Supplement

The following supplementary materials are available for this article: Hazra, A., S. Bhowmick, C. Sengupta, S. Das. 2020. Lowest copy nuclear genes in disentangling plant molecular systematics. Taiwania **65(4)**: 413-422. Doi: *10.6165/tai.2020.65.413*

Table S1: Locus ids of finally selected lowest copy genes at PLAZA database from representative taxa.

Species	Family	CAAX	CCB	CDIPT	CDO	NAT	GTF	MTTase	Mog1	MurE /MurF	NAD	P4H	PCC	PS54	Rad17/24	RNAmt	rbcL
Amaranthus hypochondriacus	Amaranth-aceae	AH004899	AH005255	AH021509	AH008483	AH012711	AH009353	AH003796	AH010554	AH016153	AH017159	AH019502	AH012512	AH018903	AH006461	AH001533	MG836505
Beta vulgaris	Amaranth-aceae	Bv6133920	Bv6151770	Bv8200410usng	Bv118290azxk	Bv7161240rdgo	Bv117260frxk	Bv6129550qykn	Bv483410dkdg	Bv6137540ixie	Bv234600ggen	Bv366060fgpm	Bv7157790iiqk	Bv5109390wygq	ATR0712G114	ATR0789G110	KR230391
Chenopodium quinoa	Amaranth-aceae	AUR62005543	AUR62037820	AUR62021978	AUR62004137	AUR62026977	AUR62023371	AUR62004114	AUR62000864	AUR62003173	AUR62009135	AUR62021266	AUR62006322	AUR62038406	Aco027099	Aco009933	MK159176
Amborella trichopoda	Amborell-aceae	ATR0824G068	ATR0582G370	ATR0752G074	ATR0057G126	ATR0332G108	ATR1098G018	ATR0665G310	ATR0626G338	ATR0680G162	ATR0307G063	ATR0757G128	ATR0626G125	ATR0697G123	AL8G45460	AL3G35360	NC_005086
Daucus carota	Apiaceae	DCAR7026	DCAR14466	DCAR28171	DCAR31889	DCAR12484	DCAR25030	DCAR25977	DCAR22246	DCAR617	DCAR802	DCAR18141	DCAR18382	DCAR13470	AT5G66130	AT3G21300	NC_008325
Spirodela polyrhiza	Araceae	Spipo4G0034600	Spipo7G0050900	Spipo14G0051000	Spipo1G0083900	Spipo32G0001400	Spipo11G0015700	Spipo24G0021400	Spipo27G0015500	Spipo1G0029900	Spipo3G0018400	Spipo1G0095300	Spipo6G0004800	Spipo9G0006800	Araip.XSU9J	Araip.80R5B	NC_015891
Elaeis guineensis	Arecaceae	EGU1634G0359	EGU1634G0117	EGU2441G0484	EGU0139G0433	EGU2082G0001	EGU0206G0967	EGU0935G2116	EGU0336G0005	EGU0206G0501	EGU1937G0001	NA	EGU2028G0267	EGU2388G0001	Bv6130260rphg	Bv9211700tfag	NC_017602
Arabidopsis lyrata	Brassic-aceae	AL1G40480	AL5G15550	AL6G48360	AL4G44090	AL1G12620	AL4G43710	AL7G14700	AL6G39620	AL2G11550	AL7G18640	AL8G26180	AL4G47660	AL5G40220	Bradi1g68237	Bradi2g05816	NC_034365
Arabidopsis thaliana	Brassic-aceae	AT1G24460	AT3G26710	AT4G04870	AT2G44990	AT1G03150	AT2G44660	AT4G36390	AT5G27390	AT1G63680	AT4G33030	AT5G51880	AT2G48070	AT3G58460	Bo9g022150	Bo5g101210	NC_000932
