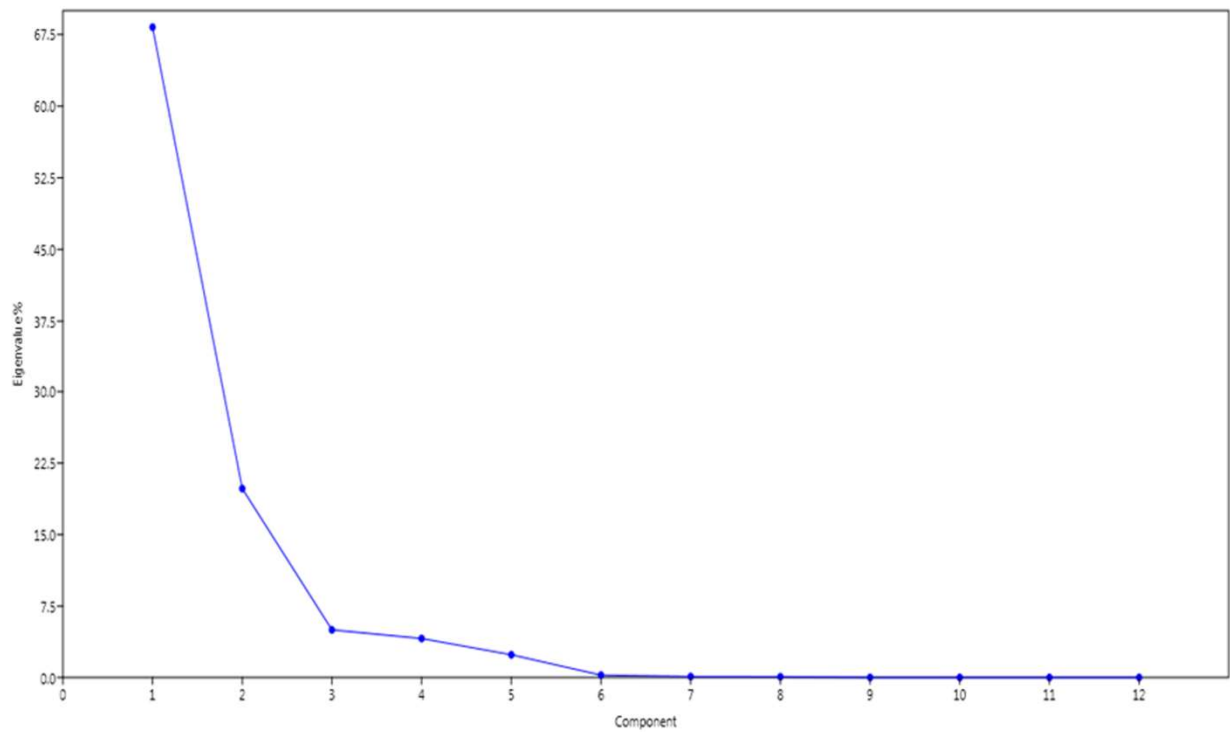
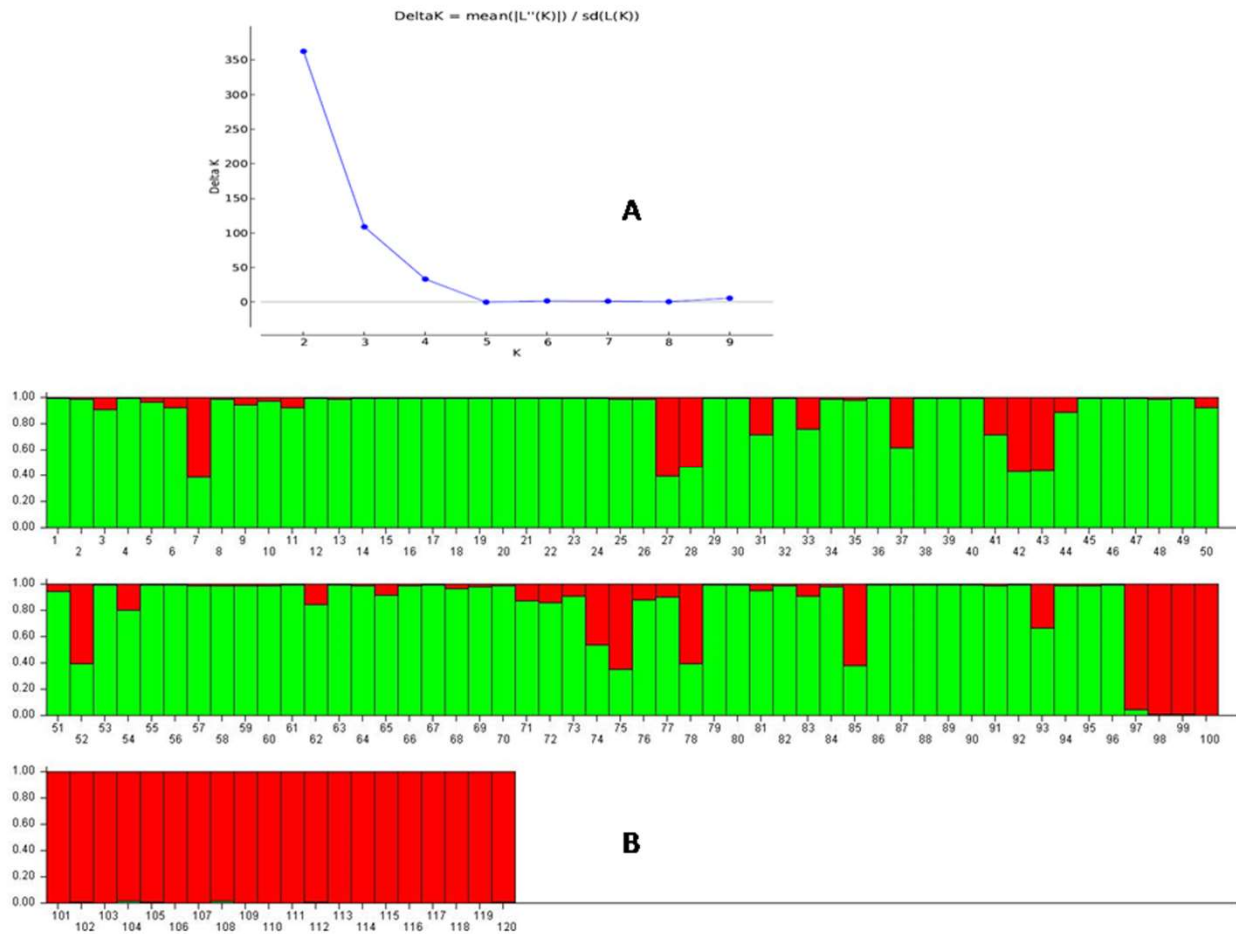


