

Table S1 Best linear unbiased predictors (BLUPs) of the 20 tocochromanol traits used for the genome-wide association study (GWAS) and pathway level analysis.

Sample ID	dT3	gT3	aT3	dT	gT	aT	Total Tocotrienols	Total Tocopherols	Total Tocopherols/Total Tocotrienols	Total Tocochromanols	dT/(gT+aT)	dT/gT	dT/aT	gT/(gT+aT)	dT3/(gT3+aT3)	dT3/gT3	dT3/aT3	gT3/(gT3+aT3)	aT/gT	aT3/gT3
4226	0.4541	18.6571	6.9331	0.8152	38.1068	9.9724	26.1683	48.6365	1.8583	73.1284	0.016	0.0201	0.0835	0.7921	0.0151	0.0225	0.0594	0.738	0.2346	0.3839
4722	0.134	3.7649	5.748	1.935	28.6182	3.7189	11.8841	35.8034	3.9689	47.7134	0.0662	0.0789	0.581	0.8623	0.0111	0.024	0.0247	0.4061	0.1415	1.586
33-16	0.5773	16.3469	9.5772	0.5634	27.2649	5.1656	29.0913	35.2571	0.9613	61.8341	0.0144	0.0196	0.0809	0.7874	0.0227	0.0341	0.0579	0.6458	0.2511	0.5614
38-11	0.2172	5.7519	7.3841	1.0276	39.8059	9.4246	13.7913	49.3912	3.8866	64.3657	0.0215	0.0244	0.1111	0.7949	0.0122	0.0403	0.0298	0.4098	0.2325	1.4282
A188	0.8148	12.8202	5.7998	1.6884	34.3081	9.2174	19.664	45.0175	2.1146	64.2888	0.0388	0.051	0.2274	0.8227	0.0508	0.0688	0.1723	0.6808	0.1877	0.4774
A214N	0.2358	5.4697	11.9109	0.9072	32.3779	9.8742	16.4853	43.6412	2.8475	58.4413	0.0205	0.0274	0.0894	0.7599	0.0075	0.0343	0.0138	0.2644	0.2902	2.7286
A239	0.5886	12.7517	5.3097	2.3019	60.0914	5.492	14.9967	66.0901	3.858	81.4059	0.0373	0.0426	0.5437	0.9132	0.0317	0.0485	0.1121	0.6996	0.0769	0.4562
A441-5	0.1121	3.8338	6.5598	0.6148	20.3641	18.3372	11.2283	41.3533	4.5445	51.6948	0.0126	0.028	0.0606	0.4862	0.0042	0.0064	0.0139	0.2546	1.0311	3.3231
A554	0.4582	6.5114	7.0616	0.9131	34.2571	2.0696	13.6153	36.957	2.8853	51.2735	0.024	0.0257	0.513	0.9442	0.0366	0.0737	0.0722	0.4601	0.0421	1.2275
A556	0.3638	8.9289	7.853	1.2471	39.2386	15.4144	19.567	59.7736	3.5147	74.8736	0.0225	0.0316	0.1055	0.7111	0.0218	0.0375	0.052	0.5509	0.4358	0.8472
A6	0.4918	13.5908	10.6258	0.6025	22.2363	6.9073	23.1235	29.0416	1.2142	51.5464	0.0168	0.0206	0.0647	0.7456	0.0204	0.0342	0.0569	0.5843	0.3149	0.7692
A619	1.5869	25.2378	5.1673	3.3237	83.048	11.0191	32.7949	95.0651	2.5806	125.5316	0.0384	0.0433	0.3601	0.8766	0.0535	0.0668	0.3103	0.8336	0.1204	0.2243
A632	0.1298	3.8057	7.0231	0.389	11.6512	14.1163	10.4281	23.5279	2.1803	36.4646	0.0108	0.022	0.0276	0.4684	0.0093	0.0216	0.0144	0.2806	1.0666	2.6556
