

Characterization of carotenoid profiles and presence of functional markers in sub-tropical maize (*Zea mays* L.) inbred lines

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Electronic Supplementary Material (ESM)

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Table S1. Carotenoid profile of the 147 lines utilized for this research

Serial No.	Line	Lutein	Zeaxanthin	β -cryptoxanthin	α -carotene	β -carotene	Provitamin A	Total carotenoids
1	TZMI2010-1	9.58	20.91	3.23	0.86	6.52	8.52	41.53
2	TZMI2010-2	9.13	22.38	3.05	1.12	6.42	8.39	42.02
3	TZMI2011	14.49	5.00	2.88	1.15	6.07	7.99	29.80
4	TZMI2012	8.34	6.17	3.76	1.35	6.72	9.37	26.93
5	TZMI2013	2.37	19.89	4.91	1.34	5.74	8.87	34.08
6	TZMI2014-1	2.92	15.61	3.83	1.08	4.48	7.02	28.11
7	TZMI2015-1	2.09	15.52	2.69	0.92	3.79	5.63	25.05
8	TZMI2015-2	2.99	18.47	3.59	1.13	4.12	6.39	30.45
9	TZMI2015-2	2.63	18.69	3.37	1.00	3.94	6.09	29.66
10	TZMI2015-3	1.75	16.83	3.08	0.98	3.60	5.66	26.14
11	TZMI2015-4	2.12	15.27	3.57	1.08	4.21	6.47	26.75
12	TZMI2016-1	2.62	19.07	5.46	1.66	6.40	9.98	35.13
13	TZMI2016-2	1.67	12.04	3.24	1.02	3.88	6.00	22.04
14	TZMI2016-3	2.36	17.97	5.63	1.56	6.35	9.99	34.04
15	TZMI2017-1	4.97	6.17	3.09	0.89	6.71	8.60	21.62
16	TZMI2018-1	7.38	6.40	4.40	1.46	8.45	11.35	28.42
17	TZMI2018-2	3.36	23.28	3.36	1.08	4.72	7.06	35.85
18	TZMI2018-3	6.98	12.03	5.49	1.26	7.94	11.45	33.85
19	TZMI2018-4	7.43	6.75	4.60	1.51	9.18	12.23	29.90
20	TZMI2019	3.07	1.25	3.84	1.42	15.49	18.17	25.30
21	TZMI2022-2	16.96	15.48	3.81	1.15	4.81	7.40	42.36
22	TZMI2022-4	28.04	17.91	2.54	1.03	3.54	5.11	52.76
23	TZMI2023-5-1	14.03	29.48	5.96	2.43	9.00	13.21	60.91
24	TZMI2023-5-2	10.12	32.44	4.81	2.07	7.97	11.47	57.19
25	TZMI2024-1-1	6.62	3.45	3.68	1.23	9.11	11.67	23.80
26	TZMI2024-1-2	6.89	3.55	3.57	1.23	9.74	12.23	25.07
27	TZMI2024-2-1	9.70	4.30	4.23	1.41	10.49	13.31	30.20
28	TZMI2024-2-2	7.85	3.19	3.79	1.27	8.50	10.95	24.44
29	TZMI2025-1-1	8.96	3.56	4.01	1.39	10.79	13.45	30.24
30	TZMI2025-1-2	5.77	2.88	3.02	1.12	8.32	10.27	20.90
31	TZMI2025-2	8.31	3.10	3.78	1.20	9.17	11.83	25.56
32	TZMI2025-3	9.43	3.48	3.45	1.14	9.08	11.37	26.33
33	TZMI2025-4	5.97	4.89	4.39	1.11	10.54	13.23	26.86
34	TZMI2025-5	7.44	4.79	4.09	1.35	11.57	14.31	29.23
35	TZMI2027-1	5.21	2.66	2.55	0.90	4.79	6.51	18.01
36	TZMI2027-2	4.92	2.25	1.82	0.59	4.57	5.72	14.01
37	TZMI2028-1-1	11.41	3.52	4.47	1.74	12.52	15.60	33.43
38	TZMI2028-1-2	8.13	3.81	4.32	1.82	13.85	16.81	31.44
39	TZMI2028-2-1	5.26	3.48	2.80	0.79	5.38	7.18	17.58
40	TZMI2028-2-2	3.75	2.02	1.97	0.67	4.05	5.45	12.99
41	TZMI2028-3-1	11.20	3.82	2.94	1.18	9.58	11.53	28.03
42	TZMI2028-3-2	7.95	3.52	2.59	1.12	9.73	11.60	25.12
43	TZMI2028-4	6.44	2.74	3.45	1.15	8.08	10.40	21.96