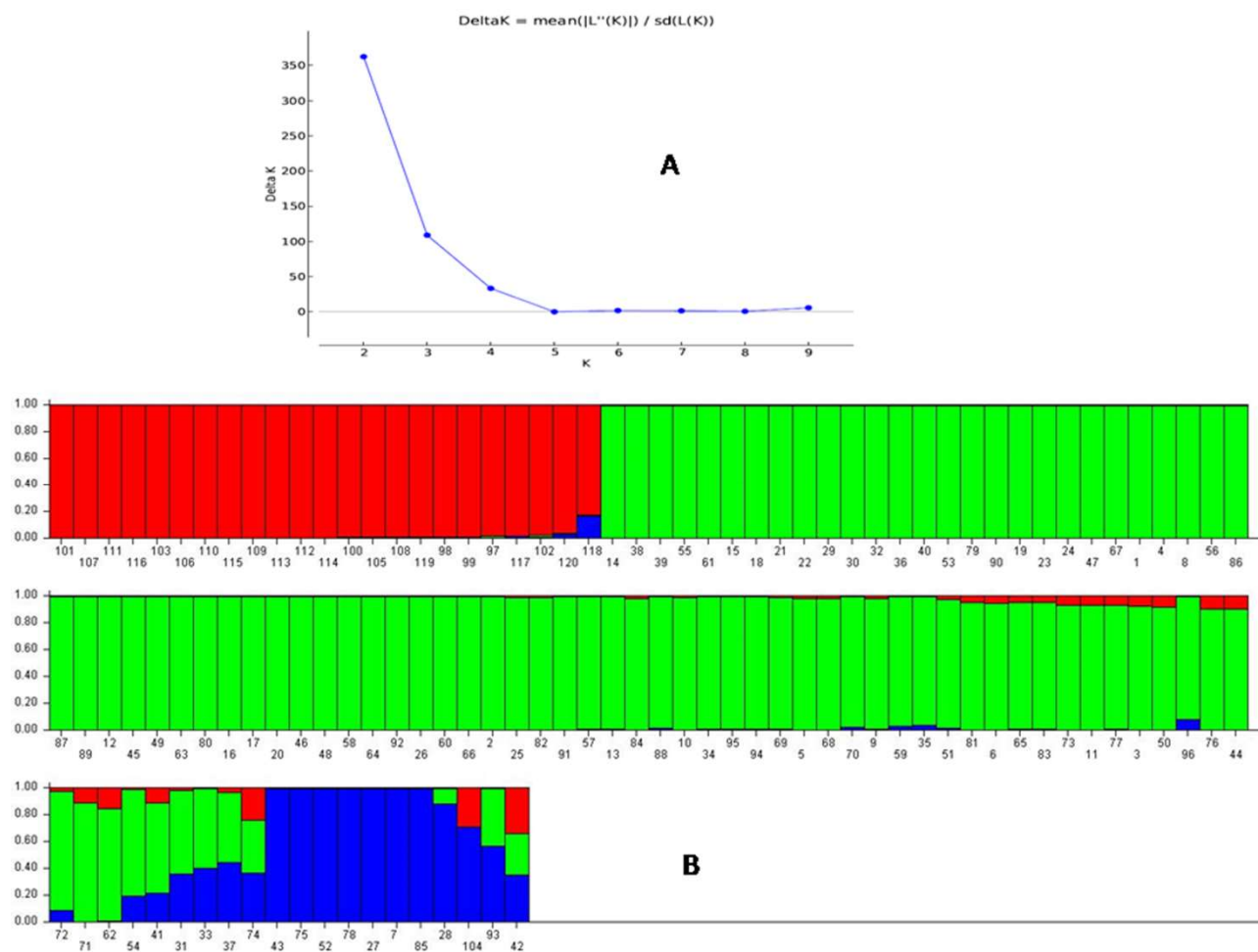
Supplementary figures



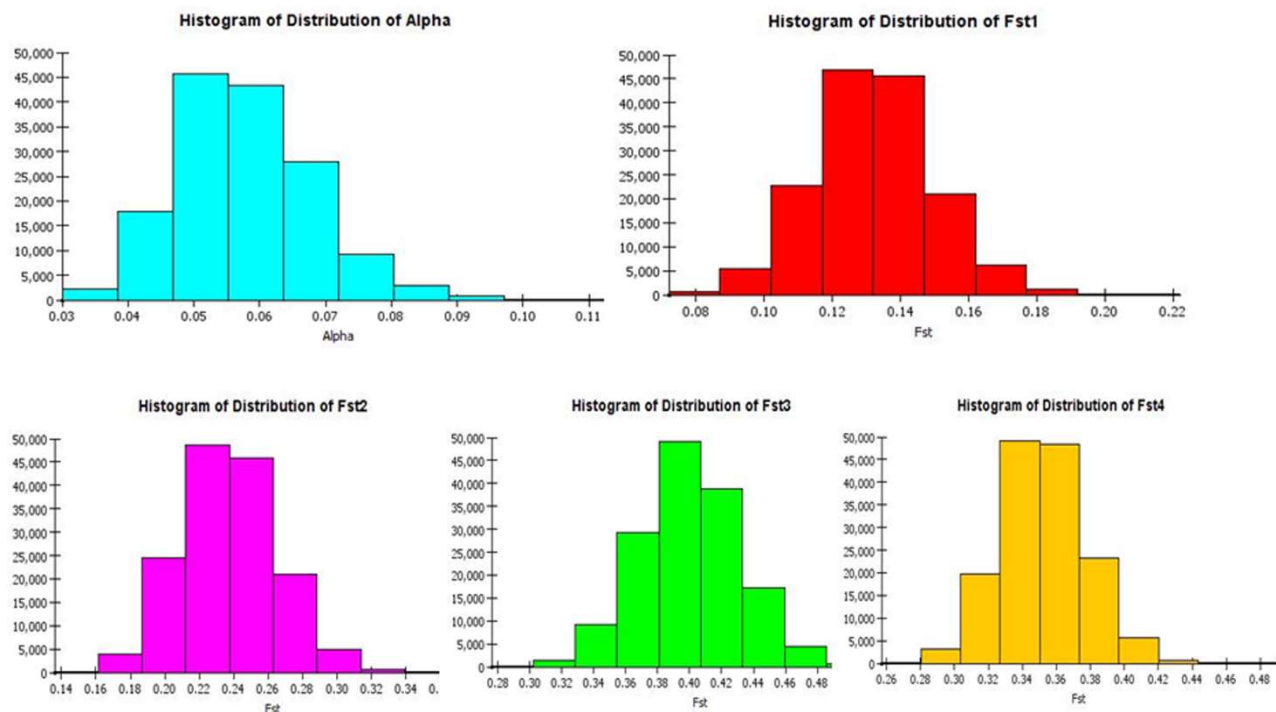
Supplementary figure 1. Scree plot and loadings generated by the six antioxidant traits and eigen values % in the 120 rice germplasm lines.



Supplementary Figure 2. A) Graph of ΔK value, to the rate of change in the log probability structure of the 120 germplasm lines of the panel population based on membership probability fractions of individual genotypes at K of data between successive K values; B) Population = 2.



Supplementary Figure 3. A) Graph of ΔK value, to the rate of chan structure of the 120 germplasm lines of the panel population based on membership probability fractions ge in the log probability of data between successive K values; of individual genotypes at K B) Population = 3.



Supplementary Figure 4. The distribution pattern of alpha value and Fst values in the 4 subpopulations at K=4.

Supplementary Table 1. Mean values of carotenoids, SOD, TAC, GO, TFC and ABTS antioxidants in 270 rice germplasm lines

Sl No.	Kernel colour	Genotype accession no./Vernacular name/ Cultivar	Carotenoids	SOD	TAC	GO	TFC	ABTS
1	White	AC. 9005	1.612	0.268	0.126	47.375	24.333	14.622
2	White	AC. 9006	1.014	0.284	0.064	70.438	17.889	11.412
3	White	AC. 9021	0.444	0.199	0.083	76.313	22.000	11.769
4	White	AC.9030	0.686	0.150	0.123	39.563	18.667	11.555
5	White	AC. 9035	0.262	0.196	0.117	49.500	17.667	11.698
6	White	AC. 9043	0.308	0.175	0.061	39.688	18.444	8.131
7	White	AC. 9044A	0.713	0.221	0.048	49.938	17.556	15.906
8	White	AC. 9053A	0.154	0.159	0.053	42.000	17.333	9.415
9	White	AC. 9058	0.573	0.126	0.055	5.313	23.222	11.698
10	White	AC. 9076A	0.899	0.159	0.048	43.688	22.889	12.126
11	White	AC. 9090	0.255	0.221	0.079	48.438	16.667	10.556
12	White	AC. 9093	0.357	0.215	0.061	45.750	17.000	11.270
13	White	AC. 9102	0.283	0.317	0.052	61.875	15.000	11.660

14	White	AC. 9119A	0.738	0.264	0.070	56.438	14.111	9.325
15	White	AC. 20317	0.870	0.332	0.102	79.063	23.444	10.542
16	White	AC. 20328	1.331	0.312	0.078	67.500	22.000	6.076
17	White	AC. 20362	0.811	0.312	0.077	68.750	19.222	10.688
18	White	AC. 20371	0.839	0.284	0.083	110.000	32.000	6.149
19	White	AC. 20389	1.247	0.279	0.035	66.250	19.333	10.102
20	White	AC. 20664	0.828	0.256	0.070	51.938	19.778	7.028
21	White	AC. 20686	0.968	0.290	0.073	43.188	21.778	4.539
22	White	AC. 20845	1.257	0.265	0.102	61.250	18.889	6.442
23	White	AC. 20436	0.346	0.198	0.075	53.000	22.444	18.265
24	White	AC. 20604	0.416	0.237	0.046	49.063	24.333	12.400
25	White	AC. 20690	0.683	0.292	0.064	70.875	21.556	11.890
26	white	Karpurkanti	1.052	0.155	0.079	44.625	18.333	12.645
27	White	Lata mahu	0.493	0.189	0.141	23.375	21.444	13.584
28	White	Chinamal	0.748	0.300	0.111	18.313	22.222	9.104
29	White	Magra	0.146	0.311	0.119	19.875	17.111	9.971
30	White	Lalgundi	0.353	0.289	0.124	10.563	22.222	11.272
31	White	Balisara lakti machi	0.234	0.253	0.116	18.750	39.111	11.922
32	White	Laxmi bilash	0.289	0.191	0.211	40.813	18.667	12.139
33	White	Kanak champa	0.129	0.272	0.159	39.313	16.444	15.795
34	White	Magura-s	0.210	0.295	0.134	43.063	16.000	13.512
35	White	Maguramanji	0.762	0.278	0.081	38.125	16.444	18.390
36	white	Jhagri kartik	0.080	0.209	0.167	39.688	15.222	10.623
37	white	Dad ghani	0.411	0.206	0.130	51.875	16.000	12.606
38	White	Shayam	0.455	0.196	0.170	58.313	19.333	12.677
39	white	Basumati-B	0.091	0.177	0.124	55.750	20.667	15.935
40	White	Joha	0.094	0.248	0.155	41.688	17.000	11.402
41	White	Jhingesal	0.423	0.209	0.163	39.750	19.000	13.456
42	White	Sugandha-2	0.273	0.278	0.127	57.125	19.444	11.615
43	White	Gochi	0.098	0.323	0.118	42.000	22.000	14.731
44	White	Uttarbanga local-9	0.098	0.296	0.060	51.500	18.333	15.439
45	White	Chatui muchi	0.525	0.322	0.120	49.875	18.778	16.714
46	White	Palina dhan-1	0.094	0.342	0.150	38.313	21.000	14.589
47	White	Jaya	0.091	0.079	0.093	43.688	14.778	16.255
48	White	Gandhakasala	0.066	0.250	0.129	66.750	17.000	13.353
49	White	Gerwathor	0.419	0.186	0.163	35.875	14.444	8.375
50	White	Kaikee	0.273	0.328	0.122	43.313	16.889	25.200
51	White	Manahar rathori	0.655	0.185	0.147	50.688	14.778	9.465

