

Supplementary Table S2. List of the 76 plant species used within the *ABCE* phylogenetic analysis. Number of plant *ABCE* genes identified per species, database used, genome assembly version and genome ploidy level are depicted.

No	Latin name	English name	Abbreviated name	No of genes	Ploidy	Dataset	Assembly version
1	<i>Actinidia chinensis</i>	golden kiwifruit	Ach	1	diploid	Ensembl	Red5_PS1_1.69.0
2	<i>Aegilops tauschii</i>	Tausch's goatgrass, rough-spike hard grass	Ata	2	diploid	Ensembl	Aet_v4.0
3	<i>Amaranthus hypochondriacus</i>	Prince's-feather	Ahy	2	diploid	Phytozome	v1.0
4	<i>Amborella trichopoda</i>	amborella	Atr	2	diploid endosperm??	Phytozome	v1.0
5	<i>Ananas comosus</i>	pineapple	Acom	1	diploid	Phytozome	v3
6	<i>Aquilegia coerulea</i>	colorado blue columbine	Acoe	2	diploid	Phytozome	v3.1
7	<i>Arabidopsis halleri</i>	-	Aha	2	diploid	Phytozome	v2.1.0
8	<i>Arabidopsis lyrata</i>	-	Aly	2	diploid	Phytozome	v2.1
9	<i>Arabidopsis thaliana</i>	thale cress	Ath	2	diploid	Phytozome	TAIR10
10	<i>Beta vulgaris</i>	beet	Bvu	2	diploid	Ensembl	RefBeet-1.2.2
11	<i>Boechera stricta</i>	drummond's rockcress	Bstricta	1	diploid	Phytozome	v1.2
12	<i>Brachypodium distachyon</i>	purple false brome, stiff brome	Bdi	5	diploid	Phytozome	V3.1
13	<i>Brachypodium stacei</i>	-	Bstacei	4	diploid	Phytozome	v1.1
14	<i>Brassica napus</i>	rapeseed, oilseed rape	Bna	8	allotetraploid	Ensembl	AST_PRJEB5043_v1
15	<i>Brassica oleracea</i>	wild cabbage	Bol	3	diploid	Phytozome	v1.0
16	<i>Brassica rapa</i>	field mustard	Bra	5	diploid	Phytozome	FPsc v1.3
17	<i>Capsella grandiflora</i>	grand shepherd's-purse	Cgr	2	diploid	Phytozome	v1.1
18	<i>Capsella rubella</i>	pink shepherd's-purse	Cru	4	diploid	Phytozome	v1.0
19	<i>Cardamine hirsuta</i>	hairy bittercress	Chi	1	diploid	Gan et al., 2016	MIPS_CARH_v3.8
20	<i>Chlamydomonas reinhardtii</i>	green alga	Cre	1	haploid	Phytozome	v5.5
21	<i>Citrus clementina</i>	clementine	Ccl	2	diploid	Phytozome	v1.0
22	<i>Citrus sinensis</i>	sweet orange	Csi	1	diploid	Phytozome	v1.1
23	<i>Corchorus capsularis</i>	white jute	Cca	1	diploid	Ensembl	CCACVL1_1.0
24	<i>Cucumis sativus</i>	cucumber	Csa	1	diploid	Phytozome	v1.0
25	<i>Daucus carota</i>	wild carrot, bird's nest, bishop's lace	Dca	1	diploid	Phytozome	v2.0
26	<i>Dioscorea rotundata</i>	white yam, Guinea yam	Dro	1	diploid	Ensembl	TDr96_F1_Pseudo_Chromosome_v1.0
27	<i>Erythranthe guttata</i>	seep monkeyflower	Egu	2	diploid	Phytozome	v2.0
28	<i>Eucalyptus grandis</i>	flooded gum, rose gum	Egr	1	diploid	Phytozome	v2.0
29	<i>Eutrema salsugineum</i>	saltwater cress	Esa	2	diploid	Phytozome	v1.0
30	<i>Glycine max</i>	soybean	Gma	1	functionally diploid	Phytozome	v2.0
31	<i>Gossypium raimondii</i>	cotton plant endemic to Peru	Gra	1	diploid	Phytozome	v2.1
32	<i>Helianthus annuus</i>	common sunflower	Han	2	diploid	Ensembl	HanXRQr1.0
33	<i>Hordeum vulgare</i>	barley	Hvu	2	diploid	Ensembl	IBSC_v2
34	<i>Kalanchoe fedtschenkoi</i>	kalanchoë	Kfe	1	diploid	Phytozome	v1.1
35	<i>Kalanchoe laxiflora</i>	Milky Widow's Thrill	Kla	2	diploid	Phytozome	v1.1
36	<i>Linum usitatissimum</i>	common flax, linseed	Lus	2	diploid	Phytozome	v1.0
37	<i>Lupinus angustifolius</i>	narrow-leaved blue lupine	Lan	2	diploid	Ensembl	LupAngTanjil_v1.0
38	<i>Manihot esculenta</i>	cassava, manioc, yuca	Mes	2	diploid	Phytozome	v6.1
39	<i>Marchantia polymorpha</i>	common liverwort, umbrella liverwort	Mpo	1	haploid/diploid	Phytozome	v3.1
40	<i>Medicago truncatula</i>	barrelclover, strong-spined medick, barrel medic	Mtr	3	diploid	Phytozome	Mt4.0v1
41	<i>Micromonas sp. RCC299</i>	green alga	Msp	1	haploid	Phytozome	v3.0
42	<i>Musa acuminata</i>	banana native to Southeast Asia	Mac	3	double haploid	Phytozome	v1
43	<i>Nicotiana attenuata</i>	coyote tobacco	Nat	1	diploid	Ensembl	NIATTr2
44	<i>Nicotiana benthamiana</i>	tobacco	Nbe	2	allotetraploid	Kourelis et al. 2019	v1.0.1
45	<i>Nicotiana tabacum</i>	cultivated tobacco	Nta	1	allotetraploid	solgenomics.net	TN90 protein sequences
46	<i>Oropetium thomaeum</i>	-	Oth	1	diploid	Phytozome	v1.0
47	<i>Oryza brachyantha</i>	rice grass native to tropical Africa	Obr	2	diploid	Ensembl	v1.4b
48	<i>Oryza glaberrima</i>	african rice	Ogl	2	diploid	Ensembl	V1
49	<i>Oryza longistaminata</i>	african wild rice	Olo	2	diploid	Ensembl	v1.0
50	<i>Oryza sativa Japonica Group</i>	sinica rice	OsaJ	2	diploid	Phytozome	v7_JGI

