

Figure S1. Total phenols and total flavonoids correlation analysis in three plant parts of 20 turnip strains.

Note: “rF” means total flavonoids in root; “rP” means total phenols in root; “sF” means total flavonoids in stem; “sP” means total phenols in stem; “IF” means total flavonoids in leaf “IP” means total phenols in leaf.

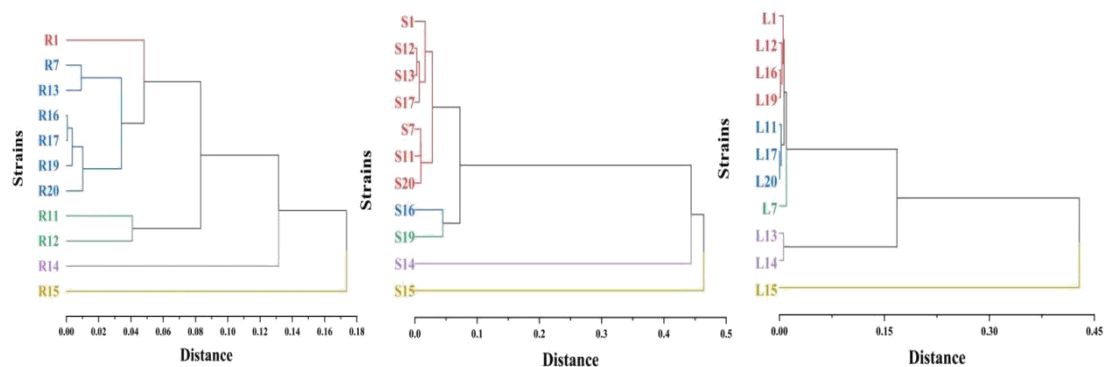


Figure S2. Hierarchical clustering analysis (HCA) on 11 turnip strains containing kinship in three parts.

Note: Strain 7 (female parent) and strain 14, 11, 19, 20, 15 (male parents) were crossed to obtain offspring 1, 13, 16, 12, 17, respectively.

Table S1. The details of 20 different turnip strains

No.	Strain
1	wencheng×2F
2	17P-48
3	SQ×taishunhong
4	17P-16
5	16p-390×2F
6	16p-380×2F
7	2F
8	16p-313×2F
9	16p-373×2F
10	17p-72
11	taishunhong
12	nanxi ×2F
13	taishunhong×2F
14	wencheng
15	wenzhou
16	yuhuan×2F
17	wenzhou×2F
18	16p-313×taishunhong
19	yuhuan
20	nanxi

Table S2. Free amino acid composition and content in three plant parts of 20 turnip strains (mg/g DW)