52	White	Bakuldhan	0.066	0.238	0.200	45.375	25.889	16.530
53	White	AC. 5993	0.115	0.239	0.209	43.750	12.333	8.853
54	White	AC. 6007	0.287	0.192	0.027	32.125	13.111	7.983
55	White	AC. 6023	0.112	0.280	0.143	33.313	13.000	10.522
56	White	AC. 6027	0.133	0.175	0.141	38.188	12.333	7.983
57	White	AC. 6170	1.165	0.176	0.090	52.250	13.333	11.063
58	White	AC. 6172	0.297	0.181	0.225	34.125	13.444	7.569
59	white	AC. 6183	0.182	0.015	0.102	47.125	13.889	14.119
60	White	AC. 6221	0.423	0.101	0.159	47.375	13.333	8.952
61	white	AC. 7008	0.913	0.011	0.078	42.438	22.444	9.534
62	White	AC. 7134	0.418	0.144	0.118	46.438	17.333	6.841
63	White	AC. 7269	0.119	0.005	0.204	43.938	14.111	10.189
64	White	AC. 7282	0.136	0.047	0.084	37.063	20.667	10.335
65	White	AC. 10187	0.395	0.159	0.085	30.063	37.111	12.981
66	White	AC. 10608	0.427	0.087	0.108	43.125	12.333	10.414
67	White	AC. 6006	0.465	0.224	0.176	35.813	13.000	11.295
68	White	AC. 6617	0.091	0.050	0.154	40.563	17.112	15.389
69	White	AC. 7009	0.420	0.058	0.144	42.000	12.000	9.038
70	White	AC. 7124	0.598	0.112	0.209	36.125	26.667	18.891
71	White	AC. 7204	0.119	0.160	0.167	36.313	13.222	15.827
72	White	AC. 10333	0.521	0.241	0.126	34.563	13.000	15.197
73	White	AC. 10438	0.346	0.209	0.119	43.125	13.111	14.556
74	White	AC. 44597	1.735	0.075	0.116	54.875	40.654	13.015
75	White	AC. 44598	1.938	0.124	0.224	59.313	28.889	11.618
76	White	AC. 44638	0.801	0.161	0.104	77.250	55.667	9.559
77	White	AC. 44603	1.098	0.227	0.110	60.875	43.889	13.088
78	White	AC. 44604	1.259	0.203	0.149	60.313	28.889	13.015
79	White	AC. 44319	1.626	0.232	0.146	48.813	24.444	23.275
80	White	AC. 44586	0.720	0.030	0.087	70.563	102.064	41.544
81	White	AC. 44602	0.720	0.142	0.049	57.875	66.889	16.765
82	White	AC. 44601	0.430	0.202	0.107	50.563	72.556	11.544
83	White	AC. 44608	1.273	0.141	0.105	54.625	72.444	11.618
84	White	AC. 44613	0.647	0.170	0.073	63.563	71.000	12.324
85	White	AC. 44649	0.514	0.244	0.088	58.750	74.333	13.456
86	White	AC. 43660	1.197	0.292	0.220	41.250	26.778	12.955
87	White	AC. 43661	0.164	0.281	0.107	43.000	50.778	24.600
88	White	AC. 43662	0.112	0.258	0.079	36.375	66.222	13.028
89	White	AC. 43663	0.154	0.269	0.217	40.625	62.667	15.429
90	White	AC. 43669	1.028	0.243	0.115	55.063	31.505	40.175

91	White	AC. 43732	0.665	0.257	0.079	31.063	33.778	35.239
92	White	AC. 43675	0.168	0.238	0.115	40.875	24.444	32.678
93	White	Kalinga-2	0.195	0.103	0.160	41.000	42.556	14.750
94	White	Kalinga-3	0.223	0.058	0.168	28.750	34.778	13.400
95	White	Hazaridhan	0.099	0.134	0.118	30.688	45.778	15.770
96	White	Satabdi	0.111	0.141	0.082	28.125	22.889	14.145
97	White	Swarna-Sub1	0.160	0.228	0.164	33.000	18.111	15.255
98	White	Naveen	0.220	0.056	0.174	45.313	34.667	15.190
99	White	Satyabhama	0.193	0.051	0.402	41.375	23.889	9.055
100	White	Gitanjali	0.080	0.167	0.055	40.750	43.278	12.820
101	White	CR Dhan 305	0.062	0.121	0.157	40.625	35.000	18.190
102	White	CR Dhan 310	0.512	0.090	0.107	39.813	16.444	22.695
103	White	CR Dhan 907	0.190	0.129	0.148	49.813	27.889	17.005
104	White	Govindbhog	0.186	0.059	0.177	52.500	18.778	20.740
105	White	Nuakalazeera	0.121	0.169	0.123	60.250	25.444	21.930
106	White	Masuri	0.216	0.079	0.143	44.375	35.222	20.200
107	White	Heera	0.319	0.120	0.178	33.313	39.222	34.170
108	White	Nuadhusara	0.164	0.228	0.165	53.125	17.000	13.190
109	White	Banskathi	0.218	0.059	0.185	37.375	27.222	15.945
110	White	Hanseswari	0.230	0.168	0.128	47.125	25.000	15.185
111	White	Savitri	0.236	0.071	0.183	30.750	18.667	16.940
112	White	Dhalaheera	0.218	0.091	0.084	40.750	28.444	16.390
113	White	Mahulata	0.182	0.119	0.174	51.563	15.333	15.025
114	White	Padmini	0.431	0.135	0.126	33.125	24.222	11.890
115	White	Ratna	0.419	0.109	0.107	27.688	17.222	20.680
116	White	Annada	0.520	0.060	0.183	42.938	29.778	21.760
117	White	Gomati	0.486	0.122	0.174	32.875	18.889	16.000
118	White	Lalat	0.315	0.117	0.167	33.438	27.333	18.480
119	White	Chinikamini	0.221	0.122	0.161	67.688	26.667	16.460
120	White	CR Dhan 801	0.251	0.066	0.122	31.020	25.895	18.685
121	White	Pratikshya	0.319	0.097	0.152	34.420	36.435	19.795
122	Red	Landi	1.380	0.142	0.918	28.000	63.111	29.480
123	Red	AC9050	0.395	0.191	0.388	28.313	54.889	32.411
124	Red	AC9038	0.371	0.241	0.459	28.438	47.000	41.341
125	Red	AC9028	0.776	0.216	0.250	87.500	45.556	36.976
126	Red	AC9063	0.860	0.235	0.375	110.563	52.222	23.538
127	Red	AC9065	0.353	0.176	0.359	44.875	61.778	30.485
128	Red	AC9011	0.755	0.204	0.442	82.063	58.222	31.740
129	Red	AC20246	1.083	0.279	2.846	67.875	69.333	41.947

130	Red	AC20282	1.118	0.201	1.043	84.500	76.889	42.167
131	Red	AC 20423	0.713	0.182	0.434	46.625	53.000	33.031
132	Red	AC 20614	0.727	0.273	0.609	85.250	62.841	38.448
133	Red	AC 20627	1.164	0.245	0.451	93.375	45.333	22.694
134	Red	AC20770	1.379	0.313	0.568	62.688	62.333	35.959
135	Red	AC20907	0.919	0.308	0.551	64.750	52.444	26.501
136	Red	AC20920	1.264	0.312	0.325	54.125	43.889	26.061
137	Red	AC 20347	1.188	0.292	0.272	57.313	23.778	27.906
138	Red	Kanta kapura	0.947	0.068	0.417	39.000	62.333	36.994
139	Red	Kantakaamala	1.202	0.116	0.451	34.875	60.111	31.503
140	Red	Kapanthi	0.989	0.177	0.451	10.813	41.444	41.757
141	Red	Kathidhan	0.087	0.143	0.601	25.750	35.222	28.107
142	Red	Kunda dhan	0.489	0.008	0.876	30.063	56.556	39.595
143	Red	Champaesiali	0.360	0.222	0.534	20.688	31.444	30.275
144	Red	Lata chaunri	0.507	0.211	1.018	19.875	50.444	30.925
145	Red	Gondia champeisiali	0.762	0.213	0.626	24.750	54.556	24.855
146	Red	Kaniar	1.027	0.214	0.651	39.000	16.778	21.532
147	Red	Adira-1	0.350	0.137	0.943	46.750	114.222	39.115
148	Red	Adira-2	0.511	0.094	0.901	54.313	80.111	38.316
149	Red	Adira-3	0.472	0.039	2.996	48.750	79.667	38.099
150	Red	PK6	0.217	0.112	1.168	46.125	62.222	33.091
151	Red	Vachaw	0.388	0.078	1.568	47.563	54.111	39.317
152	Red	Kozhivalan	0.476	0.007	0.684	51.500	67.667	27.279
153	Red	Marathondi	0.479	0.059	0.501	45.188	45.556	35.626
154	Red	Ezhoml-2	0.234	0.035	0.801	46.688	85.667	33.512
155	Red	Cheruvirippu	0.315	0.114	0.676	37.313	89.667	37.205
156	Red	Pk-21	0.269	0.169	0.568	40.000	44.222	32.964
157	Red	Sreyas	0.217	0.148	0.618	57.375	119.889	31.495
158	Red	Jyothi	0.437	0.062	0.901	56.750	58.889	31.916
159	Red	Mahamaga	0.343	0.187	0.584	38.000	40.778	33.861
160	Red	D1	0.164	0.153	0.451	81.938	73.111	37.997
161	Red	Airweregga	0.280	0.091	0.801	48.063	43.444	28.395
162	Red	Umamata	0.245	0.153	0.534	48.313	59.333	31.375
163	Red	Bharati	0.108	0.235	0.442	41.250	35.667	33.669
164	Red	Rohidhan-1	0.049	0.193	0.559	41.250	36.164	33.085
165	Red	Ganorhibuna	0.206	0.278	13.875	88.375	40.333	38.405
166	Red	Kadamful	0.157	0.239	2.721	50.625	64.778	32.675
167	Red	Palina dhan-2	0.077	0.297	21.782	74.375	36.886	31.390
168	Red	AC. 10162	0.259	0.192	0.526	45.000	81.333	32.397