Brassica oleracea	Brassic-aceae	Bo5g051790	Bo7g083850	Bo9g077720	Bo4g195310	Bo5g003660	Bo4g023930	Bo1g005690	NA	Bo9g029280	Bo1g008500	Bo9g104660	Bo4g001030	Bo8g092640	Brara.I00921	Brara.E02078	NC_041167
Brassica rapa	Brassic-aceae	Brara.H02076	Brara.F03257	Brara.I02198	Brara.D02722	Brara.H03096	Brara.E00449	Brara.A00216	Brara.F02867	Brara.I01248	Brara.A00488	Brara.J00751	Brara.E00024	Brara.K00982	C.cajan39078.g	C.cajan13348.g	NC_040849
Capsella rubella	Brassic-aceae	Carubv10011938m.g	Carubv10018004m.g	Carubv10001355m.g	Carubv10024760m.g	Carubv10010452m.g	Carubv10023047m.g	Carubv10004356m.g	Carubv10001762m.g	Carubv10021912m.g	Carubv10004727m.g	Carubv10026996m.g	Carubv10023786m.g	Carubv10017375m.g	Carubv10026124m.g	Carubv10013347m.g	NC_027693
Schrenkiella parvula	Brassic-aceae	Tp1g23340	Tp2g15830	Tp6g04110	Tp4g27060	Tp1g02170	Tp4g26740	Tp7g34050	Tp2g20620	Tp2g00970	Tp7g30790	Tp6g14140	Tp4g29960	Tp5g04420	CAN.G1274.29	CAN.G1143.37	NC_028726
Ananas comosus	Bromeli-aceae	Aco013534	Aco016208	Aco002071	Aco012830	Aco018449	Aco022306	Aco000200	Aco025010	Aco010253	Aco013680	Aco013910	Aco028390	Aco002189	AUR62003339	AUR62023880	NC_026220
Tarenaya hassleriana	Cappar-aceae	THA.LOC104825534	THA.LOC104805299	THA.LOC104812962	THA.LOC104817203	THA.LOC104825996	THA.LOC104817180	THA.LOC104807475	THA.LOC104802809	THA.LOC104823588	THA.LOC104818573	THA.LOC104825086	THA.LOC104823061	THA.LOC104802817		CR01G02930	NC_034364
Citrullus lanatus	Cucurbit-aceae	Cla010000.g	Cla005927.g	Cla014460.g	Cla006727.g	Cla014766.g	Cla007007.g	Cla002376.g	Cla019858.g	Cla011439.g	Cla020876.g	Cla006221.g	Cla014731.g	Cla012147.g	Cla014303.g	NA	NC_032008
Cucumis melo	Cucurbit-aceae	MELO3C011904	MELO3C005101	MELO3C007382	MELO3C022291	MELO3C015828	MELO3C022453	MELO3C014387	MELO3C004308	MELO3C005683	MELO3C016873	MELO3C006861	MELO3C015872	MELO3C008786	Ciclev10025220m.g	Ciclev10025277m.g	NC_015983
Cucumis sativus L.	Cucurbit-aceae	Cucsa.075350	Cucsa.033620	Cucsa.045310	Cucsa.120990	Cucsa.084460	Cucsa.362250	Cucsa.184640	NA	Cucsa.303230	Cucsa.299420	Cucsa.251130	Cucsa.084860	Cucsa.002940	Cc07g11050	Cc04g02310	NC_007144
Hevea brasiliensis	Euphorbi-aceae	HBR0722G084	HBR3310G020	HBR2302G011	HBR2526G001	HBR2858G005	HBR1044G005	HBR1618G012	NA	HBR2687G027	HBR1577G004	HBR0993G016	HBR1377G056	HBR2617G003	COL.COLO422460	COL.COLO430571	NC_015308
Manihot esculenta	Euphorbi-aceae	Manes.12G018200	Manes.11G076200	Manes.17G037300	Manes.05G051700	Manes.01G207200	Manes.05G057700	Manes.01G140600	Manes.09G163400	Manes.02G019800	Manes.03G048700	Manes.14G030600	Manes.05G071800	Manes.08G038800	MELO3C007925	MELO3C024409	NC_010433