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Table S1 to be continued

Serial No.	Line	Lutein	Zeaxanthin	β -cryptoxanthin	α -carotene	β -carotene	Provitamin A	Total carotenoids
44	TZMI2028-5-1	4.25	2.09	1.67	0.48	4.09	5.24	12.99
45	TZMI2028-5-2	4.86	3.43	3.61	1.06	5.75	8.09	18.71
46	TZMI2029-1	8.28	8.82	5.43	1.80	11.23	14.62	35.32
47	TZMI2029-2	1.83	2.22	3.00	1.11	10.65	12.94	19.19
48	TZMI2029-3-1	5.31	7.16	5.38	1.82	11.41	15.14	31.27
49	TZMI2029-3-2	1.65	4.20	4.32	1.31	11.10	13.87	22.83
50	TZMI2029-3-3	2.39	2.43	3.72	1.22	10.00	12.44	19.59
51	TZMI2030	3.38	9.71	4.62	1.16	8.50	11.21	27.27
52	TZMI2038	10.22	5.24	3.98	1.35	5.75	8.43	26.54
53	TZMI2051	2.65	16.93	6.21	1.63	6.97	10.89	34.41
54	TZMI2054-1	5.30	18.77	3.53	1.21	5.98	8.36	34.68
55	TZMI2054-2	2.30	19.45	2.86	1.02	4.32	6.35	29.54
56	TZMI2055	2.88	21.03	4.60	1.44	5.69	8.67	35.68
57	TZMI2056	7.81	14.08	3.47	1.03	2.88	5.05	29.10
58	TZMI2058	13.73	28.82	4.68	1.66	10.12	13.20	58.87
59	TZMI20661	11.21	23.36	2.37	0.84	6.01	7.57	43.29
60	TZMI20662	9.98	25.45	2.49	0.74	6.42	8.02	45.05
61	TZMI2078	12.40	32.25	10.48	2.55	7.92	14.40	65.62
62	TZMI2033-1	9.65	4.76	3.86	1.36	11.68	14.32	31.49
63	TZMI2033-2	8.09	4.79	3.68	1.05	10.83	13.09	28.49
64	TZMI2034-1	8.55	2.62	3.91	1.33	10.41	13.09	26.81
65	TZMI2034-2	9.98	3.67	2.69	1.14	10.27	12.07	27.43
66	TZMI2035-1-1	9.86	4.03	3.99	1.51	10.72	13.42	30.19
67	TZMI2035-1-2	8.07	3.76	3.18	1.17	8.90	11.16	24.95
68	TZMI2035-2	8.22	5.20	3.37	1.39	12.77	15.11	30.78
69	TZMI2036-1	10.17	4.95	3.86	1.38	10.83	13.45	31.09
70	TZMI2036-2	8.37	2.58	2.93	1.03	9.48	11.51	24.20
71	TZMI2041-1	2.93	3.91	3.47	1.41	8.32	10.73	19.87
72	TZMI2041-2	2.35	3.83	4.58	1.58	9.87	12.98	22.42
73	TZMI2042	2.64	2.95	2.92	1.12	6.52	8.56	15.86
74	TZMI2043-1	2.99	3.35	3.01	1.15	7.07	9.24	17.65
75	TZMI2043-2	3.28	2.59	2.41	0.75	5.42	6.99	14.54
76	TZMI2052-1	16.52	3.22	4.84	1.66	6.01	9.18	31.93
77	TZMI2052-2	10.05	3.79	5.04	1.56	6.09	9.37	26.45
78	TZMI2053	4.67	5.42	5.28	1.69	6.57	10.03	23.20
79	TZMI2057	11.63	25.67	4.08	1.54	8.03	10.84	51.03
80	TZMI2059	8.59	14.25	4.43	1.21	7.48	10.40	35.74
81	TZMI2062	8.57	5.30	5.18	1.81	13.42	16.71	34.50
82	TZMI2113	5.76	25.77	6.87	2.34	11.50	16.12	52.04
83	TZMI2115	8.81	4.07	4.41	1.73	13.33	16.42	32.41
84	TZMI2116	8.24	4.78	5.32	2.09	16.45	20.16	18.09
85	TZMI2031-1-1	7.98	4.44	3.24	1.31	11.23	13.47	28.07
86	TZMI2031-1-2	7.19	3.32	3.15	1.24	11.92	14.09	26.79