169	Red	AC. 44585	0.693	0.188	0.918	61.000	80.111	38.705
170	Red	AC. 44588	0.910	0.223	1.302	59.750	227.778	50.368
171	Red	AC. 44591	1.158	0.206	0.818	47.188	124.111	35.147
172	Red	AC. 44592	1.032	0.118	2.320	64.938	242.000	50.515
173	Red	AC. 44594	0.986	0.191	3.388	60.563	183.222	35.735
174	Red	AC. 44595	1.014	0.145	6.618	66.500	334.111	69.412
175	Red	AC. 44646	1.025	0.251	10.407	63.938	316.889	58.750
176	Red	AC. 43658	0.325	0.269	19.796	38.688	79.778	52.475
177	Red	AC. 43670	0.115	0.282	28.375	56.813	358.444	81.441
178	Red	AC. 43676	0.161	0.186	10.280	34.188	226.333	46.288
179	Red	AC.43737	0.136	0.295	11.934	37.375	230.222	48.544
180	Red	AC. 43738	0.164	0.274	11.274	47.500	246.000	53.566
181	Red	Alkachuri	0.451	0.091	1.843	41.125	69.333	51.525
182	Red	Amonabao	0.511	0.109	2.457	47.688	117.111	42.005
183	Red	Annapurna	0.220	0.096	5.093	36.875	184.200	65.165
184	Red	Assambiroin	0.324	0.114	3.335	53.250	226.000	38.610
185	Red	Balam	0.414	0.060	2.989	80.375	284.800	55.050
186	Red	Bambi mugai	0.555	0.067	4.560	43.375	105.222	44.700
187	Red	Barbali	0.335	0.050	4.340	40.125	85.333	39.885
188	Red	Barhasal	0.438	0.096	1.642	33.250	138.333	56.075
189	Red	Baskati	0.516	0.250	2.858	30.375	131.778	59.720
190	Red	Baula	0.671	0.134	1.789	32.875	107.444	62.250
191	Red	Bhasakalma	0.420	0.266	3.933	35.938	102.889	60.680
192	Red	Chhota dahiya	0.516	0.079	2.444	51.875	107.667	61.755
193	Red	Chingair	0.429	0.115	3.746	45.125	122.111	40.840
194	Red	Dhanigoda	0.438	0.100	1.709	35.125	104.444	44.825
195	Red	Gandhi biroin	0.316	0.111	2.153	49.155	87.660	51.320
196	Red	Gengene	0.537	0.215	1.843	26.313	85.556	50.980
197	Red	Hermanona	0.454	0.118	2.751	58.688	151.667	40.970
198	Red	Hugla	0.425	0.216	2.671	35.938	135.778	44.460
199	Red	Jool	0.410	0.229	2.464	42.313	190.400	72.715
200	Red	Kakharua	0.356	0.137	2.350	43.313	151.444	71.730
201	Red	Kaksal	0.507	0.107	1.816	40.188	80.667	32.710
202	Red	Kalakatki	0.449	0.116	2.657	34.438	152.778	38.855
203	Red	Kalokumara	0.600	0.216	1.990	43.750	108.333	41.465
204	Red	Karaga goda	0.458	0.170	1.576	39.250	88.333	32.315
205	Red	Karhani	0.520	0.232	1.602	36.625	114.889	20.765
206	Red	Karnidhan	0.290	0.139	5.148	64.688	84.778	62.215
207	Red	Katraibhog	0.371	0.088	4.273	55.365	128.889	55.510

208	Red	Kelash 1981	0.447	0.131	1.776	41.625	92.667	26.560
209	Red	Koya 4	0.417	0.240	5.575	46.750	105.889	50.105
210	Red	Koya ho baba	0.390	0.115	5.889	52.688	94.000	52.405
211	Red	Lalbora	0.325	0.142	2.073	26.500	153.200	28.745
212	Red	Langal muthi	0.339	0.221	1.869	43.188	103.222	19.795
213	Red	Likekakua	0.452	0.250	1.856	33.875	168.222	20.690
214	Red	Marchal	0.427	0.120	1.602	41.625	91.333	21.670
215	Red	Meghi	0.340	0.160	3.205	51.313	138.778	26.080
216	Red	Mornodoiga	0.426	0.111	4.762	74.438	267.800	28.910
217	Red	Motarmala	0.458	0.150	1.776	45.500	65.778	23.265
218	Red	Mugai	0.340	0.137	3.230	37.125	157.200	24.515
219	Red	Mugai	0.420	0.112	1.816	22.875	118.889	24.900
220	Red	Nagheri	0.220	0.216	3.098	50.625	85.667	32.580
221	Red	Nagheri	0.238	0.136	1.923	49.188	116.556	21.375
222	Red	Nalbora	0.359	0.049	1.292	32.625	186.400	23.830
223	Red	Neta	0.416	0.207	1.896	33.500	87.000	26.865
224	Red	Netakalani	0.490	0.186	1.642	30.500	84.556	22.995
225	Red	Nirjhara	0.468	0.165	1.910	67.438	91.111	27.805
226	Red	Palbari	0.515	0.126	1.616	31.313	140.222	21.380
227	Red	Panati	0.478	0.076	1.696	56.063	129.444	32.655
228	Red	PB140	0.515	0.111	2.118	35.563	179.800	43.210
229	Red	Rajesh	0.487	0.178	1.923	44.875	134.778	39.120
230	Red	RPHP112	0.480	0.255	1.803	34.875	95.000	33.540
231	Red	Saathi	0.390	0.244	2.689	35.688	182.000	41.790
232	Red	Setka 36	0.653	0.228	2.704	32.750	176.200	35.435
233	Red	Sugandha	0.530	0.230	4.320	53.500	167.800	60.750
234	Red	Urebanga	0.742	0.219	1.682	37.750	104.000	18.950
235	Red	Vutmari	0.660	0.221	5.308	45.750	106.556	65.580
236	Red	Geda	0.547	0.216	2.120	28.125	80.949	55.310
237	Red	Haldigundi	0.391	0.117	2.099	39.000	78.367	51.575
238	Red	Saraga debangi	0.487	0.096	2.151	49.625	78.181	63.075
239	Red	Kadara	0.571	0.116	2.261	53.625	90.181	55.460
240	Red	Sundarmadei	0.528	0.085	2.101	58.625	87.364	49.875
241	Red	Sundargada	0.537	0.109	2.338	50.000	101.891	54.475
242	Red	Kala dhusura	0.622	0.149	2.196	60.000	86.189	59.750
243	Red	Godhikhejara	0.535	0.104	2.369	40.875	83.167	61.345
244	Red	Laxmi kajal	0.619	0.117	2.186	61.375	89.727	63.560
245	Red	Mugei	0.520	0.159	2.382	51.125	94.459	58.305
246	Red	Mugi	0.497	0.222	2.830	51.000	98.816	60.670

247	Red	Jhumpuri malata	0.402	0.153	2.544	37.250	89.848	61.820
248	Red	Sal jhantri	0.535	0.104	2.507	37.750	73.799	66.905
249	Red	Nathmohan	0.430	0.053	3.550	44.875	93.181	67.800
250	Red	Hundamakara	0.492	0.120	3.098	50.625	102.083	65.550
251	Red	Dhoba kakiri	0.516	0.112	3.000	43.250	107.105	67.385
252	Red	Boula	0.487	0.128	2.925	46.750	96.201	68.620
253	Red	Sundarbhojna	0.480	0.229	3.198	53.250	107.069	59.730
254	Red	Kuliha	0.542	0.216	2.553	39.375	92.556	60.755
255	Red	Hajirimala	0.367	0.122	2.598	58.750	86.962	55.640
256	Red	Nadiarasa	0.460	0.052	2.587	30.750	104.467	44.985
257	Red	Kalanpati	0.570	0.121	2.678	28.125	96.688	53.965
258	Red	Majhi	0.685	0.060	2.899	42.625	110.284	57.635
259	Red	Kalajeri	0.364	0.220	2.667	26.125	112.723	56.775
260	Red	Majhi	0.413	0.083	2.989	38.750	96.534	49.795
261	Red	Sunakathi	0.450	0.141	3.174	64.250	115.401	52.705
262	Red	Luna	0.525	0.217	3.399	54.010	217.549	51.615
263	Red	Abhirman	0.493	0.202	2.736	64.130	192.620	55.710
264	Red	Kalakanhu	0.384	0.184	3.469	56.685	203.691	61.820
265	Red	Pologada	0.531	0.067	3.164	56.598	130.309	62.615
266	Red	Majhi	0.481	0.224	3.786	50.848	264.755	59.935
267	Red	Rajapateni	0.391	0.239	2.232	35.230	189.104	63.745
268	Red	Dalipahata	0.420	0.242	3.783	40.118	186.620	61.385
269	Red	Kadara	0.493	0.279	3.486	46.050	190.320	60.655
270	Red	Nadiarasa	0.552	0.292	3.441	57.938	165.787	59.905
Mean			0.586	0.200	1.924	48.209	61.059	20.678
CV			13.12	2.432	33.800	1.712	6.824	6.600
LSD5%			0.065	0.076	0.891	3.234	7.858	2.721

Carotenoids (mg g⁻¹); SOD: super oxide dismutase (unit g⁻¹); TAC: total anthocyanin content(mg 100g⁻¹); GO: gamma-oryzanol (mg 100 g⁻¹); TFC: Total flavonoids content (mg catechine or CEt 100 g⁻¹) and ABTS: 2,2'-azino-bis 3-ethylbenzothiazoline-6-sulfonic acid (% inhibition).