Species	Family	CAAX	CCB	CDIPT	CDO	NAT	GTF	MTTase	Mog1	MurE /MurF	NAD	P4H	PCC	PS54	Rad17/24	RNAmt	rbcL
Ricinus communis	Euphorbi -aceae	RCO.g.29929 .000262	RCO.g.30131 .000120	RCO.g.29842 .000117	RCO.g.30174 .000193	RCO.g.29647 .000081	RCO.g.29634 .000024	RCO.g.29634 .000006	RCO.g.30128 .000192	RCO.g.30190 .000462	RCO.g.29794 .000006	RCO.g.30147 .000403	RCO.g.29703 .000071	RCO.g.27553 .000018	Cucsa.043790	Cucsa.360750	NC_016736
Arachis ipaensis	Fabaceae	Araip.04KZI	Araip.YFS8J	Araip.2T4WR	NA	Araip.LTB3A	Araip.QU01Y	Araip.RW6GJ	Araip.AI1YP	Araip.L03GB	Araip.KL3B6	Araip.8H0EA	Araip.EK4ZS	Araip.64Q9S	NA	CM12G03260	KM025245
Cajanus cajan	Fabaceae	C.cajan19361 .g	C.cajan28994 .g	C.cajan04382 .g	C.cajan46447 .g	C.cajan09649 .g	C.cajan37659 .g	C.cajan12825 .g	C.cajan06878 .g	C.cajan11549 .g	C.cajan31369 .g	C.cajan07421 .g	C.cajan09619 .g	C.cajan10129 .g	DCAR14038	DCAR31420	NC_031429
Glycine max	Fabaceae	Glyma.11G246000	Glyma.02G066600	Glyma.07G259200	Glyma.01G073200	Glyma.03G154800	Glyma.08G098700	Glyma.01G169900	Glyma.10G157000	Glyma.05G208600	Glyma.03G131100	Glyma.10G240400	Glyma.03G149600	Glyma.03G206200		ES0085G00170	NC_007942
Medicago truncatula	Fabaceae	Medtr3g086150	Medtr7g084160	Medtr2g022840	Medtr7g045370	Medtr7g117040	Medtr5g077540	Medtr5g021230	Medtr1g082430	Medtr8g098345	Medtr7g090510	Medtr1g101840	Medtr7g094220	Medtr7g107390	EGU0139G0822	NA	NC_003119
Trifolium pratense	Fabaceae	TPR.G14240	TPR.G15411	TPR.G7634	NA	TPR.G4786	TPR.G9570	TPR.G2393	TPR.G327	TPR.G12960	TPR.G32742	TPR.G17410	TPR.G32805	TPR.G32290	Migut.L00910	Migut.I00980	KP126856
Vitis vinifera	Fabaceae	GSVIVG01010295001	GSVIVG01032980001	GSVIVG01012658001	GSVIVG01018217001	GSVIVG01001156001	GSVIVG01018341001	GSVIVG01018858001	GSVIVG01000003001	GSVIVG01019746001	GSVIVG01035394001	GSVIVG01018444001	GSVIVG01011060001	GSVIVG01022493001	Eucgr.I02333	Eucgr.J02895	NC_007957
Utricularia gibba	Lentibulari -aceae	UGI.Scf00917 .19619	UGI.Scf00400 .15384	UGI.Scf00458 .16173	UGI.Scf01202 .20449	UGI.Scf00345 .14433	UGI.Scf00285 .13349	UGI.Scf00246 .12484	UGI.Scf00138 .9478	UGI.Scf00001 .312	UGI.Scf00892 .19503	UGI.Scf00004 .720	UGI.Scf00655 .18099	UGI.Scf00102 .8055	FVE14575	FVE23130	NC_021449