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Table S1 to be continued

Serial No.	Line	Lutein	Zeaxanthin	β -cryptoxanthin	α -carotene	β -carotene	Provitamin A	Total carotenoids
87	TZMI2031-2-1	6.95	4.44	3.42	1.20	12.13	14.44	28.01
88	TZMI2031-2-2	7.47	4.96	3.35	1.08	11.85	13.85	28.92
89	TZMI2032-1-1	4.44	5.10	3.56	1.28	12.03	14.45	26.38
90	TZMI2032-1-2	7.43	3.13	3.65	5.07	11.06	15.55	30.58
91	TZMI2032-2-1	6.92	3.58	3.52	1.14	11.60	13.88	26.76
92	TZMI2032-2-2	8.01	3.74	3.34	1.27	11.59	13.88	27.98
93	TZMI2039	5.55	3.27	3.42	1.32	7.53	9.72	20.72
94	TZMI2045-1	5.55	26.95	3.84	1.07	8.67	11.11	45.97
95	TZMI2045-2	4.31	23.69	3.74	1.35	6.96	9.47	39.97
96	TZMI2046-1	6.41	1.97	2.42	1.07	8.69	10.42	20.34
97	TZMI2046-2	7.14	2.12	2.57	0.82	8.38	10.01	20.99
98	TZMI2047	5.85	14.30	7.82	1.98	12.95	17.86	42.92
99	TZMI2048	5.52	7.30	7.14	1.49	12.93	17.14	34.25
100	TZMI2049-1	3.16	23.45	6.07	1.58	8.30	12.14	41.89
101	TZMI2049-2-1	3.19	16.77	5.86	1.55	8.41	12.19	35.81
102	TZMI2049-2-2	4.07	18.77	4.93	1.30	6.42	9.43	35.35
103	TZMI2050	2.94	21.37	8.24	1.81	9.67	14.69	43.72
104	TZMI2060-1	12.72	2.39	4.45	1.69	8.35	11.54	29.48
105	TZMI2060-2	13.08	2.29	4.36	1.49	7.93	10.94	29.12
106	TZMI2060-3	9.70	2.12	2.45	0.96	7.44	9.11	22.81
107	TZMI2068	3.83	23.28	4.01	1.42	13.83	16.58	46.35
108	TZMI2075	4.99	31.14	8.72	2.27	7.94	13.42	55.07
109	TZMI2081	11.65	7.02	3.47	1.65	11.83	14.49	36.04
110	TZMI2101-1	7.29	3.08	3.71	1.42	8.51	11.17	22.30
111	TZMI2101-2-1	9.79	3.21	2.82	1.37	11.41	13.47	28.60
112	TZMI2101-2-2	9.09	4.91	2.91	1.42	10.84	12.66	29.03
113	TZMI2101-2-3	6.87	3.69	2.63	1.24	11.15	13.13	25.26
114	TZMI2102-1	9.93	3.78	3.59	1.32	11.69	14.37	30.36
115	TZMI2102-2	8.73	3.62	3.16	1.28	11.74	13.96	28.36
116	TZMI2102-3	9.27	3.99	3.42	1.47	12.11	14.63	30.63
117	TZMI2103-1	6.57	2.51	2.96	1.06	10.90	12.97	24.01
118	TZMI2103-2	6.36	2.65	2.80	1.17	9.54	11.58	22.80
119	TZMI2104	7.48	1.67	3.00	1.25	10.49	12.64	23.94
120	TZMI2105-1	10.42	4.64	3.70	1.50	12.82	15.56	33.08
121	TZMI2105-2	12.62	3.64	3.22	1.43	12.73	15.00	33.67
122	TZMI2106-1	7.84	4.65	3.37	1.67	13.20	15.97	31.11
123	TZMI2106-2	9.34	3.71	3.08	1.35	13.24	15.41	30.58
124	TZMI2107-1	10.57	4.65	3.41	1.36	12.03	14.36	31.88
125	TZMI2107-2	12.68	5.69	3.13	1.39	11.90	14.07	34.78
126	TZMI2108-1	7.62	20.08	5.95	1.70	9.74	13.55	44.97
127	TZMI2108-2	8.30	8.14	4.65	1.42	8.17	11.18	30.37
128	TZMI2109	7.29	11.64	5.27	1.47	7.70	11.12	33.79
129	TZMI2110	5.29	4.56	3.05	0.57	7.83	9.56	19.24