Supplementary Table 2. The inferred ancestry value and population structure of individual member with their antioxidants classification in the panel population at K=2 & K=3.

Sl. No.	Accession No./ Vernacular name of germplasm line	Inferred ancestry value at K=2	Inferred ancestry value at K=3	Structure Group	Antioxidants content in each germplasm line
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		Q1	Q2	Q1	Q2	Q3		
1	AC. 5993	0.006	0.994	0.003	0.995	0.003	SP2	high SOD
2	AC. 6221	0.012	0.988	0.007	0.991	0.002	SP2	Low
3	AC. 6183	0.088	0.912	0.072	0.925	0.003	SP2	Low
4	AC. 6170	0.006	0.994	0.003	0.995	0.002	SP2	high Carotenoid
5	AC. 6023	0.034	0.966	0.02	0.978	0.002	SP2	high SOD
6	AC. 6172	0.072	0.928	0.051	0.948	0.002	SP2	Low
7	AC. 6027	0.61	0.39	0.002	0.005	0.993	SP3	Low
8	AC. 6007	0.008	0.992	0.004	0.995	0.001	SP2	Low
9	AC. 9006	0.057	0.943	0.02	0.971	0.009	SP2	high
10	AC. 9021	0.024	0.976	0.013	0.982	0.005	SP2	Low
11	AC. 9028	0.074	0.926	0.069	0.928	0.003	SP2	high GO& SOD
12	AC. 9030	0.006	0.994	0.006	0.994	0.001	SP2	Low
13	AC. 9035	0.011	0.989	0.004	0.983	0.014	SP2	Low
14	AC. 9038	0.003	0.997	0.001	0.998	0.001	SP2	high SOD
15	AC. 9043	0.003	0.997	0.002	0.997	0.001	SP2	Low
16	AC. 9044	0.007	0.993	0.003	0.993	0.005	SP2	high SOD
17	AC. 20920	0.007	0.993	0.003	0.993	0.004	SP2	high SOD & Carotenoid
18	AC. 20907	0.004	0.996	0.002	0.997	0.001	SP2	high SOD
19	AC. 20845	0.005	0.995	0.003	0.996	0.001	SP2	high Carotenoid
20	AC. 20770	0.004	0.996	0.002	0.993	0.005	SP2	high SOD & Carotenoid
21	AC. 20627	0.003	0.997	0.002	0.997	0.001	SP2	high Carotenoid & SOD
22	AC. 20686	0.003	0.997	0.002	0.997	0.001	SP2	high SOD
23	AC. 20664	0.005	0.995	0.003	0.996	0.001	SP2	Medium
24	AC. 20614	0.003	0.997	0.001	0.996	0.002	SP2	high SOD
25	Jhagrikarti	0.014	0.986	0.008	0.99	0.002	SP2	high GO
26	Dadghani	0.014	0.986	0.005	0.992	0.003	SP2	high SOD
27	Shayam	0.602	0.398	0.001	0.002	0.996	SP3	Very low
28	Basumati	0.529	0.471	0.005	0.113	0.883	SP3	Very low
29	Bharati	0.002	0.998	0.001	0.997	0.002	SP2	high SOD
30	Joha	0.003	0.997	0.002	0.997	0.002	SP2	high SOD
31	Adira-1	0.283	0.717	0.019	0.619	0.362	Admix	Medium
32	Adira-2	0.003	0.997	0.002	0.997	0.001	SP2	Medium
33	Adira-3	0.239	0.761	0.003	0.593	0.403	Admix	Medium
34	PK6	0.012	0.988	0.004	0.982	0.014	SP2	Low
35	Vachaw	0.015	0.985	0.002	0.961	0.037	SP2	Medium
36	Kozhivalan	0.003	0.997	0.002	0.997	0.001	SP2	Low
37	Marathondi	0.379	0.621	0.034	0.516	0.45	Admix	Medium

38	Ezhoml-2	0.002	0.998	0.001	0.998	0.001	SP2	Medium
39	Jyothi	0.002	0.998	0.001	0.998	0.001	SP2	Medium
40	Kantakopura	0.003	0.997	0.001	0.997	0.002	SP2	Medium
41	Kantakaamal	0.281	0.719	0.109	0.675	0.216	Admix	Medium
42	Kapanthi	0.566	0.434	0.341	0.304	0.355	Admix	Low
43	Karpurkanti	0.563	0.437	0.001	0.001	0.998	SP3	Very low
44	Kathidhan	0.114	0.886	0.097	0.898	0.005	SP2	Medium
45	Kundadhan	0.007	0.993	0.005	0.994	0.001	SP2	Low
46	Champaesia	0.006	0.994	0.003	0.993	0.004	SP2	high SOD
47	Latamahu	0.005	0.995	0.003	0.996	0.002	SP2	Medium
48	Latachaunri	0.008	0.992	0.005	0.993	0.002	SP2	high SOD
49	AC. 10608	0.006	0.994	0.006	0.994	0.001	SP2	Low
50	AC. 10187	0.076	0.924	0.081	0.917	0.002	SP2	Low
51	AC. 10162	0.057	0.943	0.023	0.96	0.017	SP2	Low
52	AC. 7282	0.604	0.396	0.001	0.002	0.997	SP3	Very low
53	AC. 7269	0.005	0.995	0.002	0.997	0.001	SP2	Very low
54	AC. 7134	0.197	0.803	0.009	0.793	0.198	Admix	Low
55	AC. 7008	0.003	0.997	0.002	0.998	0.001	SP2	Low
56	AC. 9093	0.004	0.996	0.001	0.995	0.004	SP2	high SOD
57	AC. 9090	0.01	0.99	0.004	0.987	0.01	SP2	high SOD
58	AC. 9076A	0.011	0.989	0.006	0.993	0.001	SP2	Low
59	AC. 9065	0.009	0.991	0.003	0.963	0.034	SP2	Low
60	AC. 9063	0.009	0.991	0.007	0.992	0.001	SP2	GO & SOD
61	AC. 9058	0.002	0.998	0.001	0.998	0.001	SP2	Low
62	AC. 9053A	0.157	0.843	0.153	0.839	0.008	SP2	Low
63	AC. 9050	0.005	0.995	0.002	0.994	0.004	SP2	Low
64	AC. 9005	0.011	0.989	0.004	0.993	0.002	SP2	high SOD
65	AC. 20389	0.081	0.919	0.046	0.943	0.011	SP2	high Carotenoid &SOD
66	AC. 20371	0.01	0.99	0.007	0.992	0.001	SP2	high GO&SOD
67	AC. 20423	0.005	0.995	0.003	0.996	0.001	SP2	Medium
68	AC. 20362	0.03	0.97	0.018	0.975	0.007	SP2	high SOD,
69	AC. 20328	0.018	0.982	0.009	0.979	0.012	SP2	high SOD
70	AC. 20317	0.012	0.988	0.003	0.973	0.024	SP2	high SOD
71	AC. 20282	0.127	0.873	0.108	0.886	0.006	SP2	high GO &SOD,
72	AC. 20246	0.137	0.863	0.024	0.89	0.086	SP2	high SOD & Carotenoid
73	AC. 20347	0.091	0.909	0.066	0.932	0.001	SP2	high SOD& Carotenoid
74	Palinadhan-	0.46	0.54	0.237	0.393	0.371	Admix	high SOD
75	Chatuimuchi	0.647	0.353	0.001	0.001	0.998	SP3	high SOD
76	Uttarbanganal	0.116	0.884	0.094	0.904	0.001	SP2	high SOD