Gossypium raimondii	Malvacea e	Gorai.002G190100	Gorai.007G072900	Gorai.010G179400	Gorai.008G107600	Gorai.004G079400	Gorai.003G062300	Gorai.007G199300	Gorai.007G294100	Gorai.008G247200	Gorai.009G044500	Gorai.013G064300	Gorai.004G084200	Gorai.006G146200	NA	FC009G06180	NC_016668
Musa acuminata	Musaceae	MAC12G1178	MAC08G1640	MAC06G1886	MAC10G1395	MAC04G2349	MAC05G2347	MAC01G0006	MAC05G2083	MAC05G0513	MAC08G2701	MAC05G0607	MAC04G0388	MAC06G2986	Glyma.16G124500	Glyma.13G352500	HF677508
Eucalyptus grandis	Myrtaceae	Eucgr.H04698	Eucgr.I01598	Eucgr.D01306	Eucgr.E01594	Eucgr.K03364	Eucgr.E01703	Eucgr.I02387	Eucgr.H04455	Eucgr.D01840	Eucgr.C00658	Eucgr.A02845	Eucgr.K03409	Eucgr.K01887	GMO00012275	GMO00015343	NC_014570
Nelumbo nucifera	Nelumbon -aceae	NNU22051	NNU22317	NNU16366	NNU18348	NNU6732	NNU7012	NNU5283	NNU6820	NNU16311	NNU10754	NNU8834	NNU15286	NNU10567	Gorai.011G098200	Gorai.011G069100	NC_025339
Phalaenopsis equestris	Orchid -aceae	NA	PEQU7835	PEQU7588	PEQU21664	PEQU14220	PEQU9122	PEQU4901	PEQU5369	PEQU17496	PEQU3866	PEQU16545	PEQU5215	PEQU57	HBR1313G038	HBR3118G043	NC_017609
Erythranthe guttata	Phrym -aceae	Migut.K00673	Migut.L00475	Migut.M01299	Migut.B01565	Migut.N02047	Migut.N01719	Migut.H02505	Migut.B01148	Migut.E01089	Migut.A00129	Migut.F00396	Migut.D00250	Migut.L01859	HVU0040G1219	HVU0038G3070	KJ161981
Brachypodium distachyon	Poaceae	Bradi3g04310	Bradi3g36577	Bradi2g52187	Bradi5g17657	Bradi1g11700	Bradi3g52040	Bradi4g14840	Bradi4g07620	Bradi3g32820	Bradi2g26870	Bradi1g77270	Bradi2g25800	Bradi1g13480	Manes.01G148500	Manes.11G029600	NC_011032
Hordeum vulgare	Poaceae	HVU0045G1616	HVU0038G3414	HVU0038G1128	NA	HVU0040G2292	HVU0042G1691	HVU0040G2465	HVU0041G3413	HVU0036G0793	HVU0036G2047	HVU0040G1231	HVU0036G0971	HVU0041G2231	Mapoly0004s0213	Mapoly0054s0113	NC_008590
Oropetium thomaeum	Poaceae	Oropetium201501059094	Oropetium201 5010521574	Oropetium201 5010518559	Oropetium201 5010512300	Oropetium201 501058103	Oropetium201 5010521100		Oropetium201 501055138	Oropetium201 5010522050	Oropetium201 5010527235	Oropetium201 5010521386	Oropetium201 501055126	Oropetium201 501058310	Medtr8g075250	Medtr2g100500	NA
Oryza brachyantha	Poaceae	OB05G19160	NA	OB01G42450	OB04G27900	OB03G37820	OB02G35600	OB11G24140	OB05G23710	OB10G24860	OB05G22850	OB03G11440	OB05G23870	OB03G35560	MP02G02440	MP02G06800	NC_030596
Oryza sativa ssp. Indica	Poaceae	NA	OsR498G1120254900.01	OsR498G0102127400.01	OsR498G0409034300.01	OsR498G0306870800.01	OsR498G0204562900.01	OsR498G1120437200.01	OsR498G0510796500.01	OsR498G1019142000.01	OsR498G0510755500.01	OsR498G0305129000.01	OsR498G0510805200.01	OsR498G0306681400.01	MRCC29901G03720	MRCC29903G04490	LT576845