Sample	Asp	Ser	Glu	Gly	His	Arg	Thr	Ala	Pro	Cys	Tyr	Val	Met	Lys	Ile	Leu	Phe	TEAA	TFAA
R1	1.75±0	3.97±0	1.16±0	0.39±0	25.80±	0.36±0	0.74±0	3.33±0	3.56±1	0.21±0	0.36±0	0.92±0	0.05±0	0.26±0	0.59±0	0.24±0	0.42±0	3.21±0	44.09±
	.51	.38	.63	.06	2.49	.07	.13	.68	.83	.05	.03	.06	.03	.02	.07	.01	.08	.24	3.98
R2	1.85±0	3.32±1	1.55±0	0.34±0	25.05±	0.38±0	0.60±0	2.48±2	3.52±1	0.20±0	0.30±0	0.82±0	0.04±0	0.26±0	0.46±0	0.22±0	0.21±0	2.61±0	41.61±
	.52	.12	.61	.19	11.44	.11	.08	.69	.37	.12	.05	.20	.01	.02	.16	.00	.19	.61	14.86
R3	1.29±0	4.37±0	2.72±0	0.51±0	35.40±	0.40±0	1.05±0	2.99±0	3.44±0	0.23±0	0.44±0	1.00±0	0.04±0	0.41±0	0.67±0	0.32±0	0.43±0	3.93±0	55.73±
	.04	.21	.05	.02	2.56	.04	.08	.37	.33	.03	.02	.09	.01	.02	.04	.02	.02	.28	2.39
R4	2.94±1	4.98±0	2.77±0	0.32±0	33.39±	0.52±0	0.97±0	1.53±0	1.93±0	0.35±0	0.41±0	1.19±0	0.04±0	0.44±0	0.66±0	0.35±0	0.29±0	3.94±0	53.09±
	.06	.65	.59	.21	4.82	.10	.13	.50	.77	.05	.03	.12	.01	.06	.09	.04	.03	.44	6.12
R5	1.86±0	4.58±0	1.70±0	0.66±0	32.99±	0.37±0	1.00±0	4.57±0	4.97±0	0.33±0	0.48±0	1.20±0	0.08±0	0.31±0	0.84±0	0.36±0	0.52±0	4.33±0	56.85±
	.39	.38	.28	.02	2.37	.02	.09	.61	.57	.02	.09	.13	.04	.03	.14	.02	.15	.53	1.23
R6	1.80±0	4.52±0	2.13±0	0.68±0	30.52±	0.44±0	1.02±0	3.77±0	6.59±0	0.51±0	0.43±0	1.03±0	0.06±0	0.29±0	0.72±0	0.29±0	0.44±0	3.86±0	55.25±
	.07	.47	.21	.02	2.77	.14	.07	.54	.86	.09	.05	.06	.02	.03	.05	.04	.07	.33	2.02
R7	1.59±0	4.63±0	1.98±0	0.41±0	30.50±	0.59±0	0.75±0	2.57±0	1.13±0	0.34±0	0.36±0	1.01±0	0.13±0	0.43±0	0.56±0	0.34±0	0.26±0	3.49±0	47.59±
	.11	.43	.10	.02	2.43	.06	.04	.82	.56	.05	.03	.10	.01	.02	.07	.02	.01	.14	4.25
R8	3.89±0	3.36±0	2.67±0	0.44±0	27.39±	0.27±0	0.60±0	2.31±0	1.57±1	0.38±0	0.28±0	0.75±0	0.07±0	0.33±0	0.44±0	0.28±0	0.28±0	2.74±0	45.30±
	.25	.68	.22	.03	2.18	.06	.07	.95	.56	.03	.04	.09	.01	.03	.05	.02	.03	.14	3.54
R9	1.77±0	4.53±0	2.55±0	0.62±0	31.49±	0.39±0	1.09±0	3.89±0	3.99±1	0.48±0	0.45±0	1.12±0	0.03±0	0.32±0	0.76±0	0.32±0	0.45±0	4.09±0	54.23±
	.09	.15	.49	.05	3.05	.08	.13	.54	.46	.02	.07	.11	.01	.02	.07	.02	.06	.37	5.03
R10	3.07±0	3.21±0	4.58±0	0.41±0	27.54±	1.06±0	1.07±0	3.15±0	3.84±1	0.23±0	0.46±0	1.11±0	0.05±0	0.47±0	0.77±0	0.38±0	0.42±0	4.27±0	51.82±
	.05	.30	.05	.04	3.34	.04	.07	.33	.24	.01	.07	.04	.00	.05	.06	.03	.06	.22	4.33
R11	3.07±1	4.48±0	9.61±0	0.26±0	23.78±	0.80±0	0.86±0	1.85±0	3.09±0	0.11±0	0.35±0	0.81±0	0.04±0	0.41±0	0.42±0	0.26±0	0.30±0	3.11±0	50.52±
	.14	.24	.10	.02	1.08	.10	.13	.11	.33	.02	.03	.05	.01	.03	.03	.00	.05	.13	0.56
R12	1.55±0	3.67±0	2.65±1	0.30±0	18.90±	0.60±0	0.73±0	3.20±0	3.63±1	0.20±0	0.41±0	0.96±0	0.04±0	0.36±0	0.64±0	0.33±0	0.36±0	3.42±1	38.54±
	.43	.98	.29	.08	5.07	.18	.33	.44	.48	.05	.14	.27	.02	.05	.20	.09	.15	.10	9.13
R13	1.49±0	2.81±1	4.68±1	0.17±0	13.36±	0.41±0	0.59±0	1.31±0	2.08±0	0.07±0	0.26±0	0.60±0	0.03±0	0.29±0	0.36±0	0.22±0	0.22±0	2.30±1	28.95±
	.49	.27	.70	.06	6.52	.22	.37	.64	.74	.03	.12	.25	.02	.09	.14	.07	.11	.03	12.68
R14	2.46±0	3.75±0	1.00±0	0.45±0	23.95±	0.81±0	0.94±0	2.42±0	2.51±0	0.33±0	0.40±0	1.00±0	0.04±0	0.41±0	0.60±0	0.30±0	0.37±0	3.65±0	41.72±
	.11	.29	.13	.04	2.16	.07	.02	.42	.09	.11	.01	.01	.00	.04	.04	.02	.01	.06	2.75