77	Gochi	0.099	0.901	0.065	0.927	0.008	SP2	high SOD
78	Sugandha-2	0.605	0.395	0.001	0.002	0.997	SP3	high SOD
79	Jhingesal	0.003	0.997	0.002	0.997	0.001	SP2	high SOD
80	Cheruviripp	0.007	0.993	0.004	0.994	0.001	SP2	Low
81	Mahamaga	0.046	0.954	0.047	0.951	0.002	SP2	Very low
82	Jaya	0.01	0.99	0.009	0.99	0.001	SP2	Low
83	D1	0.089	0.911	0.049	0.94	0.011	SP2	Low
84	PK21	0.021	0.979	0.016	0.983	0.001	SP2	Low
85	Gandhakasal	0.615	0.385	0.003	0.004	0.993	SP3	high SOD,
86	Sreyas	0.006	0.994	0.002	0.995	0.002	SP2	Medium
87	GondiAc.hamp	0.006	0.994	0.003	0.995	0.002	SP2	high SOD
88	Chinamal	0.005	0.995	0.002	0.983	0.015	SP2	high SOD
89	Magra	0.004	0.996	0.002	0.995	0.003	SP2	high SOD
90	Landi	0.003	0.997	0.002	0.997	0.002	SP2	Low
91	Lalgundi	0.009	0.991	0.004	0.989	0.006	SP2	high SOD
92	Balisaralak	0.005	0.995	0.003	0.993	0.003	SP2	VL,L,SOD
93	Laxmibilash	0.335	0.665	0.003	0.427	0.57	Admix	Very low
94	Kaniar	0.011	0.989	0.005	0.981	0.015	SP2	high Carotenoid &SOD
95	Kanakchampa	0.011	0.989	0.004	0.982	0.015	SP2	high SOD
96	Magura-S	0.007	0.993	0.002	0.914	0.084	SP2	high SOD
97	AC. 44603	0.953	0.047	0.985	0.014	0.001	SP1	high Carotenoid &SOD
98	AC. 44585	0.992	0.008	0.989	0.003	0.008	SP1	Low
99	AC. 44598	0.99	0.01	0.988	0.007	0.006	SP1	high Carotenoid
100	AC. 44592	0.997	0.003	0.991	0.001	0.008	SP1	high Carotenoid ,TFC,ABTS
101	AC. 44646	0.996	0.004	0.998	0.001	0.001	SP1	high Carotenoid ,TAC,TFC,SOD, ABTS
102	AC. 44604	0.988	0.012	0.977	0.013	0.01	SP1	high Carotenoid &SOD
103	AC. 44597	0.994	0.006	0.997	0.002	0.001	SP1	high TFC &Carotenoid
104	AC. 44638	0.979	0.021	0.29	0.001	0.71	Admix	Low
105	AC. 44595	0.992	0.008	0.99	0.004	0.006	SP1	high SOD, Carotenoid,ABTS,
106	AC. 44588	0.996	0.004	0.997	0.002	0.001	SP1	High ABTS
107	AC. 44591	0.994	0.006	0.998	0.002	0.001	SP1	high Carotenoid & SOD
108	AC. 44594	0.979	0.021	0.99	0.008	0.002	SP1	high SOD
109	AC. 43737	0.996	0.004	0.996	0.002	0.002	SP1	high TAC &SOD
110	AC. 43660	0.993	0.007	0.997	0.002	0.001	SP1	high

								Caro,TAC,TFC,SOD, ABTS
111	AC. 43732	0.996	0.004	0.998	0.001	0.001	SP1	high SOD &ABTS
112	AC. 43661	0.988	0.012	0.995	0.004	0.001	SP1	high SOD,
113	AC. 43738	0.995	0.005	0.996	0.002	0.002	SP1	high SOD, ABTS,TAC,
114	AC. 43669	0.993	0.007	0.994	0.004	0.002	SP1	high Caro,TAC,TFC,SOD,
115	AC. 43663	0.997	0.003	0.997	0.001	0.002	SP1	high SOD
116	AC. 43658	0.998	0.002	0.998	0.001	0.001	SP1	High TAC &SOD
117	AC. 43662	0.997	0.003	0.979	0.002	0.018	SP1	High SOD
118	AC. 43670	0.995	0.005	0.827	0.002	0.171	SP1	High SOD, ABTS, TAC,
119	AC. 43675	0.995	0.005	0.99	0.002	0.007	SP1	High TAC,SOD
120	AC. 43676	0.99	0.01	0.959	0.008	0.033	SP1	High SOD

Supplementary Table 3. Marker-trait associations with antioxidant content in the panel population detected by the model GLM at $p < 0.01$.

Trait	Marker	marker_F	marker_p	marker_Rsq
Carotenoid	RM582	11.44855	9.87E-04	0.08899
Carotenoid	RM6275	10.05204	0.00196	0.07838
Carotenoid	RM470	8.00203	0.00554	0.06398
Carotenoid	RM494	6.98119	0.00942	0.0563
Carotenoid	RM444	8.22632	0.00494	0.0662
Carotenoid	RM8044	7.56706	0.00694	0.06124
Carotenoid	RM274	6.90287	0.00982	0.05618
SOD	RM582	7.51326	0.00713	0.0617
SOD	RM216	13.46566	3.75E-04	0.10618
SOD	RM590	7.97223	0.00562	0.06522
SOD	RM405	8.28345	0.00479	0.06759
SOD	RM167	9.97903	0.00204	0.08095
SOD	RM229	7.25269	0.00817	0.05969
SOD	RM469	8.03191	0.00545	0.06567
SOD	RM7179	7.78045	0.00622	0.06429
SOD	RM502	7.75056	0.00631	0.06352
SOD	RM6641	7.91668	0.00579	0.06479
SOD	RM6641	9.13057	0.00312	0.07398
SOD	RM218	8.81596	0.00365	0.07162
SOD	RM220	9.2743	0.0029	0.07568
SOD	RM495	8.88408	0.00353	0.07213
SOD	RM8271	7.75104	0.0063	0.06353

SOD	RM467	9.70831	0.00233	0.07829
SOD	RM452	8.95919	0.0034	0.07269
TAC	RM440	10.07764	0.00194	0.06646
TAC	RM235	8.24613	0.00489	0.05521
TAC	RM5638	12.02036	7.47E-04	0.07803
TAC	RM253	11.30677	0.00106	0.07443
TAC	RM5626	9.36875	0.00276	0.06215
GO	RM3701	14.94433	1.87E-04	0.11729
GO	RM201	10.03624	0.00197	0.08063
GO	RM258	10.91018	0.00128	0.08774
GO	RM225	7.56181	0.00696	0.06305
GO	RM148	11.41522	0.00101	0.09218
GO	RM317	8.92155	0.00346	0.07293
GO	RM502	21.52493	9.54E-06	0.15935
GO	RM488	7.50203	0.00717	0.06206
GO	RM6374	10.88984	0.0013	0.0876
GO	RM434	7.43517	0.00743	0.06154
GO	RM245	8.11768	0.00522	0.0668
GO	RM441	12.20215	6.82E-04	0.09634
TFC	RM3701	11.62841	9.06E-04	0.06613
TFC	RM235	16.06018	1.11E-04	0.08746
TFC	RM148	8.14595	0.00515	0.04768
TFC	RM494	9.85164	0.00217	0.05638
TFC	RM220	8.65599	0.00397	0.05045
ABTS	RM247	7.2658	0.00811	0.05004
ABTS	RM470	9.5401	0.00254	0.06447
ABTS	RM3701	12.55463	5.79E-04	0.08346
ABTS	RM5739	8.67883	0.00392	0.05907
ABTS	RM167	8.2232	0.00494	0.05618
ABTS	RM235	8.08868	0.0053	0.05533
ABTS	RM6547	10.37797	0.00167	0.06909
ABTS	RM7179	9.48852	0.0026	0.06415
ABTS	RM112	7.77549	0.00622	0.05332
ABTS	RM13600	8.05288	0.00539	0.05464
ABTS	RM468	11.66408	8.88E-04	0.07747

Supplementary Table 4. Marker-trait associations with antioxidant content in the panel population detected by the model MLM at $p < 0.01$.

Trait	Marker	F	p	MarkerR2
Carotenoid	RM403	7.364	0.00772	0.0654
SOD	RM582	10.35724	0.00169	0.09191
SOD	RM6947	7.17785	0.0085	0.0637
SOD	RM405	12.0128	7.52E-04	0.10661
SOD	RM494	8.35848	0.00462	0.07418
SOD	RM467	9.70377	0.00234	0.08612
TAC	RM18776	10.60926	0.00149	0.09382
TAC	RM440	9.06064	0.00323	0.08013
TAC	RM235	9.20935	0.003	0.08144
TAC	RM5638	11.04573	0.0012	0.09768
TAC	RM253	10.51261	0.00157	0.09297
TAC	RM5626	9.35822	0.00278	0.08276
TAC	RM5626	8.11551	0.00523	0.07177
GO	RM340	7.44823	0.00739	0.06508
GO	RM3701	9.33336	0.00282	0.08155
GO	RM502	8.35407	0.00463	0.073
GO	RM3475	8.24812	0.00489	0.07207
GO	RM209	7.44185	0.00741	0.06503
TFC	RM3701	8.95629	0.00341	0.07279
TFC	RM235	9.20885	0.003	0.07484
TFC	RM494	9.64481	0.00241	0.07839
ABTS	RM235	7.06457	0.00902	0.06243
ABTS	RM3701	10.97479	0.00125	0.09699

Supplementary Table 5. Markers information of the selected 136 SSR markers used for antioxidant content in *indica* rice