Oryza sativa ssp. japonica	Poaceae	LOCOs05g22930	LOCOs11g32320	LOCOs01g57930	LOCOs04g46470	LOCOs03g49230	LOCOs02g46320	LOCOs11g38030	LOCOs05g33300	LOCOs10g40130	LOCOs05g32140	LOCOs03g02730	LOCOs05g33520	LOCOs03g44830	MAC11G00660	MAC12G02860	LT576846
Phyllostachys edulis	Poaceae	PH01005219G0020	PH01002767G0080	PH01000425G0820		PH01000426G0190		PH01004098G0040	PH01003188G0230	PH01000377G0960	PH01001217G0050	PH01000017G0720	PH01002248G0150		NNU23847	NNU4195	NC_015817
Setaria italica	Poaceae	Seita.3G075200	Seita.8G138600	Seita.5G345600	Seita.7G189300	Seita.9G128000	Seita.1G277200	Seita.8G170600	Seita.3G249500	Seita.9G333200	Seita.3G259100	Seita.9G564700	Seita.3G248300	Seita.9G153100	Oropetium20150105662	Oropetium201501057382	NC_022850
Sorghum bicolor	Poaceae	Sobic.008G033000	Sobic.005G133700	Sobic.003G321900	Sobic.006G170300	Sobic.001G126200	Sobic.004G277400	Sobic.005G169900	Sobic.009G130800	Sobic.001G305700	Sobic.009G123300	Sobic.001G529900	Sobic.009G132000	Sobic.001G151600	OB03G20300	OB01G15960	NC_008602
Triticum aestivum	Poaceae	TAE47154G003	TAE02961G002	TAE19282G001	TAE15152G001	TAE36976G001	TAE38745G001	TAE27152G001	TAE52610G001	TAE01635G001	TAE01203G002	TAE07189G002	TAE11263G004	TAE27915G001	OsR498G0305550100.01	OsR498G0100325200.01	KC912694
Zea mays	Poaceae	Zm00001d023374	Zm00001d052682	Zm00001d043228	Zm00001d002736	Zm00001d003620	Zm00001d017651	Zm00001d007573	Zm00001d009928	Zm00001d047128	Zm00001d009967	Zm00001d027385	Zm00001d038161	Zm00001d033502	LOCOs03g13850	LOCOs01g09750	NC_001666

Species	Family	CAAX	CCB	CDIPT	CDO	NAT	GTF	MTTase	Mog1	MurE /MurF	NAD	P4H	PCC	PS54	Rad17/24	RNAmt	rbcL
Ziziphus jujuba	Rhamn -aceae	ZJU.LOC107428501	ZJU.LOC107427975	ZJU.LOC107420739	ZJU.LOC107422659	ZJU.LOC107426443	ZJU.LOC107405216	ZJU.LOC107424556	ZJU.LOC107411992	ZJU.LOC107429847	ZJU.LOC107420041	ZJU.LOC107414416	ZJU.LOC107426002	ZJU.LOC107432275	Peaxi162Scf00328g00616	Peaxi162Scf00038g01234	NC_030299
Fragaria vesca	Rosaceae	NA	FVE01397	FVE19583	FVE04863	FVE20296	FVE03056	FVE14902	FVE22304	FVE32500	FVE02699	FVE13353	FVE27731	FVE18020	PEQU23044	PEQU26744	NC_015206
Prunus persica	Rosaceae	Prupe.1G238600	Prupe.3G313700	Prupe.4G023700	Prupe.2G133900	Prupe.8G239800	Prupe.2G118200	Prupe.7G162800	Prupe.6G330500	Prupe.5G101100	Prupe.1G411000	Prupe.2G287700	Prupe.8G247900	Prupe.7G087100	PH01000353G1140	PH01000721G0350	NC_014697