A634	0.4042	10.0352	8.8787	0.401	15.6147	12.7774	18.9188	24.8116	1.6794	44.6067	0.0106	0.0186	0.0377	0.5773	0.0144	0.0345	0.0324	0.4739	0.6811	1.1164
A635	0.3402	7.1271	15.2541	0.2899	11.529	16.8475	21.6997	28.7546	1.2643	52.1873	0.0058	0.0154	0.0179	0.3477	0.0133	0.043	0.0202	0.2966	1.7575	2.4342
A641	0.2657	3.5426	9.9825	1.4056	35.2016	12.9695	13.2504	49.4275	3.6863	61.7111	0.0291	0.0406	0.1264	0.7491	0.0185	0.0819	0.0268	0.1985	0.3046	4.2068
A654	0.1253	1.4556	3.1904	0.6463	30.2299	9.4647	6.6717	44.2191	.	52.0527	0.0134	0.0168	0.0509	0.7221	0.0283	0.174	0.03	0.0956	0.3487	11.747
A659	0.1382	5.0723	3.1392	2.114	47.3717	3.5147	5.5522	51.6672	7.8222	58.7328	0.0419	0.0459	0.7572	0.9316	0.0139	0.0172	0.0379	0.5546	0.0605	0.7741
A661	0.4002	22.2418	6.6968	1.2624	66.8914	2.5656	28.628	69.921	2.4014	97.2321	0.0184	0.0171	0.4816	0.9506	0.0153	0.0168	0.0615	0.7578	0.0385	0.3411
A679	0.8713	14.0431	6.9975	1.7351	11.5442	2.2926	22.9346	35.0112	.	56.0546	.	.	0.3354	.	0.0254	0.0477	0.0733	.	0.041	0.8308
A680	1.2302	25.5653	11.5777	1.9069	24.3955	8.5717	40.8025	37.31	0.668	75.8972	0.051	0.0703	0.1559	0.6065	0.0304	0.0451	0.1057	0.6927	0.6281	0.4458
A682	0.2781	6.2745	6.6366	1.7331	33.2254	14.8876	12.2983	54.6563	4.4015	66.0547	0.037	0.0582	0.1221	0.6567	0.0239	0.0401	0.0531	0.4631	0.4855	1.1556
AB28A	0.2791	14.9854	6.753	0.6678	37.9459	1.1497	24.2811	42.2704	1.676	67.198	0.0144	0.0128	0.4892	0.9595	0.0099	0.0247	0.0449	0.7076	0.0265	0.4283
B10	0.1202	4.0845	7.8324	0.9798	23.3321	8.7028	14.821	31.1864	2.6701	45.6193	0.0281	0.0386	0.1085	0.6979	0.0064	0.0163	0.0132	0.2981	0.4166	2.3712
B103	0.9637	8.8489	9.2042	2.7936	49.2085	2.5588	21.4554	54.1561	2.9865	75.5796	0.0565	0.0559	1.4426	0.9428	0.0558	0.119	0.1066	0.4736	0.152	1.155
B104	0.1828	4.1327	7.4623	0.5208	15.1384	12.5802	13.248	28.8287	2.3569	40.6176	0.0154	0.0299	0.0421	0.5457	0.0116	0.0363	0.0175	0.2934	0.7763	2.451
B105	0.4352	14.2637	8.3141	0.9039	21.0734	9.4638	21.5583	33.8603	1.3365	54.3099	0.0251	0.0346	0.0706	0.632	0.0171	0.0278	0.0523	0.62	0.5583	0.6203
B109	1.563	39.0417	3.8248	2.2888	40.298	3.7659	44.6507	45.829	1.1153	90.7088	0.0534	0.0586	0.6381	0.9039	0.0352	0.0378	0.4383	0.9232	0.0863	0.1178
B115	0.3835	7.4624	7.5078	0.8001	22.3506	11.9721	17.1056	35.6844	2.1918	53.4362	0.0207	0.031	0.065	0.6411	0.0245	0.0534	0.0521	0.4935	0.5257	1.0618