R15	3.60±0	5.49±0	5.07±0	0.37±0	22.80±	0.76±0	1.08±0	3.38±0	2.73±0	0.10±0	0.50±0	1.24±0	0.05±0	0.49±0	0.78±0	0.47±0	0.48±0	4.59±0	49.39±
	.94	.25	.84	.06	1.04	.07	.07	.39	.26	.06	.07	.13	.01	.04	.09	.06	.06	.46	3.06
R16	1.84±0	3.89±0	2.90±0	0.28±0	18.55±	0.64±0	0.90±0	1.84±0	3.15±1	0.38±0	0.48±0	1.01±0	0.03±0	0.34±0	0.68±0	0.34±0	0.46±0	3.77±0	37.71±
	.47	.39	.59	.03	1.07	.10	.05	.61	.16	.02	.09	.14	.00	.13	.08	.05	.10	.36	1.95
R17	2.50±0	3.70±1	2.70±1	0.26±0	19.70±	0.41±0	0.79±0	1.92±0	1.17±0	0.19±0	0.36±0	0.89±0	0.04±0	0.34±0	0.53±0	0.28±0	0.31±0	3.20±0	36.09±
	.16	.09	.37	.03	6.03	.14	.27	.71	.33	.04	.07	.16	.02	.03	.12	.05	.05	.68	10.06
R18	2.31±0	3.10±0	6.63±1	0.21±0	21.66±	0.63±0	0.79±0	1.72±0	1.56±0	0.14±0	0.36±0	0.79±0	0.03±0	0.40±0	0.48±0	0.26±0	0.28±0	3.03±0	41.35±
	.47	.59	.15	.10	6.08	.11	.17	.57	.70	.04	.07	.17	.01	.09	.11	.04	.06	.48	8.10
R19	1.97±0	4.18±0	4.82±2	0.40±0	17.44±	0.62±0	0.87±0	3.34±0	4.37±2	0.19±0	0.40±0	1.12±0	0.06±0	0.45±0	0.70±0	0.40±0	0.42±0	4.02±0	41.75±
	.12	.86	.24	.04	4.32	.13	.15	.64	.02	.07	.02	.17	.01	.10	.14	.06	.01	.43	9.63
R20	3.22±0	4.39±0	5.71±2	0.30±0	21.45±	0.92±0	1.03±0	2.41±0	1.42±0	0.24±0	0.38±0	1.29±0	0.04±0	0.48±0	0.70±0	0.34±0	0.46±0	4.34±0	44.79±
	.93	.31	.86	.12	2.91	.18	.14	.49	.91	.06	.27	.23	.01	.03	.31	.11	.16	.79	5.39
S1	2.08±0	1.85±0	3.06±1	0.03±0	5.06±3	0.46±0	0.47±0	0.62±0	0.92±0	0.02±0	0.18±0	0.47±0	0.03±0	0.30±0	0.30±0	0.27±0	0.23±0	2.07±0	16.34±
	.30	.13	.28	.03	.28	.08	.10	.38	.28	.03	.01	.03	.01	.04	.01	.05	.05	.09	4.36
S2	3.51±0	1.99±0	4.16±1	0.06±0	7.08±6	0.60±0	0.64±0	0.96±0	0.61±0	0.04±0	0.27±0	0.66±0	0.05±0	0.34±0	0.46±0	0.33±0	0.34±0	2.82±0	22.10±