Pyrus bretschneideri	Rosaceae	Pbr036234.1.g	Pbr021896.1.g	Pbr031874.3.g	Pbr015995.1.g	Pbr008959.1.g	Pbr012833.1.g	Pbr040499.1.g	Pbr006551.2.g	Pbr018176.1.g	Pbr042753.1.g	Pbr032786.1.g	Pbr017337.2.g	Pbr000595.2.g	Pp3c814180	Pp3c255440	JQ391385
Coffea canephora	Rubiaceae	Cc11g16290	Cc07g01330	Cc09g01900	Cc02g24750	Cc01g19390	Cc02g25560	Cc07g10160	Cc02g32660	Cc08g14820	Cc08g10700	Cc02g03560	Cc09g03260	Cc06g07110	PGL00022689	PGL00009573	NC_030053
Citrus clementina	Rutaceae	Ciclev10030479m.g	Ciclev10016116m.g	Ciclev10015907m.g	Ciclev10027500m.g	Ciclev10022184m.g	Ciclev10014906m.g	Ciclev10026963m.g	Ciclev10002268m.g	Ciclev10018956m.g	Ciclev10008149m.g	Ciclev10005723m.g	Ciclev10022169m.g	Ciclev10011870m.g	PPI00017721	PPI00012409	NA
Populus trichocarpa	Salic -aceae	Potri.010G052600	Potri.001G463200	Potri.004G018300	Potri.014G056800	Potri.005G210400	Potri.014G053200	Potri.007G018500	Potri.013G026500	Potri.001G103300	Potri.006G228000	Potri.015G135300	Potri.014G137300	Potri.006G197900	PSY00017159	PSY00017058	NC_009143
Capsicum annuum	Solan -aceae	CAN.G49.7	CAN.G1108.4	CAN.G105.15	CAN.G899.28	CAN.G308.71	CAN.G756.20	CAN.G358.24	CAN.G809.16	CAN.G774.53	CAN.G9.23	CAN.G1097.8	NA	CAN.G128.158	Potri.005G111000	Potri.001G195300	NC_018552
Petunia axillaris	Solan -aceae	Peaxi162Scf00128g00725	NA	Peaxi162Scf00203g00128	Peaxi162Scf00377g00829	Peaxi162Scf00268g00086	Peaxi162Scf00793g00218	Peaxi162Scf00084g01021	Peaxi162Scf00071g00728	Peaxi162Scf00119g01015	Peaxi162Scf00327g00612	Peaxi162Scf00192g00519	Peaxi162Scf00156g00061	Peaxi162Scf00060g01414	Prupe.7G171500	Prupe.3G054000	HQ384915
Solanum lycopersicum	Solan -aceae	Solyc05g014200.2	Solyc02g005210.2	Solyc10g005290.2	Solyc01g090660.2	Solyc06g065230.2	Solyc01g088650.2	Solyc02g084750.2	Solyc08g043180.2	Solyc08g081170.2	Solyc08g063080.2	Solyc03g006820.2	Solyc05g055850.2	Solyc10g081600.1	PME0011922 4	PME0007140 7	NC_007898
Solanum tuberosum	Solan -aceae	PGSC0003DMG400010736	PGSC0003DMG400014532	PGSC0003DMG400011258	PGSC0003DMG400026032	PGSC0003DMG400026070	PGSC0003DMG402001720	PGSC0003DMG400003535	PGSC0003DMG400026653	PGSC0003DMG402012338	PGSC0003DMG400019063	PGSC0003DMG400024248	PGSC0003DMG400023469	PGSC0003DMG400028130	Pbr034819.1.g	Pbr028680.1.g	NC_008096
Theobroma cacao	Sterculi -aceae	TCA.TCM10691	TCA.TCM17354	TCA.TCM30194	TCA.TCM5633	TCA.TCM4357	TCA.TCM39791	TCA.TCM288	TCA.TCM26613	TCA.TCM16268	TCA.TCM37296	TCA.TCM15052	TCA.TCM4477	TCA.TCM25040	RCO.g.29656.000006	RCO.g.30146.000016	NC_014676