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Table S1 to be continued

Serial No.	Line	Lutein	Zeaxanthin	β -cryptoxanthin	α -carotene	β -carotene	Provitamin A	Total carotenoids
130	TZMI2111	6.49	8.05	5.15	1.50	10.48	13.79	31.41
131	TZMI2122	11.90	4.47	3.30	1.22	7.80	10.11	28.44
132	TZMI2123	7.23	5.47	5.62	1.62	11.90	15.62	32.10
133	TZMI2125	7.58	6.84	3.71	1.54	10.36	12.87	30.16
134	TZMI2126-1	5.54	2.61	2.60	1.07	7.26	9.14	19.76
135	TZMI2020-1	2.15	8.34	5.83	1.52	10.70	14.31	28.57
136	TZMI2020-2	2.10	8.10	6.26	1.54	11.00	14.94	28.98
137	TZMI2067-1-1	2.88	11.10	1.29	1.30	22.05	25.30	38.56
138	TZMI2067-1-2	2.99	9.62	1.73	0.87	27.52	28.79	42.84
139	TZMI2067-2	3.81	19.40	7.12	1.74	10.83	15.28	42.84
140	TZMI2114	5.18	10.03	2.21	1.31	32.35	34.20	51.37
141	TZMI2119	4.46	7.91	2.10	1.69	30.44	32.35	46.74
142	TZMI2120	5.61	10.47	2.00	1.55	24.98	26.74	44.80
143	TZMI2127	3.19	13.73	6.10	1.60	14.87	18.77	39.56
144	TZI2354	4.88	18.00	4.39	1.01	3.75	6.63	31.83
145	TZI2360	6.44	11.72	0.84	0.22	1.71	2.24	21.09
146	4001	2.75	13.93	3.39	0.69	2.57	4.63	23.55
147	KU1409	9.03	22.90	3.63	1.50	6.77	9.42	44.01

<https://doi.org/10.17221/143/2024-CJGPB>Table S2. The *P*-value from ANOVA for provitamin A content and the pedigree