B14A	0.1405	7.4241	7.13	0.4249	21.4795	11.2688	13.3457	35.7959	2.1462	49.9697	0.01	0.0183	0.0332	0.5972	0.0082	0.0117	0.0135	0.4458	0.6282	1.2456
B164	0.3232	10.5834	4.5339	1.0965	37.9151	5.48	16.3542	44.1679	3.125	61.735	0.026	0.0281	0.2305	0.8441	0.0226	0.027	0.0891	0.7128	0.1682	0.4117
B2	0.1405	4.1293	6.7759	2.8737	68.9336	4.4758	13.3725	74.8173	7.3336	88.0466	0.0422	0.0428	0.7383	0.9324	0.009	0.0259	0.0149	0.3308	0.0575	2.0072
B37	0.341	8.4968	8.4072	0.6312	22.4373	31.347	11.3013	48.3644	3.1118	63.0313	0.0101	0.0177	0.0216	0.4447	0.0178	0.0431	0.038	0.4725	1.1652	1.1685
B46	0.235	6.9693	9.9775	0.4928	10.8562	10.0047	15.7143	18.9618	1.3117	36.0621	0.0214	0.0405	0.0544	0.5628	0.0101	0.0285	0.0201	0.3834	0.7262	1.6284
B52	0.1822	10.3456	5.1513	0.7288	29.0713	10.1042	15.4803	38.9942	2.33	53.6561	0.0181	0.0231	0.0745	0.6925	0.0132	0.0134	0.0326	0.6136	0.4244	0.6283
B57	0.4154	15.555	6.0185	1.4225	55.5187	14.611	22.0839	72.2512	3.0863	92.8087	0.0205	0.0278	0.1101	0.8033	0.019	0.0252	0.0729	0.7246	0.218	0.4021
B64	0.2245	9.0566	12.2803	1.3679	43.8675	12.5019	21.7446	56.5115	2.4572	78.4463	0.0241	0.032	0.1176	0.7625	0.0094	0.0202	0.0191	0.392	0.288	1.5291
B68	0.2104	12.6293	9.6801	0.8134	37.3095	16.3622	24.4605	53.0783	2.1312	76.9778	0.0144	0.0193	0.0526	0.6833	0.0089	0.0141	0.0189	0.5527	0.4368	0.7931
B73	1.0818	27.3215	12.9806	2.7198	33.016	9.018	41.1952	44.7298	0.851	87.2936	0.0555	0.0772	0.287	0.8075	0.0274	0.0392	0.089	0.688	0.2137	0.4847
B73HTRHM	0.9586	25.9545	10.8946	1.9785	38.7874	9.8504	39.4049	50.4245	1.0682	85.9413	0.0636	0.0777	0.409	0.826	0.0264	0.0407	0.082	0.7007	0.1904	0.4418
B75	0.224	4.4529	4.3168	0.7558	23.9286	6.8931	9.9546	32.4202	3.7467	43.6748	0.0233	0.0289	0.098	0.7507	0.0207	0.0456	0.044	0.4935	0.3075	1.0611
B76	0.537	6.8796	7.1963	0.3843	15.2235	21.7006	14.7164	38.0448	2.4672	52.616	0.0075	0.0166	0.0194	0.3042	0.0431	0.0792	0.0897	0.5045	2.2055	1.0333
B77	0.3486	7.319	5.5158	1.0102	33.7946	7.0553	12.0484	41.7442	3.4233	55.6183	0.0246	0.0265	0.1442	0.8157	0.0233	0.0452	0.0577	0.5786	0.2077	0.7699
B79	0.341	6.9946	4.6331	0.5215	18.9435	12.1656	12.7965	31.6473	2.5146	46.2245	0.0111	0.0148	0.0262	0.5229	0.0292	0.0516	0.0936	0.6393	0.8402	0.5781