	.25	.97	.17	.04	.78	.25	.19	.57	.32	.06	.01	.14	.02	.04	.14	.02	.01	.47	9.98
S3	1.38±0	2.00±0	3.07±1	0.05±0	9.05±5	0.51±0	0.43±0	1.16±0	0.80±0	0.04±0	0.14±0	0.39±0	0.03±0	0.29±0	0.22±0	0.24±0	0.16±0	1.75±0	19.94±
	.43	.70	.01	.08	.08	.06	.21	.63	.39	.07	.01	.07	.02	.01	.03	.02	.03	.23	8.13
S4	2.13±0	3.86±1	2.04±0	0.17±0	20.04±	0.64±0	0.70±0	1.97±0	1.04±0	0.10±0	0.23±0	0.64±0	0.05±0	0.23±0	0.49±0	0.30±0	0.21±0	2.62±0	34.84±
	.81	.00	.98	.03	6.70	.13	.15	.35	.30	.07	.06	.12	.01	.20	.10	.08	.07	.65	10.07
S5	3.04±0	3.18±1	3.67±1	0.16±0	14.73±	0.88±0	0.77±0	1.96±0	1.06±0	0.02±0	0.27±0	0.68±0	0.04±0	0.42±0	0.48±0	0.40±0	0.29±0	3.08±0	32.04±
	.57	.04	.59	.05	7.39	.28	.09	.62	.28	.03	.08	.20	.01	.13	.15	.13	.08	.74	7.74
S6	2.58±0	1.76±0	5.24±0	0.07±0	5.24±3	0.34±0	0.54±0	0.82±0	1.06±0	0.05±0	0.16±0	0.39±0	0.04±0	0.27±0	0.25±0	0.23±0	0.18±0	1.90±0	19.21±
	.16	.35	.35	.03	.07	.11	.16	.35	.21	.05	.02	.04	.02	.04	.06	.05	.03	.24	4.09
S7	2.11±0	2.77±0	1.47±0	0.14±0	11.88±	0.62±0	0.42±0	1.21±0	2.05±0	0.17±0	0.19±0	0.47±0	0.05±0	0.35±0	0.33±0	0.29±0	0.19±0	2.10±0	24.70±
	.09	.05	.32	.01	0.24	.06	.07	.07	.96	.07	.05	.06	.00	.05	.05	.05	.05	.21	1.47
S8	1.33±0	1.72±0	1.89±1	0.08±0	8.27±2	0.41±0	0.39±0	0.95±0	0.48±0	0.03±0	0.12±0	0.34±0	0.03±0	0.22±0	0.24±0	0.18±0	0.17±0	1.57±0	16.87±
	.64	.19	.88	.02	.19	.04	.19	.22	.13	.05	.05	.13	.01	.06	.11	.05	.04	.56	4.67
S9	2.15±0	2.78±1	2.43±0	0.11±0	11.02±	0.56±0	0.54±0	1.40±1	0.76±0	0.09±0	0.20±0	0.52±0	0.05±0	0.32±0	0.39±0	0.31±0	0.23±0	2.36±0	23.85±
	.10	.57	.67	.09	11.20	.33	.26	.21	.10	.07	.08	.17	.02	.01	.22	.04	.02	.68	15.89
S10	1.79±1	2.16±0	2.07±2	0.10±0	14.55±	0.52±0	0.49±0	1.45±0	0.93±0	0.03±0	0.16±0	0.48±0	0.03±0	0.25±0	0.35±0	0.25±0	0.18±0	2.03±0	25.80±