SL No	PR Name	Ch No	Position (Mb)	Forward	Reverse	Repeat motif	AT
1	RM5310	1	41197253	TAGACAAAGCAACGGGTTCC	CGGAAGCAGGAGAATCGTAG	(TC)12	55
2	RM582	1	9190478	TCTGTTGCCGATTTGTTTCG	AAATGGCTTACCTGCTGTCTC	(TC)20	55
3	RM13335	2	19213952	TATGCCAAGAGGAATCCTGAAGC	GCACTCACACTGATCTGGACAGG	(GT)10	55
4	RM6275	2	7273421	CACTGAGCCCTTTTGTCTC	TCCCAGATCAGAATCGAAGG	(CTG)8	50
5	RM50	6	6300000	ACTGTACCGGTCGAAGACG	AAATTCCACGTCAGCCTCC	(CTAT)4(CT)15	55
6	RM85	3	37200000	CCAAAGATGAAACCTGGATTG	GCACAAGGTGAGCAGTCC	(TGG)5(TCT)12	55
7	RM222	10	2600000	CTTAAATGGGCCACATGCG	CAAAGCTTCCGGCCAAAAG	(CT)18	55
8	RM247	12	3185384	TAGTGCCGATCGATGTAACG	CATATGGTTTTGACAAAGCG	(CT)16	55
9	RM328	9	3,726,000	CATAGTGGAGTATGCAGCTGC	CCTTCTCCCAGTCGTATCTG	(CAT)5	55
10	RM337	8	152299	GTAGGAAAGGAAGGGCAGAG	CGATAGATAGCTAGATGTGGCC	(CTT)4-19-(CTT)8	55
11	RM340	6	28599181	GGTAAATGGACAATCCTATGGC	GACAAATATAAGGGCAGTGTGC	(CTT)8T3(CTT)14	55
12	RM470	4	28,090,431	TCCTCATCGGCTTCTTCTC	AGAACCCGTTCTACGTCACG	(CTT)14	55
13	RM472	1	37889084	CCATGGCCTGAGAGAGAGAG	AGCTAAATGGCCATACGGTG	(GA)21	55
14	RM506	8	435648-35677	CGAGCTAACTTCCGTTCTGG	GCTACTTGGGTAGCTGACCG	(CT)13	55
15	RM1812	11	2405106	CAGCTAGTGAGCTCCTAGTG	GCTAACCACCAACTTATTC	(AT)16	55
16	RM3701	11	8100974	GAGCTAGAGGGAGGAGGTGC	TTGACTGATAGCCGATTGGG	(GA)15	55
17	RM6947	12	23974120	ATTAAACGTCCACTGCTGGC	GCTAGGTTAGTGGTGCAGGG	(TTC)8	55
18	RM14978	3	13880447	TATCTGCAGGTGCGTGAAATGG	GCATATAGAGCGAGTAAGCGAGAGG	(TC)10	55
19	RM18776	5	21661718	CTCCAGGAGGGTACAAATTCTGC	CCATTGGAACATAGCAAGTGATCG	(GA)13	53
20	RM22034	7	26403619	CCAGTTTATCTTCTGCACCTTCTCG	TCTTTGAGCAGATGGCTAACAAGG	(ATTA)5	53
21	RM24161	9	12311985	GTATGGCGAGACCCTACAGACC	GACCCACTTAATGTGTCACAAGG	(TATT)5	54
22	RM223	8	20650060	GAGTGAGCTTGGGCTGAAAC	GAAGGCAAGTCTTGGCACTG	(CT)25	55
23	RM440	5	19912517	CATGCAACAACGTCACCTTC	ATGGTTGGTAGGCACCAAAG	(CTT)22	55
24	RM201	9	20174289	CTCGTTTATTACCTACAGTACC	CTACCTCCTTTCTAGACCGATA	(CT)17	55
25	RM216	10	5,352,766	GCATGGCCGATGGTAAAG	TGTATAAAACCACACGGCCA	(CT)18	55
26	RM258	10	18014265	TGCTGTATGTAGCTCGCACC	TGGCCTTTAAAGCTGTGCG	(GA)21(GGA)3	55
27	RM286	11	383711	GGCTTCATCTTTGGCGAC	CCGGATTACAGATAAACTC	(GA)16	55

28	RM3735	4	26210755	GCGACCGATCAGCTAGCTAG	ATAACTCCTCCCTTGCTGCC	(GA)16	55
29	RM1347	2	5314190	AACAAATTAAACTGCCAAG	GTCTTATCATCAGAACTGGA	(AG)23	55
30	RM7571	7	10369821	CCTTATGCCCCCTTCTTAC	TCGTCTCATGGAGCCACC	(TCTA)6	61
31	RM14723	3	9,223,269	GCAAAGTCCTTTGGACAGGTAGC	CGTCCCAGATCAAAGTACACTCTTCC	(GA)29	54
32	RM103	6	30889151	CTTCCAATTCAGGCCGGCTGGC	CGCCACAGCTGACCATGCATGC	(GAA)5	55
33	RM315	1	36734135	GAGGTACTTCTCCGTTTCAC	AGTCAGCTCACTGTGCAGTG	(AT)4(GT)10	55
34	RM225	6	3416533	TGCCCATATGGTCTGGATG	GAAAGTGGATCAGGAAGGC	(CT)18	55
35	RM486	1	34955554	CCCCCTCTCTCTCTCTC	TAGCCACATCAACAGCTTGC	(CT)14	55
36	RM256	8	24270635	GACAGGGAGTGATTGAAGGC	GTTGATTTCGCCAAGGGC	(CT)21	55
37	RM1113	4	34085697	GGGCGCATGTGTATTTCTTC	TGGGGAAAAACCACAAGCC	(AG)12	55
38	RM3423	4	30,957,747	AGCAGGCATATAAAGGTGCC	TGGCCTCAGATTCAGGAAAC	(CT)18	50
39	RM6100	10	18,816,637	TCCTCTACCAGTACCGCACC	GCTGGATCACAGATCATTGC	(CGA)8	50
40	RM590	10	23043156	CATCTCCGCTCTCCATGC	GGAGTTGGGGTCTTGTCG	(TCT)10	55
41	RM5793	7	17489638	ACTCTCTTGCGCAACTCTC	GATAATGCTAGCTGCTGGCC		50
42	RM405	5	3073406	TCACACACTGACAGTCTGAC	AATGTGGCACGTGAGGTAAG	(AC)14	55
43	RM547	8	5591403	TAGGTTGGCAGACCTTTTCG	GTCAAGATCATCTCGTAGCG	(ATT)19	55
44	RM7364	9	9561213	TTCGTGGATGGAGGGAGTAC	AGCGTTTGTAGGAGTGCCAC	(CTAT)9	50
45	RM205	9	22720624	CTGGTTCTGTATGGGAGCAG	CTGGCCCTTCACGTTTCAGTG	(CT)25	55
46	RM167	11	4073024	GATCCAGCGTGAGGAACACGT	AGTCCGACCACAAGGTGCGTTGTC	(GA)16	53
47	RM229	11	18,407,879	CACTCACACGAACGACTGAC	CGCAGGTTCTTGTAATGT	(TC)11(CT)5C3(CT)5	50
48	RM20A	12	970538	ATCTTGTCCTGCAGGTCAT	GAAACAGAGGCACATTTTCATTG	(ATT)14	55
49	RM235	12	26107904	AGAAGCTAGGGCTAACGAAC	TCACCTGGTCAGCCTCTTTC	(CT)24	55
50	RM7003	12	6775083	GGCAGACATACAGCTTATAGGC	TGCAAATGAACCCCTCTAGC	(AAAC)6	50
51	RM5436	7	9074712	CAAAGGGGGTGTCTCTATG	GTTGCTCGTCTACATGTGC		50
52	RM25181	10	8849270	AAAGAGCTTCCCTAATGGCTTCG	GAGAGAATGACCTCTCCAAGACC	(TTC)22	55
53	RM469	6	564,135	AGCTGAACAAGCCCTGAAAG	GACTTGGGCAGTGTGACATG	(AG)15	55
54	RM6547	1	34693224	TCCATCCTTCTCCTCTCGTG	AGCCACCCCATATATAGCC	(GCT)9	50
55	RM152	8	682963	GAAACCACCACACCTCACCG	CCGTAGACCTTCTGAAGTAG	(GGC)10	55
56	RM148	3	35835805	ATACAACATTAGGGATGAGGCTGG	TCCTTAAAGGTGGTGCAATGCGAG	(TG)12	50
57	RM421	5	23976333	AGCTCAGGTGAAACATCCAC	ATCCAGAATCCATTGACCCC	(AGAT)6	55