B84	0.1853	3.1887	9.7481	1.4581	50.5582	11.728	15.041	65.4826	5.1986	80.8259	0.0235	0.0317	0.1117	0.7288	0.0112	0.0498	0.0139	0.1803	0.3527	4.7231

Va26	0.8667	39.4257	8.0586	1.1221	32.5028	10.8311	48.4856	43.5971	1.1074	89.1993	0.0253	0.0343	0.1354	0.7847	0.0168	0.0209	0.0826	0.7809	0.2443	0.2752
VA35	0.2561	16.3553	6.4915	0.8092	31.7887	2.3153	20.7545	34.548	1.6171	56.0605	0.0214	0.0243	0.4173	0.9337	0.0099	0.0139	0.0357	0.6962	0.0561	0.4327
VA59	0.3463	13.2425	4.9036	0.801	19.3605	1.6699	15.6711	22.5411	1.3365	38.7546	0.0362	0.0377	0.7112	0.9405	0.0167	0.0245	0.0606	0.712	0.0471	0.4172
VA85	0.5852	9.185	10.8716	0.2952	8.5237	7.9454	17.9237	18.2041	0.8438	39.4202	0.009	0.0203	0.0263	0.4002	0.0288	0.065	0.0569	0.4703	1.4108	1.2667
VA99	0.5793	19.4864	7.732	2.0312	41.0777	7.758	28.9297	49.5662	1.7025	76.4231	0.0432	0.0502	0.2897	0.8437	0.0223	0.0285	0.087	0.7381	0.1678	0.3679
VAW6	0.3565	14.2146	7.5641	1.6739	47.3423	7.2165	19.882	54.262	2.691	72.7638	0.0304	0.0364	0.277	0.8738	0.0148	0.0302	0.0441	0.629	0.1245	0.5967
W117HT	0.6935	8.146	4.5446	0.988	35.3791	10.2402	14.8219	46.6836	3.4022	63.0906	0.0214	0.0284	0.103	0.7797	0.0575	0.0887	0.1644	0.6368	0.2534	0.5724
W153R	0.1639	3.3803	5.8748	0.8509	14.8168	9.1622	11.7775	26.204	3.2671	39.6288	0.0317	0.0589	0.1024	0.5532	0.0135	0.0526	0.0252	0.2405	0.7947	3.6317
W182B	0.5514	17.5781	3.9298	0.9792	29.0841	2.2441	22.2219	32.0312	1.4347	53.9263	0.0309	0.0331	0.5005	0.9307	0.0247	0.0298	0.1528	0.8463	0.058	0.2073
W22	0.2482	4.4935	10.5356	1.3632	39.1732	9.8693	14.0728	53.2365	3.574	66.3439	0.0255	0.0317	0.1112	0.7344	0.0135	0.0469	0.0171	0.2146	0.3378	2.5701
W22_R-r:std	0.2481	11.1473	6.8667	0.5215	15.4058	9.4125	18.8691	27.0433	1.1238	46.8828	0.0131	0.0244	0.031	0.5284	0.0167	0.0271	0.0331	0.6037	0.8423	0.6875
W64A	0.2488	6.2839	8.2235	1.0067	27.6679	8.6298	13.6617	36.2387	3.0629	50.4379	0.0266	0.0334	0.1119	0.7521	0.0163	0.0342	0.0272	0.3454	0.3039	1.9041
WD	0.4478	11.6365	3.9546	1.0203	16.9201	2.2051	17.0123	20.8537	1.1679	38.8572	0.0512	0.0571	0.4271	0.8992	0.0317	0.0398	0.1506	0.7733	0.0906	0.3244
WF9	0.7602	9.3178	6.2982	1.247	49.2665	1.4087	14.8626	51.9545	4.0711	67.8038	0.0244	0.0278	0.8857	0.9609	0.0377	0.0715	0.0796	0.5409	0.0268	0.855
YU796_NS	0.2115	8.1464	8.3934	1.2623	40.693	8.227	17.6292	51.5245	2.8553	67.2575	0.0249	0.0298	0.1499	0.8048	0.0105	0.019	0.0255	0.4668	0.2984	1.1907