		.28	.52	.35	.04	3.66	.15	.18	.38	.17	.05	.03	.09	.01	.04	.08	.05	.04	.44	5.33
S11		2.31±0	4.62±0	4.63±1	0.20±0	15.80±	0.80±0	0.77±0	2.31±0	1.33±0	0.02±0	0.19±0	0.56±0	0.06±0	0.37±0	0.36±0	0.29±0	0.20±0	2.60±0	34.84±
		.18	.77	.66	.03	3.09	.15	.03	.40	.33	.04	.04	.09	.00	.07	.09	.07	.03	.36	2.77
S12		2.23±0	2.83±0	3.02±1	0.11±0	10.26±	0.54±0	0.65±0	1.32±0	1.59±0	0.03±0	0.22±0	0.54±0	0.04±0	0.33±0	0.39±0	0.32±0	0.25±0	2.52±0	24.68±
		.35	.82	.44	.03	2.68	.15	.11	.49	.78	.04	.04	.08	.00	.05	.08	.03	.03	.36	3.36
S13		2.01±1	2.60±0	3.12±2	0.10±0	10.33±	0.53±0	0.56±0	1.30±0	0.90±0	0.03±0	0.18±0	0.47±0	0.05±0	0.31±0	0.33±0	0.26±0	0.21±0	2.18±0	23.29±
		.31	.94	.35	.06	5.86	.19	.23	.62	.32	.05	.03	.12	.02	.08	.07	.07	.05	.61	9.75
S14		2.02±0	2.46±0	0.91±0	0.10±0	11.84±	0.53±0	0.42±0	1.13±0	0.85±0	n.d.	0.20±0	0.52±0	0.04±0	0.34±0	0.37±0	0.29±0	0.25±0	2.23±0	22.27±
		.19	.31	.23	.03	1.25	.04	.12	.08	.30		.04	.09	.01	.04	.04	.05	.05	.37	2.47
S15		2.85±0	2.99±0	3.26±0	0.08±0	10.40±	0.66±0	0.48±0	1.54±0	0.62±0	0.01±0	0.23±0	0.58±0	0.04±0	0.37±0	0.46±0	0.33±0	0.26±0	2.51±0	25.15±
		.21	.46	.61	.04	4.22	.09	.14	.43	.21	.01	.03	.04	.02	.03	.08	.02	.01	.25	5.79
S16		1.83±0	1.78±0	3.33±0	0.03±0	5.17±2	0.41±0	0.40±0	0.73±0	0.79±0	n.d.	0.19±0	0.35±0	0.22±0	0.32±0	0.37±0	0.32±0	0.27±0	2.24±0	16.51±
		.70	.61	.27	.01	.91	.06	.07	.28	.87		.01	.29	.33	.02	.10	.09	.07	.43	4.60
S17		2.24±0	1.78±0	1.71±0	0.04±0	5.71±2	0.45±0	0.53±0	0.71±0	0.80±0	0.02±0	0.21±0	0.55±0	0.05±0	0.36±0	0.37±0	0.34±0	0.28±0	2.48±0	16.17±
		.72	.31	.88	.04	.15	.13	.18	.27	.38	.04	.04	.14	.02	.04	.10	.08	.04	.58	5.32
S18		1.98±1	2.42±0	2.28±0	0.09±0	9.53±3	0.51±0	0.53±0	1.16±0	0.95±0	n.d.	0.19±0	0.47±0	0.04±0	0.32±0	0.34±0	0.25±0	0.20±0	2.14±0	21.26±
		.13	.08	.73	.03	.30	.14	.06	.28	.21		.04	.03	.01	.04	.07	.01	.02	.11	2.38
S19		3.45±0	2.97±0	3.46±0	0.09±0	10.54±	0.71±0	0.77±0	1.41±0	2.05±1	0.02±0	0.26±0	0.67±0	0.05±0	0.42±0	0.51±0	0.38±0	0.32±0	3.12±0	28.08±
		.23	.36	.44	.00	0.23	.08	.09	.04	.51	.04	.05	.09	.01	.04	.07	.04	.06	.37	2.44
S20		2.55±0	2.78±0	1.63±0	0.14±0	11.41±	0.58±0	0.57±0	1.44±0	0.37±0	0.05±0	0.21±0	0.64±0	0.09±0	0.37±0	0.42±0	0.34±0	0.25±0	2.69±0	23.84±
		.63	.41	.59	.03	0.91	.11	.09	.17	.13	.08	.03	.04	.06	.07	.03	.03	.05	.25	0.40
L1		3.91±1	2.40±1	0.17±0	0.16±0	4.62±1	1.49±0	1.17±0	1.05±0	0.86±0	0.03±0	0.61±0	1.10±0	0.17±0	1.33±0	0.58±0	0.82±0	0.80±0	5.97±2	21.27±
		.54	.02	.25	.06	.45	.30	.57	.49	.62	.05	.32	.53	.11	.69	.27	.50	.43	.97	8.21
L2		5.25±0	2.56±1	0.28±0	0.13±0	6.75±3	1.80±1	1.31±0	1.21±0	0.69±0	0.01±0	0.57±0	1.16±0	0.16±0	0.97±0	0.62±0	0.70±0	0.76±0	5.69±2	24.93±
		.72	.11	.43	.10	.59	.06	.26	.34	.25	.02	.22	.46	.09	.47	.28	.35	.36	.25	8.33
L3		5.56±0	2.77±0	0.91±0	0.15±0	9.19±1	2.14±0	1.15±0	1.26±0	0.89±0	0.04±0	0.56±0	1.19±0	0.11±0	1.24±0	0.65±0	0.74±0	0.71±0	5.79±0	29.26±
		.39	.37	.75	.04	.30	.01	.14	.14	.16	.07	.06	.13	.01	.19	.06	.01	.09	.43	1.67
L4		8.93±0	3.27±0	n.d.	0.12±0	11.38±	2.50±0	1.37±0	1.41±0	1.26±0	0.05±0	0.56±0	1.23±0	0.17±0	1.29±0	0.72±0	0.89±0	0.77±0	6.45±0	35.94±
		.79	.46		.03	4.82	.84	.16	.14	.43	.01	.09	.05	.01	.04	.05	.07	.02	.31	7.12
L5		9.11±1	2.93±0	0.24±0	0.17±0	8.03±3	2.68±1	1.62±0	1.32±0	1.00±0	0.02±0	0.69±0	1.38±0	0.15±0	1.46±0	0.77±0	1.01±0	0.92±0	7.30±0	33.50±
		.87	.41	.23	.03	.54	.16	.10	.08	.08	.00	.07	.07	.03	.10	.03	.07	.03	.35	4.03