Pedigree	Groups	<i>P</i> -value
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B)	43_26	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B)	38_26	5E-07
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B)	43_34	8.9E-06
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B)	43_13	1.73E-05
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B)	43_17	1.92E-05
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B)	43_1	0.000022
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-12-5-2-2-B)	43_11	3.32E-05
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B)	43_12	3.96E-05
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-20-1-1-1-B)	43_33	0.000145
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B)	38_34	0.000213
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B)	43_10	0.000267
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B)	43_31	0.000285
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B)	38_17	0.000437
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-2-4-1-B)	43_19	0.000553
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B)	38_1	0.00061
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-12-5-2-2-B)	38_11	0.000725
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B)	38_13	0.000919
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B)	38_12	0.001202
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B)	43_28	0.001973
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-3-2-B)	26_2	0.002457
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-20-1-1-1-B)	38_33	0.002788
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-2-B) vs (TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B)	8_43	0.003847
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B)	3_26	0.004105
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B)	38_31	0.00509
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B)	38_10	0.007842
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-3-2-B)	43_2	0.009106
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-2-4-1-B)	38_19	0.009143
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-2-B)	43_4	0.009982
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-1-B) vs (TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B)	7_43	0.010256
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-1-B)	43_3	0.012261
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-3-B) vs (TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B)	5_43	0.017522
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B)	38_28	0.027328
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-32-3-2-2-B)	43_37	0.032371

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Table S3. *P*-value from the ANOVA for total carotenoid content and the pedigree

Pedigree	Groups	<i>P</i> -value
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	10-1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	11-1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	12-1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	13-1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-3-2-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	17-1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	19-1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-2-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	2-1	2E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-3-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	26-1	1.1E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-1-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	28-1	1.5E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-3-2-2-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	3-1	1.6E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-20-1-1-1-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	31-1	2.9E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-2-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	32-1	4.5E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-12-5-2-2-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	33-1	5.1E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-1-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	34-1	8.6E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-2-4-1-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	37-1	1.17E-05
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B	38-1	3.12E-05
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B	4-1	0.001
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	43-1	0.001
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B	5-1	0.001
(TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	7-1	0.001
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B	8-1	0.002
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B	11-10	0.002
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-1-B vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B	12-10	0.004
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B	13-10	0.010
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	17-10	0.014
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B	19-10	0.015
(TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B	2-10	0.026
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	26-10	0.030
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	5-10	0.039
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B	26-1	0.040
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B	19-1	0.044

Table S4. *P*-value from ANOVA for beta-carotene content and the pedigree

Pedigree	Groups	<i>P</i> -value
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B)	43_26	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B)	38_26	1.1E-06
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B)	43_34	1.35E-05
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B)	43_1	1.45E-05
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B)	43_13	3.91E-05
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-12-5-2-1-B)	43_11	5.45E-05
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-20-1-1-1-B)	43_33	5.89E-05
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B)	43_17	7.08E-05
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B)	43_12	0.000125
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B)	43_31	0.000218
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B)	38_34	0.000415
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B)	43_10	0.00044
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B)	38_1	0.000558
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-2-4-1-B)	43_19	0.000599
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B)	43_28	0.000621
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-12-5-2-1-B)	38_11	0.001495
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-20-1-1-1-B)	38_33	0.001605
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B)	38_17	0.001896
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-3-2-B)	26_2	0.001939
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B)	38_13	0.002674
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B)	3_26	0.003874
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B)	38_12	0.004505
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B)	38_31	0.005159
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-2-B) vs (TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B)	8_43	0.007292
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-2-4-1-B)	38_19	0.012467
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B)	38_28	0.012859
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-3-2-B)	43_2	0.014728
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B)	38_10	0.015946
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-2-B)	43_4	0.016571
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-1-B)	43_3	0.017404
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-1-B) vs (TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B)	7_43	0.019535
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-3-B) vs (TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B)	5_43	0.04066

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Table S5. *P*-value from ANOVA for lutein content and the pedigree

Pedigree	Groups	<i>P</i> -value
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	13_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	26_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	17_1	1E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	38_1	1E-07
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	43_1	1E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	28_1	2E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	34_1	2E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-3-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	2_1	1.7E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	12_1	5.9E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	31_1	1.11E-05
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	10_1	1.81E-05
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B	3_26	7.38E-05
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-12-5-2-1-B	26_11	0.0006
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-3-2-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	37_1	0.0012
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	8_1	0.0012
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-3-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	5_1	0.0017
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	3_1	0.0021
(TZMI1029/SW 5 (S) C6-18-2-1-B)-20-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B	33_26	0.0023
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B	8_26	0.0036
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	7_1	0.0040
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	4_1	0.0048
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-2-4-1-B	26_19	0.0051
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B	7_26	0.0081
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B	26_10	0.0164
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-3-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B	5_26	0.0190
(TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-12-5-2-1-B	17_11	0.0366
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B	3_17	0.0405
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-12-5-2-1-B	38_11	0.0465

