250.0	65.0	19.6	76.00	0.200
12	20.4	176.0	45.8	33.8	122.0	0.275
13	20.4	176.0	45.8	33.8	122.0	0.275
14	11.8	250.0	26.5	19.6	168.0	0.200
15	29.0	102.0	65.0	19.6	168.0	0.350
16	20.4	176.0	45.8	0.00	122.0	0.275
17	11.8	250.0	26.5	19.6	76.00	0.350
18	20.4	176.0	45.8	33.8	122.0	0.275
19	20.4	176.0	45.8	33.8	122.0	0.275
20	20.4	176.0	91.5	33.8	122.0	0.275
21	11.8	102.0	26.5	19.6	168.0	0.350
22	11.8	102.0	26.5	48.0	76.00	0.350
23	29.0	102.0	26.5	19.6	168.0	0.200
24	29.0	250.0	26.5	48.0	76.00	0.350
25	29.0	102.0	26.5	48.0	76.00	0.200
26	40.8	176.0	45.8	33.8	122.0	0.275
27	11.8	250.0	26.5	48.0	168.0	0.350
28	11.8	250.0	65.0	19.6	168.0	0.350
29	20.4	176.0	45.8	33.8	12.60	0.275
30	29.0	102.0	65.0	48.0	168.0	0.200
31	20.4	0.00	45.8	33.8	122.0	0.275
32	20.4	352.0	45.8	33.8	122.0	0.275
33	20.4	176.0	45.8	33.8	122.0	0.275
34	20.4	176.0	45.8	33.8	122.0	0.453
35	11.8	102.0	26.5	48.0	168.0	0.200
36	11.8	250.0	26.5	48.0	76.00	0.200
37	11.8	102.0	65.0	48.0	168.0	0.350
38	11.8	102.0	65.0	19.6	168.0	0.200
39	20.4	176.0	45.8	33.8	122.0	0.275
40	29.0	250.0	26.5	48.0	168.0	0.200
41	29.0	102.0	65.0	48.0	76.00	0.350
42	11.8	102.0	65.0	48.0	76.00	0.200
43	29.0	102.0	65.0	19.6	76.00	0.200
44	29.0	102.0	26.5	48.0	168.0	0.350
45	29.0	250.0	65.0	19.6	168.0	0.200
46	29.0	250.0	26.5	19.6	76.00	0.200

47	29.0	250.0	26.5	19.6	168.0	0.350
48	29.0	250.0	65.0	48.0	168.0	0.350
49	29.0	250.0	65.0	19.6	76.00	0.350
50	20.4	176.0	45.8	33.8	231.4	0.275
51	20.4	176.0	45.8	33.8	122.0	0.097
52	11.8	102.0	26.5	19.6	76.0	0.200
53	20.4	176.0	45.8	33.8	122.0	0.275

Table S2. Analysis of variance of Y_{PHY} , Y_{LYC} , Y_{SQU} and Y_{ERG} obtained using the RSM model.

	Source	F value	P value
Y_{PHY} response ($R^2 = 0.882$)			
Regression		6.890	0.000
	Linear	17.68	0.000
	Square	10.07	0.000
	Interaction	1.310	0.268
Lack of fit		3.170	0.051
Y_{LYC} response ($R^2 = 0.775$)			
Regression		2.85	0.005
	Linear	7.38	0.000
	Square	3.68	0.009
	Interaction	0.71	0.753
Lack of fit		3.12	0.053
Y_{ERG} response ($R^2 = 0.783$)			
Regression		2.61	0.009
	Linear	4.02	0.006
	Square	3.91	0.007
	Interaction	1.53	0.168
Lack of fit		2.95	0.062
Y_{SQU} response ($R^2 = 0.803$)			
Regression		3.79	0.001
	Linear	1.34	0.277
	Square	5.66	0.001
	Interaction	4.02	0.001
Lack of fit		2.83	0.069

Table S3. Estimated regression coefficients and significance (p values) for phytoene content (PHY) after analysis using coded values of factors.