Corchorus olitorius	Tiliaceae? COL.COLO423553	COL.COLO413379	COL.COLO431746	COL.COLO412447	COL.COLO49080	COL.COLO423407	COL.COLO421994	NA	COL.COLO434475	COL.COLO421071	COL.COLO414231	NA	COL.COLO429456	Tp2g30560	Tp3g19360	MF135415	NA
Zostera marina	Zoster -aceae	Zosma79g00210	Zosma69g00860	Zosma7g00230	Zosma18g00230	Zosma12g00490	Zosma42g01280	Zosma91g00070	Zosma44g01560	Zosma16g00460	Zosma44g00360	Zosma180g00180	Zosma8g00390	Zosma116g00540	SMO329G0081	SMO118G0221	NC_036014
Gnetum montanum	Gymno -sperm	GMO00010342	GMO00028629	GMO00011683	NA	GMO00008352	GMO00012621	GMO00008669	GMO00013876	GMO00032234	GMO00013969	GMO00016358	GMO00027809	GMO00030989	Spipo11G0041800	Spipo21G0028300	NC_021438
Picea glauca	Gymno -sperm	PGL00004713	PGL00006991	PGL00018300	NA	PGL00020806	PGL00023305	PGL00027458	NA	PGL00002996	PGL00023853	PGL00020066	PGL00026901	PGL00026763	UGI.Scf00016.2236	UGI.Scf00649.21864	NC_028594
Pinus pinaster	Gymno -sperm	PPI00007901	PPI00014477	PPI00013324	NA	PPI00014024	PPI00014641	PPI00007530	PPI00076116	PPI00011803	PPI00012867	PPI00061980	PPI00016399	PPI00014160	GSVIVG01018736001	GSVIVG01016904001	FJ899583
Pinus sylvestris	Gymno -sperm	PSY00004259	PSY00028482	PSY00019197	NA	PSY00013524	PSY00008326	PSY00010565	PSY00021014	PSY00016140	PSY00018720	PSY00027717	PSY00024250	PSY00019501	NA	VC0060G00780	NC_035069
Pseudotsuga menziesii	Gymno -sperm	PME00021085	PME00093999	PME00054661	NA	PME00018346	PME00086498	PME00095084	PME00017644	PME00012528	PME00022933	PME00049309	PME00021971	PME00076789	Zm00001d047946	Zm00001d039477	MH612867
Selaginella moellendorffii	Pteridophyte	SMO365G0071	SMO146G0400	SMO356G0510	SMO165G0127	SMO118G0064	SMO228G0062	SMO228G0124	SMO356G0400	SMO147G0132	SMO239G0161	SMO139G0115	SMO358G0655	SMO364G0815	ZJU.LOC107409951	ZJU.LOC107404180	AF093256
Physcomitrella patens	Bryophyte	Pp3c2416920	Pp3c210260	Pp3c1214310	Pp3c621550	Pp3c106780	Pp3c1419880	Pp3c314130	Pp3c1121800	Pp3c2315810	Pp3c109630	Pp3c224190	Pp3c2417730	Pp3c811670	TAE29200G002	TAE21008G001	NC_005087
Marchantia polymorpha	Bryophyte	Mapoly0082s0035	Mapoly0054s0013	Mapoly0072s0085	Mapoly0075s0089	Mapoly0054s0004	Mapoly0011s0009	Mapoly0050s0103	Mapoly0057s0090	Mapoly0091s0082	Mapoly0010s0049	Mapoly0028s0137	Mapoly0037s0112	Mapoly0022s0048	THA.LOC104826545	THA.LOC104810556	MH635409