<https://doi.org/10.17221/143/2024-CJGPB>Table S6. *P*-value from ANOVA for zeaxanthin content and the pedigree

Pedigree	Groups	<i>P</i> -value
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	10_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	12_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	13_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	17_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-2-4-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	19_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-3-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	2_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	3_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-20-1-1-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	33_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-3-2-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	37_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	4_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-3-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	5_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	7_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	8_1	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B	26_10	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B	26_13	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B	28_13	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B	34_13	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-3-2-B	26_2	0
(TZMI1029/SW 5 (S) C6-18-2-1-B)-12-5-2-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	11_1	1E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B	28_10	1E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B	34_10	1E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B	26_12	2E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-3-2-B	28_2	2E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-3-2-B	34_2	2E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B)	8_26	7E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B	34_12	8E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B	28_12	9E-07
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B	8_34	1.8E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B	8_28	2.1E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B)	7_26	3.8E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-3-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B	5_26	4.1E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B	7_34	4.8E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-3-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B	5_34	5.1E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B	34_17	5.5E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B)	7_28	5.5E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-3-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B	5_28	5.8E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B	28_17	6.3E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B	26_17	7.3E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-3-2-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B	37_34	8.8E-06
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-3-2-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B	37_28	0.00001
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-3-2-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B	37_26	1.29E-05
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B	3_26	1.49E-05
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	38_1	1.74E-05
(TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-1-B	34_3	3.02E-05

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Table S6 to be continued

Pedigree	Groups	P-value
(TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-20-1-1-1-B	34_33	3.36E-05
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B	3_28	3.49E-05
(TZMI1029/SW 5 (S) C6-18-2-1-B)-20-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B	33_28	0.000038
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B	4_34	4.51E-05
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B	4_28	5.11E-05
(TZMI1029/SW 5 (S) C6-18-2-1-B)-20-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B	33_26	6.33E-05
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B	4_26	0.00009
(TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-2-4-1-B	34_19	0.000201
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-2-4-1-B	28_19	0.000226
(TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-12-5-2-2-B	34_11	0.000238
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-12-5-2-2-B	28_11	0.000268
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-2-4-1-B	26_19	0.000525
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-12-5-2-2-B	26_11	0.000639
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B	31_13	0.001507
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	32_1	0.002881
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B	31_10	0.003223
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-3-B	43_13	0.003726
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-3-2-B	31_2	0.006512
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-1-B	43_10	0.007207
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B	31_12	0.00984
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-3-2-B	43_2	0.014288
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	43_1	0.014572
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B	8_31	0.018897
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B	31_17	0.019324
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-21-2-2-1-B	38_34	0.019619
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-5-2-B	43_12	0.019995
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-4-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-4-1-B	38_28	0.021577
(TZMI1029/SW 5 (S) C6-18-2-1-B)-32-3-2-2-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B	37_31	0.027336
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B	7_31	0.027543
(TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B) vs (TZMI1017/SW 1 (S) C14-7-1-1-B)-57-1-1-2-B	31_1	0.028137
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-1-4-3-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-18-4-5-2-B	5_31	0.028804
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-15-4-5-2-B	43_17	0.035262
(TZMI1029/SW 5 (S) C6-18-2-1-B)-1-2-2-2-B) vs (TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B	8_43	0.036984
(TZMI1046/SW 5 (S) C6-18-3-1-B)-35-1-1-1-B) vs (TZMI1029/SW 5 (S) C6-18-2-1-B)-32-3-2-2-B	43_37	0.048879