Term	Coefficient	P value
Y_{PHY} response		
Constant	1.610	0.000
Diphenylamine	0.0628	0.311
2-Methyimidazole	-0.2405	0.001
Terbinafine	0.2355	0.001
Addition Time of Inhibitors	0.4592	0.000
Fermentation Time	-0.2156	0.002
Strain Ratio (+/-)	-0.1280	0.045
Diphenylamine \times Diphenylamine	0.0146	0.781
2-Methyimidazole \times 2-Methyimidazole	0.1691	0.003
Terbinafine \times Terbinafine	-0.0183	0.727
Addition Time of Inhibitors \times Addition Time of Inhibitors	0.2733	0.000
Fermentation Time \times Fermentation Time	-0.2225	0.000
Strain Ratio (+/-) \times Strain Ratio (+/-)	0.0077	0.883

Diphenylamine × 2-Methyimidazole	0.0539	0.452
Diphenylamine × Terbinafine	-0.0231	0.746
Diphenylamine × Addition Time of Inhibitors	-0.0041	0.954
Diphenylamine × Fermentation Time	0.0310	0.665
Diphenylamine × Strain Ratio (+/-)	-0.0226	0.751
2-Methyimidazole × Terbinafine	0.0010	0.989
2-Methyimidazole × Addition Time of Inhibitors	0.0140	0.845
2-Methyimidazole × Fermentation Time	0.0009	0.990
2-Methyimidazole × Strain Ratio (+/-)	0.0252	0.724
Terbinafine × Addition Time of Inhibitors	0.0253	0.723
Terbinafine × Fermentation Time	-0.1083	0.138
Terbinafine × Strain Ratio (+/-)	-0.1551	0.038
Addition Time of Inhibitors × Fermentation Time	-0.2068	0.007
Addition Time of Inhibitors × Strain Ratio (+/-)	-0.0133	0.852
Fermentation Time × Strain Ratio (+/-)	0.1130	0.122

Table S4. Estimated regression coefficients and significance (p values) for lycopene content (LYC) after analysis using coded values of factors.

Term	Coefficient	P value
Y _{LYC} response		
Constant	3.851	0.000
Diphenylamine	-0.168	0.289
2-Methyimidazole	-0.232	0.147
Terbinafine	-0.213	0.182
Addition Time of Inhibitors	0.344	0.036
Fermentation Time	0.777	0.000
Strain Ratio (+/-)	-0.463	0.006
Diphenylamine × Diphenylamine	0.082	0.542
2-Methyimidazole × 2-Methyimidazole	-0.328	0.020
Terbinafine × Terbinafine	0.225	0.102
Addition Time of Inhibitors × Addition Time of Inhibitors	-0.366	0.011
Fermentation Time × Fermentation Time	-0.229	0.096
Strain Ratio (+/-) × Strain Ratio (+/-)	0.142	0.294
Diphenylamine × 2-Methyimidazole	0.118	0.519
Diphenylamine × Terbinafine	-0.092	0.616
Diphenylamine × Addition Time of Inhibitors	0.002	0.992
Diphenylamine × Fermentation Time	0.022	0.903
Diphenylamine × Strain Ratio (+/-)	0.124	0.497
2-Methyimidazole × Terbinafine	0.095	0.603
2-Methyimidazole × Addition Time of Inhibitors	0.487	0.012
2-Methyimidazole × Fermentation Time	0.027	0.882
2-Methyimidazole × Strain Ratio (+/-)	-0.025	0.889
Terbinafine × Addition Time of Inhibitors	0.037	0.838
Terbinafine × Fermentation Time	-0.095	0.604
Terbinafine × Strain Ratio (+/-)	-0.048	0.794
Addition Time of Inhibitors × Fermentation Time	0.184	0.316
Addition Time of Inhibitors × Strain Ratio (+/-)	0.028	0.877
Fermentation Time × Strain Ratio (+/-)	-0.115	0.531

Table S5. Estimated regression coefficients and significance (p values) for squalene content (SQU) after analysis using coded values of factors.

Term	Coefficient	P value
Y_{SQU} response		
Constant	0.26690	0.000
Diphenylamine	0.00678	0.323
2-Methyimidazole	0.00693	0.313
Terbinafine	0.00511	0.455
Addition Time of Inhibitors	0.01141	0.102
Fermentation Time	-0.00424	0.535
Strain Ratio (+/-)	-0.00979	0.158
Diphenylamine \times Diphenylamine	-0.01139	0.059
2-Methyimidazole \times 2-Methyimidazole	-0.01050	0.080
Terbinafine \times Terbinafine	-0.01316	0.031
Addition Time of Inhibitors \times Addition Time of Inhibitors	0.02043	0.002
Fermentation Time \times Fermentation Time	-0.01492	0.016
Strain Ratio (+/-) \times Strain Ratio (+/-)	0.00452	0.439
Diphenylamine \times 2-Methyimidazole	-0.00906	0.258
Diphenylamine \times Terbinafine	-0.00656	0.410
Diphenylamine \times Addition Time of Inhibitors	0.00156	0.843
Diphenylamine \times Fermentation Time	0.01531	0.062
Diphenylamine \times Strain Ratio (+/-)	0.01469	0.072
2-Methyimidazole \times Terbinafine	-0.01281	0.144
2-Methyimidazole \times Addition Time of Inhibitors	-0.02219	0.009
2-Methyimidazole \times Fermentation Time	0.00031	0.968
2-Methyimidazole \times Strain Ratio (+/-)	0.01469	0.072
Terbinafine \times Addition Time of Inhibitors	0.02656	0.002
Terbinafine \times Fermentation Time	0.00656	0.410
Terbinafine \times Strain Ratio (+/-)	-0.02281	0.007
Addition Time of Inhibitors \times Fermentation Time	0.01844	0.027
Addition Time of Inhibitors \times Strain Ratio (+/-)	-0.01719	0.038
Fermentation Time \times Strain Ratio (+/-)	-0.01844	0.027