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51	<i>Ostreococcus lucimarinus</i>	green alga	Olu	2	haploid	Phytozome	v2.0
52	<i>Panicum hallii</i> ecotype <i>FIL2</i>	hall's panicgrass	Pha	2	diploid	Ensembl	PHallii_v3.1
53	<i>Panicum virgatum</i>	switchgrass	Pvi	4	allotetraploid	Phytozome	v1.1
54	<i>Phaseolus vulgaris</i>	common bean, French bean	Pvu	1	diploid	Phytozome	v2.1
55	<i>Physcomitrella patens</i>	spreading earthmoss	Ppa	2	haploid/diploid	Phytozome	v3.3
56	<i>Populus trichocarpa</i>	black cottonwood, California poplar	Ptr	2	diploid	Phytozome	v3.0
57	<i>Prunus persica</i>	peach	Ppe	3	diploid	Phytozome	v2.1
58	<i>Ricinus communis</i>	castor bean	Rco	1	diploid	Phytozome	v0.1
59	<i>Salix purpurea</i>	purple willow	Spu	2	diploid	Phytozome	v1.0
60	<i>Setaria italica</i>	foxtail millet	Sit	2	diploid	Phytozome	v2.2
61	<i>Setaria viridis</i>	green foxtail, wild foxtail millet	Svi	2	diploid	Phytozome	v1.1
62	<i>Solanum lycopersicum</i>	tomato	Sly	1	diploid	Phytozome	iTAG2.4
63	<i>Solanum tuberosum</i>	potato	Stu	1	diploid/ tetraploid	Phytozome	v4.03
64	<i>Sorghum bicolor</i>	sorghum, great millet	Sbi	2	diploid	Phytozome	v3.1.1
65	<i>Sphagnum fallax</i>	flat-topped bogmoss	Sfa	2	haploid	Phytozome	v0.5
66	<i>Spirodela polyrhiza</i>	common duckmeat	Spo	1	diploid	Phytozome	v2
67	<i>Zea mays</i> Ensembl-18	maize, corn	Zmays	2	diploid	Phytozome	AGPv3
68	<i>Zostera marina</i>	common eelgrass, seawrack	Zmarina	1	diploid	Phytozome	v2.2
69	<i>Theobroma cacao</i>	cacao tree	Tca	1	diploid	Phytozome	v1.1
70	<i>Trifolium pratense</i>	red clover	Tpr	2	diploid	Phytozome	v2
71	<i>Triticum aestivum</i>	common wheat, bread wheat	Tae	8	allohexaploid	Ensembl	IWGSC
72	<i>Triticum dicoccoides</i>	emmer wheat, hulled wheat	Tdi	4	allotetraploid	Ensembl	WEWSeq_v.1.0
73	<i>Vigna angularis</i>	adzuki bean, English red mung bean	Van	1	diploid	Ensembl	Vigan1.1
74	<i>Vigna radiata</i>	mung bean	Vra	1	diploid	Ensembl	Vradiata_ver6
75	<i>Vitis vinifera</i>	common grape vine	Vvi	1	diploid	Phytozome	Genoscope.12X
76	<i>Volvox carteri</i>	colonial green alga	Vca	1	haploid/diploid	Phytozome	v2.1