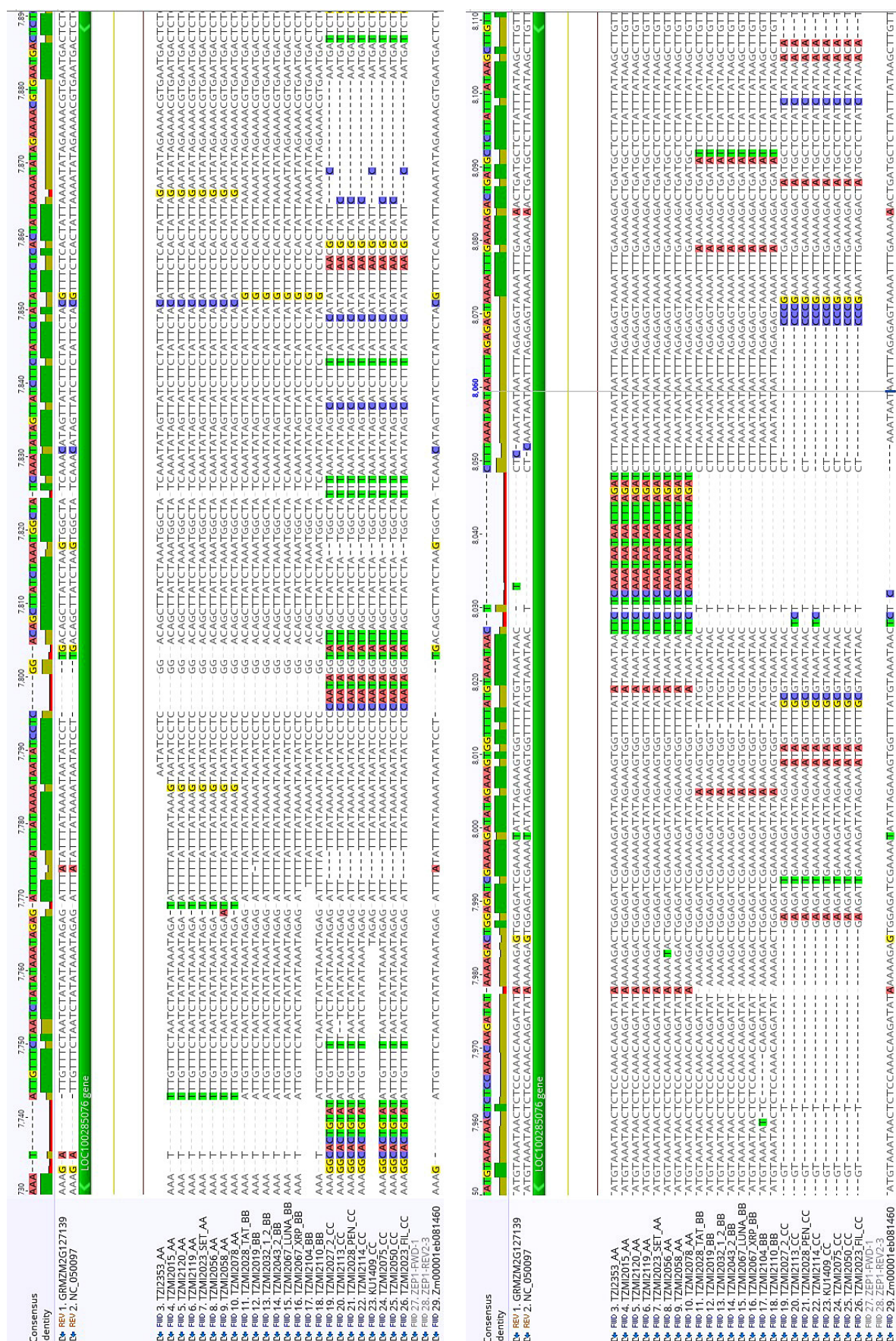


Figure S1. Multiple sequence comparison of chosen 24 maize lines for variance identification, leveraging on ClustalW sequence alignment algorithm in Geneious software

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Figure S1. Multiple sequence comparison of chosen 24 maize lines for variance identification, leveraging on ClustalW sequence alignment algorithm in Geneious software