L6	10.88±	2.33±0	0.47±0	0.09±0	3.88±0	0.92±0	1.09±0	0.95±0	0.73±0	0.05±0	0.50±0	0.98±0	0.11±0	1.07±0	0.52±0	0.62±0	0.62±0	5.01±0	25.79±
	2.75	.32	.70	.01	.67	.16	.17	.09	.05	.08	.04	.11	.01	.15	.03	.08	.04	.42	3.04
L7	9.69±0	3.13±0	0.07±0	0.31±0	8.53±1	2.16±0	1.26±0	1.43±0	0.71±0	0.12±0	0.26±0	1.25±0	0.10±0	1.33±0	0.72±0	0.91±0	0.80±0	6.38±0	32.80±
	.78	.33	.05	.09	.54	.38	.16	.18	.14	.06	.39	.01	.08	.04	.05	.15	.01	.20	2.28
L8	5.78±1	2.74±0	n.d.	0.30±0	8.86±1	2.84±0	1.50±0	1.23±0	0.76±0	0.04±0	0.62±0	1.15±0	0.16±0	1.23±0	0.63±0	0.83±0	0.79±0	6.29±0	29.47±
	.49	.12		.01	.04	.83	.09	.08	.24	.00	.13	.06	.06	.12	.04	.04	.08	.34	0.62
L9	5.52±0	2.52±0	n.d.	0.19±0	5.75±0	1.43±0	1.36±0	1.23±0	0.77±0	n.d.	0.55±0	1.06±0	0.13±0	1.15±0	0.58±0	0.73±0	0.68±0	5.68±1	23.65±
	.49	.18		.07	.07	.23	.16	.05	.02		.17	.21	.05	.23	.08	.18	.17	.07	2.20
L10	4.79±0	2.74±0	n.d.	0.22±0	7.91±0	2.09±0	1.50±0	1.48±0	1.16±0	0.03±0	0.75±0	1.32±0	0.23±0	1.52±0	0.68±0	1.03±0	0.86±0	7.14±0	28.31±
	.27	.13		.03	.12	.02	.03	.03	.38	.01	.02	.07	.05	.05	.05	.02	.04	.23	0.08
L11	4.63±0	4.60±0	3.40±0	0.20±0	8.88±2	4.01±1	1.65±0	1.48±0	1.04±0	0.03±0	0.81±0	1.59±0	0.24±0	1.74±0	0.89±0	1.06±0	1.07±0	8.24±0	37.32±
	.69	.06	.54	.04	.40	.71	.10	.09	.11	.01	.09	.17	.02	.22	.13	.15	.10	.77	3.89
L12	6.26±0	2.92±0	n.d.	0.14±0	5.28±0	1.47±0	1.54±0	1.12±0	0.94±0	n.d.	0.69±0	1.28±0	0.19±0	1.42±0	0.68±0	0.86±0	0.89±0	6.85±0	25.66±
	.12	.32		.01	.29	.07	.08	.04	.14		.03	.05	.01	.04	.05	.04	.02	.07	0.35
L13	5.56±0	3.22±0	0.65±0	0.17±0	5.45±0	1.45±0	1.60±0	1.20±0	0.91±0	n.d.	0.76±0	1.39±0	0.24±0	1.47±0	0.73±0	0.96±0	1.03±0	7.42±0	26.79±
	.37	.22	.48	.03	.98	.31	.15	.14	.22		.06	.14	.02	.09	.08	.06	.05	.57	2.51
L14	6.05±0	2.97±0	n.d.	0.26±0	6.45±0	1.96±0	1.64±0	1.46±0	1.05±0	n.d.	0.83±0	1.56±0	0.26±0	1.64±0	0.87±0	1.17±0	1.08±0	8.21±0	29.24±
	.28	.16		.03	.88	.11	.17	.09	.20		.11	.15	.04	.11	.07	.09	.17	.79	1.34
L15	5.07±1	2.95±0	n.d.	0.15±0	5.12±0	1.38±0	1.29±0	1.22±0	0.71±0	n.d.	0.67±0	1.25±0	0.18±0	1.31±0	0.68±0	0.86±0	0.82±0	6.39±0	23.67±
	.07	.33		.01	.67	.35	.08	.12	.11		.08	.21	.02	.21	.13	.12	.12	.82	2.42
L16	5.58±0	2.75±0	n.d.	0.12±0	5.39±0	1.47±0	1.50±0	1.09±0	0.88±0	n.d.	0.65±0	1.27±0	0.17±0	1.40±0	0.66±0	0.83±0	0.87±0	6.70±0	24.64±
	.64	.07		.02	.46	.09	.05	.04	.23		.01	.06	.01	.04	.04	.03	.04	.18	1.33
L17	4.85±1	2.95±0	0.17±0	0.10±0	6.19±1	1.48±0	1.35±0	1.01±0	0.74±0	0.03±0	0.63±0	1.23±0	0.15±0	1.36±0	0.67±0	0.78±0	0.84±0	6.38±0	24.54±
	.76	.38	.29	.02	.33	.16	.14	.11	.41	.05	.11	.16	.03	.24	.08	.10	.09	.66	3.15
L18	5.28±0	3.36±0	0.35±0	0.20±0	7.40±0	2.36±0	1.88±0	1.40±0	0.93±0	n.d.	0.78±0	1.55±0	0.22±0	1.56±0	0.80±0	1.02±0	1.03±0	8.05±0	30.10±
	.51	.48	.32	.03	.30	.14	.15	.16	.11		.07	.19	.02	.12	.08	.06	.14	.73	1.63
L19	6.37±0	2.68±0	n.d.	0.15±0	4.28±0	1.34±0	1.38±0	1.06±0	0.87±0	n.d.	0.63±0	1.21±0	0.18±0	1.32±0	0.66±0	0.85±0	0.84±0	6.45±0	23.84±
	.49	.04		.00	.56	.18	.02	.09	.20		.02	.08	.01	.12	.06	.04	.08	.41	0.69
L20	4.99±0	2.77±0	n.d.	0.20±0	6.80±1	1.77±0	1.38±0	1.30±0	0.39±0	0.08±0	0.74±0	1.43±0	0.21±0	1.54±0	0.82±0	0.98±0	1.01±0	7.36±0	26.40±
	.28	.18		.02	.01	.25	.09	.09	.33	.01	.04	.03	.04	.07	.02	.03	.05	.27	1.01