Table S6. Estimated regression coefficients and significance (p values) for ergosterol content (ERG) after analysis using coded values of factors.

Term	Coefficient	P value
Y_{ERG} response		
Constant	1.5826	0.000
Diphenylamine	-0.0105	0.785
2-Methyimidazole	0.0047	0.904
Terbinafine	0.0139	0.719
Addition Time of Inhibitors	0.0995	0.015
Fermentation Time	0.1522	0.001
Strain Ratio (+/-)	-0.0435	0.266
Diphenylamine \times Diphenylamine	-0.0137	0.679
2-Methyimidazole \times 2-Methyimidazole	-0.0367	0.272
Terbinafine \times Terbinafine	0.0349	0.295
Addition Time of Inhibitors \times Addition Time of Inhibitors	0.1127	0.002
Fermentation Time \times Fermentation Time	-0.0879	0.012
Strain Ratio (+/-) \times Strain Ratio (+/-)	-0.0040	0.904
Diphenylamine \times 2-Methyimidazole	-0.0309	0.493
Diphenylamine \times Terbinafine	0.0128	0.776

Diphenylamine × Addition Time of Inhibitors	0.0316	0.485
Diphenylamine × Fermentation Time	-0.0316	0.485
Diphenylamine × Strain Ratio (+/-)	0.0203	0.652
2-Methyimidazole × Terbinafine	0.0009	0.983
2-Methyimidazole × Addition Time of Inhibitors	-0.0478	0.293
2-Methyimidazole × Fermentation Time	0.0228	0.613
2-Methyimidazole × Strain Ratio (+/-)	0.0484	0.287
Terbinafine × Addition Time of Inhibitors	0.0547	0.231
Terbinafine × Fermentation Time	0.0203	0.652
Terbinafine × Strain Ratio (+/-)	-0.0178	0.692
Addition Time of Inhibitors × Fermentation Time	0.1703	0.001
Addition Time of Inhibitors × Strain Ratio (+/-)	-0.0453	0.318
Fermentation Time × Strain Ratio (+/-)	-0.0447	0.325

Table S7. Carotenoid elution order on Nucleosil C18 column, retention time (RT), relative retention time (RRT), spectral characteristics of peaks (λ_{\max}) and possible identity based on the comparison with standard compounds and literature data (Pollmann et al., 2017b; Rodriguez-Amaya, 2001; Verdoes et al., 1999). Chromatographic data represent the carotenoid-rich extract from TH-treated *B. trispora* cells (fermentation time, 125 h).

Peak No.	RT (min)	RT (min) ^a	λ_{\max} (nm)	Possible identity
1	16.45	0.64	416,440,469	neurosporene
2	18.33	0.71	439,462,491	γ -carotene
3	19.23	0.74	380,400,424	ζ -carotene
4	21.29	0.82	404,430,453	β -zeacarotene
5	23.71	0.92	(425) ^b ,451,478	β -carotene
6	25.83	1	(275) ^b ,286,(297) ^b	phytoene
7	27.38	1.06	404,429,245	7,8-dihydro- β -carotene

^a RT of the compound peak/ RT of the phytoene peak. ^b Parenthesis indicates a shoulder.

Table S8. Sterols elution order on Accucore C18 column, retention time (RT), relative retention time (RRT), spectral characteristics of peaks (λ_{\max}) and possible identity based on the comparison with standard compounds and literature data (Naziri et al., 2011). Chromatographic data represent the UM of cellular lipids from the TH-treated *B. trispora* cells (fermentation time, 125 h).

Peak No.	RT (min)	RRT (min) ^a	λ_{\max} (nm)	Possible identity
1	4.8	0.75	270,280,290	ergosta-5,7,24(28)-tetraen-3 β -ol
2	5.2	0.8	205	zymosterol
3	6.4	1	270,280,290	ergosterol
4	7.9	1.23	270,280,290	22,23-dihydroergosterol
5	8.2	1.28	205	lanosterol
6	12.2	1.90	208	squalene

^a RT of the compound peak/ RT of the ergosterol peak.