Chlamydomonas reinhardtii	Algae	CR12G15120	CR16G02990	CR13G08640	CR12G01090	CR08G01340	CR09G05870	CR13G06940	CR13G00430	CR12G07550	Cre16.g656400	CR14G02460	CR01G12090	CR01G10430	Seita.9G473000	Seita.5G136800	MG650077

Species	Family	CAAX	CCB	CDIPT	CDO	NAT	GTF	MTTase	Mog1	MurE /MurF	NAD	P4H	PCC	PS54	Rad17/24	RNAmt	rbcL
Volvox carteri	Algae	VC0003G00150	VC0020G00680	VC0005G02850	VC0001G05840	VC0018G00870	VC0064G00360	VC0007G00280	NA	VC0085G00240	VC0043G01050		VC0044G01010	VC0086G00400	Zosma367g00110	Zosma76g00870	D63446
Ectocarpus siliculosus	Algae	NA	ES0192G00050	ES0244G00360	ES0155G00360	ES0005G00170	ES0437G00020	ES0024G00330	NA	NA	ES0076G00170	ES0002G01120	ES0322G00010	ES0006G00230	PGSC0003DMG400003647	PGSC0003DMG400002513	AY307410
Fragilariopsis cylindrus	Algae	NA	FC004G07350	FC001G08840	FC013G03230	FC013G02560	FC028G00610	FC004G06140	NA	NA	FC005G03450	FC001G08050	FC009G05960	FC007G06470	Sobic.001G440100	Sobic.003G033100	EF423499
Micromonas pusilla strain CCMP1545	Algae	MP06G01530	MP06G03130	MP07G01740	MP01G10690	MP04G01210	MP04G00130	MP01G04060	NA	MP07G00990	MP01G07340	MP13G01420	MP03G01310	MP01G05070	TCA.TCM169	TCA.TCM28965	AY955031
Micromonas sp RCC299	Algae	MRCC29903G01420	MRCC29910G03880	MRCC29913G01720	MRCC29902G00350	MRCC29904G06530	MRCC29904G07700	MRCC29907G04280	NA	MRCC29913G00910	MRCC29907G01100	MRCC29910G02050	MRCC29914G02740	MRCC29907G03190	TPR.G19508	TPR.G6542	NA

Table S2: Maximum Likelihood fits of various nucleotide substitution models.

Model	Bayesian Information Criterion	Akaike Information Criterion	Maximum Likelihood value
K2+G+I	51546.5	50212.16	-24957.7
K2+G	51547.51	50222.18	-24963.7
GTR+G	51592.18	50203.78	-24947.5
GTR+G+I	51595.57	50198.16	-24943.7
T92+G+I	51610.41	50267.07	-24984.2
T92+G	51610.72	50276.39	-24989.8
TN93+G+I	51658.57	50288.2	-24991.7
TN93+G	51665.65	50304.28	-25000.8
HKY+G	51667.34	50314.99	-25007.1
HKY+G+I	51668.1	50306.73	-25002
JC+G+I	53109.78	51784.45	-25744.9
JC+G	53111.38	51795.07	-25751.2
GTR+I	55188.18	53799.78	-26745.5
TN93+I	55228.47	53867.1	-26782.2
K2+I	55245.41	53920.08	-26812.7
T92+I	55281.23	53946.9	-26825.1
HKY+I	55335.96	53983.6	-26841.4
JC+I	56574.12	55257.81	-27482.6
GTR	57646.66	56267.27	-27980.2
TN93	57707.17	56354.81	-28027
K2	57843.97	56527.66	-28117.5
T92	57864.85	56539.53	-28122.4
HKY	57910.07	56566.72	-28134
JC	59123.95	57816.64	-28763

Abbreviations: GTR: General Time Reversible; HKY: Hasegawa-Kishino-Yano; TN93: Tamura-Nei; T92: Tamura 3-parameter; K2: Kimura 2-parameter; JC: Jukes-Cantor