.Note: “TEAA” means total essential amino acid; “TFAA” means total free amino acid. “R” means root; “S” means stem; and “L” means leaf. “n.d.” means not detected.

Table S3. Integrate score of 20 turnip strains.

Strain	R		S		L	
	Score	Rank	Score	Rank	Score	Rank
1	-0.6943	58	-0.6148	52	0.9712	15
2	-0.6700	56	-0.4417	24	0.9455	16
3	-0.4324	23	-0.6125	51	1.1416	8
4	-0.6275	53	-0.2855	21	1.3339	1
5	-0.4735	28	-0.4792	30	1.1826	6
6	-0.4876	31	-0.6059	50	0.9054	18
7	-0.6684	55	-0.5479	41	1.3187	2
8	-0.7071	59	-0.5968	48	1.1170	10
9	-0.5573	43	-0.3365	22	1.1178	9
10	-0.4446	25	-0.4723	27	1.2196	5
11	-0.5713	45	-0.5202	36	1.2676	3
12	-0.4887	32	-0.5607	44	0.8952	19
13	-0.7184	60	-0.5779	47	1.0422	14
14	-0.5100	34	-0.4740	29	1.2591	4
15	-0.5360	39	-0.5504	42	0.9144	17
16	-0.6053	49	-0.5140	35	1.0636	12
17	-0.6667	54	-0.4930	33	1.0545	13
18	-0.5744	46	-0.5357	38	1.1796	7
19	-0.6714	57	-0.4694	26	0.8408	20
20	-0.5417	40	-0.5311	37	1.0955	11

Note: “R” means root; “S” means stem; and “L” means leaf.