58	RM2634	2	20495111	GATTGAAAATTAGAGTTTGCAC	TGCCGAGATTTAGTCAACTA	(AT)31	55
59	RM248	7	29,339,845	TCCTTGTAATCTGGTCCC	GTAGCCTAGCATGGTGCATG	(CT)25	55
60	RM7179	6	19728535	CACGTGTCAGCTTAAGAGCG	TTACATCATAAGCCCCGAGG	(ATAG)6	50
61	RM215	9	21189110	CAAAATGGAGCAGCAAGAGC	TGAGCACCTCCTTCTCTGTAG	(CT)16	55
62	RM324	2	11389704	CTGATTCCACACACTTGTGC	GATTCCACGTCAGGATCTTC	(CAT)21	55
63	RM317	4	29060978	CATACTTACCAGTTCACCGCC	CTGGAGAGTGTGAGCTAGTTGA	(GC)4(GT)18	55
64	RM174	2	7006085	AGCGACGCCAAGACAAGTCGGG	TCCACGTCGATCGACACGACGG	(AGG)7(GA)10	67
65	RM556	8	22339816	ACTCCAAACCTCACTGCACC	TAGCACACTGAACAGCTGGC	(CCAG)6	55
66	RM257	9	17719660	CAGTTCCGAGCAAGAGTACTC	GGATCGGACGTGGCATATG	(CT)24	55
67	RM502	8	26492117	GCGATCGATGGCTACGAC	ACAACCCAAACAAGAAGGACG	(TG)10	55
68	RM331	8	12294124	GAACCAGAGGACAAAAATGC	CATCATACATTTGCAGCCAG	[(CTT)4GTT]2(CTT)11	55
69	RM403	1	29384585	GCTGTGCATGCAAGTTCATG	ATGGTCCTCATGTTTCATGGC	(GA)8	55
70	RM309	12	21454591	GTAGATCACGCACCTTCTGG	AGAAGGCCTCCGGTGAAG	(GT)13	55
71	RM6641	2	4633966	GGGTCTCGATTCTCAGTTGG	CAGAACCACTCATGCACACC	(GTA)14	55
72	RM3	6	19499320	ACACTGTAGCGGCCACTG	CCTCCACTGCTCCACATCTT	(GA)2GG(GA)25	55
73	RM594	1	15158295	GCCACCAAGTAAAGCAATAC	TTGATCTGCTAGTGAGACCC	(GA)n	55
74	RM3392	3	3825907	GTCCAATGATTCGTTCCAC	CTTCACCGTTCACCAATTCC	(CT)17	55
75	RM1278	3	4561347	ATATAAAGGTGGCAGCAGAG	GCACTTGAAGTCTAATTCTCC	(AG)17	55
76	RM168	3	28091534	TGCTGCTTGCCTGCTTCTTT	GAAACGAATCAATCCACGGC	T15(GT)14	50
77	RM3375	1	18729953	TTGACCTCCTCCTCCACAAC	TTGCAAGGAACTAGGAGGG	(CT)16	55
78	RM282	3	12407382	CTGTGTGCAAGGCTGCAC	CAGTCCTGTGTTGCAGCAAG	(GA)15	55
79	RM26632	11	14702841	CCAATCACAACCCTCCATCACC	CCAAAGAGCAACATTGGTTGTGC	(TCTT)9	50
80	RM1341	11	19677083	AACCTGGAGGTGCTGGTCTC	TTTCTCCCCCAACCAC		50
81	RM4112	11	24646850	TGGCAAAGTCAGTAGTCTTCCACAA	GCCATTCACCAACAGCTCC	(TA)14	55
82	RM20377	6	24,320,992	GTGTGTGATGTGCATGTTTCTGC	CATGTGATGCCCTGTAGGAACC	(CT)33	50
83	RM210	8	22471837	TCACATTCGGTGGCATTG	CGAGGATGGTTGTTCACTTG	(CT)23	55
84	RM218	3	8405368	TGGTCAAACCAAGGTCCTTC	GACATACATTCTACCCCCGG	(TC)24ACT5(GT)11	55
85	RM494	6	31088146	GGGAGGGGATCGAGATAGAC	TTTAACCTTCTTCCGCTCC	(AGA)16	55
86	RM336	7	21,871,205	CTTACAGAGAAACGGCATCG	GCTGGTTTGTTCAGGTTTCG	(CTT)18	55
87	RM3475	1	26041024	GTCGGTTTGCCTAGTTGAGC	TTCCTCGGTGTATGGGTCTC	(CT)22	55

88	RM480	5	27,313,250	GCTCAAGCATTCTGCAGTTG	GCGCTTCTGCTTATTGGAAG	(AC)30	55
89	RM566	8	14704764	ACCCAACACGATCAGCTCG	CTCCAGGAACACGCTCTTTC	(CCAG)6	55
90	RM11701	1	32026621	CTGGTGAGTTGCAGTGCCTTAGC	CCTTGCTGCTTCTCATTGAACTGG	(CT)18	56
91	RM220	1	4424392	GGAAGGTAAGTGTTCACAC	GAAATGCTTCCACATGTCT	(CT)17	55
92	RM488	1	24807508	CAGCTAGGGTTTTGAGGCTG	TAGCAACAACCAGCGTATGC	(GA)17	55
93	RM6374	2	15181966	TGAGGACGCTGATTGTCAAC	GCTGCCCCTATTATTTACC	(GAA)16	55
94	RM233	2	2069848	CCAAATGAACCTACATGTTG	GCATTGCAGACAGCTATTGA	(CT)20	55
95	RM112	2	32013785	GGGAGGAGAGGCAAGCGGAGAG	AGCCGGTGCAGTGGACGGTGAC	(GAA)5	55
96	RM13600	2	24246249	GGTTAACCTTTCTCGCTCTTTGG	ATGATCCAAACCCACTGTCTTCC	(AG)11	50
97	RM495	1	215956	AATCCAAGGTGCAGAGATGG	CAACGATGACGAACACAACC	(CTG)7	55
98	RM493	1	12280117	TAGCTCCAACAGGATCGACC	GTACGTAAACGCGGAAGGTG	(CTT)9	55
99	RM444	9	5925016	GCTCCACCTGCTTAAGCATC	TGAAGACCATGTTCTGCAGG	(AT)12	55
100	RM468	3	32674852	CCCTTCCTTGTTGTGGCTAC	TGATTTCTGAGAGCCAACCC	(TAT)8	55
101	RM6054	5	22779263	CCCTCCGTACGGATACACAC	CTCTTCGGCTTCATCTCCTC	(CCG)12	55
102	RM509	5	16324561	TAGTGAGGGAGTGGAACGG	ATCGTCCCCACAATCTCATC	(TC)11	55
103	RM5638	1	20934810	GGCTTCCTCATCGCCATC	CTGAGCAGCATTCAGTCTG	(AAG)13	55
104	RM8044	7	24,195,172	AGTACTTGCTCCTTAGCAG	CAATATTCACTCAACTCTCA	(CTT)18	55
105	RM8271	8	7616956-617315	TCTTGAGAAATCTGCCATTC	ACTGATGTGCATTTCGTC	(AG)32	55
106	RM171	10	19048795	AACGCGAGGACACGTACTTAC	ACGAGATACGTACGCCTTTG	(GATG)5	55
107	RM16686	4	14718643	GGCACTGCTTGCATATGGATCG	TGCCGGCGAACTTATCCTCTCC	(GGA)10	53
108	RM434	9	15662573	GCCTCATCCCTCTAACCTC	CAAGAAAGATCAGTGCCTGG	(TC)12	55
109	RM6091	11	13405326	GCTGTCTGTCTTGAATCC	TGGTAGGCTGGTGACATGC	(CCT)11	50
110	RM209	11	17808335	ATATGAGTTGCTGTCTGCG	CAACTTGCATCCTCCCCTCC	(CT)18	55
111	RM245	9	22300000	ATGCCGCCAGTGAATAGC	CTGAGAATCCAATTATCTGGGG	(CT)14	55
112	RM1089	5	5356127	CAGAAGGATTATCTCGATACC	AATAGGGCTTGAAATAAATTG	(AC)33	55
113	RM228	10	22243157	CTGGCCATTAGTCCTTGG	GCTTGCGGCTCTGCTTAC	(CA)6(GA)36	55
114	RM401	4	13154172	TGGAACAGATAGGGTGTAAGGG	CCGTTCAACAACATAACAAGC	(CT)15	55
115	RM11	7	19256914	TCTCTCTTCCCCGATC	ATAGCGGGCGAGGCTTAG	(GA)17	55
116	RM3351	5	20696671	ATGGAAGGAATGGAGGTGAG	TACCCCTACGTCGATCGATC	(CT)15	55
117	RM5749	4	19950587	GTGACCACATCTATATCGCTCG	ATGGCAAGGTTGGATCAGTC	(ACT)8	55

118	RM335	4	688353	GTACACACCCACATCGAGAAG	GCTCTATGCGAGTATCCATGG	(CTT)25	55
119	RM144	11	28281693	TGCCCTGGCGCAAATTTGATCC	GCTAGAGGAGATCAGATGGTAGTGCATG	(ATT)11	55
120	RM300	2	13191380	GCTTAAGGACTTCTGCGAACC	CAACAGCGATCCACATCATC	(GTT)14	55
121	RM1132	7	23984489	ATCACCTGAGAAACATCCGG	CTCCTCCCACGTCAAGGTC	(AG)12	55
122	RM400	6	28431560	ACACCAGGCTACCCAAACTC	CGGAGAGATCTGACATGTGG	(ATA)63	55
123	RM471	4	18824746	ACGCACAAGCAGATGATGAG	GGGAGAAGACGAATGTTTGC	(GA)12	55
124	RM243	1	7970722	GATCTGCAGACTGCAGTTGC	AGCTGCAACGATGTTGTCC	(CT)18	55
125	RM467	10	13488471	GGTCTCTCTCTCTCTCTCTCTC	CTCCTGACAATTCAACTGCG	(TC)21	55
126	RM564	3	18587434	CATGGCCTTGTGTATGCATC	ATGCAGAGGATTGGCTTGAG	(GT)14	55
127	RM8007	7	7710329	AATAGGATGGATCATGGATA	CATCTCATCAGGAACCTAAC	(AT)40	55
128	RM441	11	6081100	ACACCAGAGAGAGAGAGAGAGAG	TCTGCAACGGCTGATAGATG	(AG)13	55
129	RM518	4	2030135	CTCTTCACTCACTCACCATGG	ATCCATCTGGAGCAAGCAAC	(TC)15	55
130	RM253	6	5425408	TCCTTCAAGAGTGCAAAACC	GCATTGTCATGTCTGAAGCC	(GA)25	55
131	RM274	5	26848154	CCTCGCTTATGAGAGCTTCG	CTTCTCCATCACTCCCATGG	(GA)15-7-(CGG)5	55
132	RM242	9	18810067	GGCCAACGTGTGTATGTCTC	TATATGCCAAGACGGATGGG	(CT)26	55
133	RM3231	8	3838134	AACACGAAGACCGGCCTC	CAGGTAGGAGCATGAGAGCC	(CT)12	55
134	RM5687	4	15742285	GATCGCTGGCGATTGATC	GACTTGTGGGGTGGTTTTTG	(AAT)17	50
135	RM5626	3	24864350	GCAGACGAGATGAGATCG	GTAGAGGATGGGCAGCAG	(AAG)11	55
136	RM452	2	9563257	CTGATCGAGAGCGTTAAGGG	GGGATCAAACCACGTTTCTG	(GTC)9	55