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Functional Plant Biology

Supplementary Material

Assembly and comparative analysis of the complete mitochondrial genome of *Pinellia ternata*

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Table S1 The abbreviations and NCBI accession numbers of mt genomes used in this study

Species	Accession Numbers
Arabidopsis thaliana	NC_037304
Bartramia pomiformis	NC_024519
Beta vulgaris	NC_002511
Brassica napus	NC_008285
Capsicum annuum	NC_024624
Carica papaya	NC_012116
Chara vulgaris	NC_005255
Chenopodium quinoa	NC_041093
Chlamydomonas reinhardtii	NC_001638
Citrullus lanatus	NC_014043
Cucumis sativus	NC_016005
Cucurbita pepo	NC_014050
Cycas taitungensis	NC_010303
Daucus carota	NC_017855
Ginkgo biloba	NC_027976
Glycine max	NC_020455
Lotus japonicas	NC_016743
Malus domestica	NC_018554
Medicago truncatula	NC_029641
Nicotiana tabacum	NC_006581
Nitella hyalina	NC_017598
Oryza sativa	NC_007886
Pongamia pinnata	NC_016742
Populus tremula	NC_028096
Raphanus sativus	NC_018551
Rhazya stricta	NC_024293
Salix suchowensis	NC_029317
Sorghum bicolor	NC_008360
Sphagnum palustre	NC_024521
Spinacia oleracea	NC_035618
Suaeda glauca	MW561632
Triticum aestivum	NC_007579
Vigna angularis	NC_021092
Vitis vinifera	NC_012119
Zea mays	NC_008332
Spirodela polyrhiza	NC_017840.1

Table S2 The sizes and GC contents of 36 mt plant genomes

Sample	GC(%)	genome size(kb)
Suaeda glauca	44.07	474.33
Chlamydomonas reinhardtii	45.2	15.758
Beta vulgaris subsp. vulgaris	43.86	368.801
Chara vulgaris	40.9	67.737
Nicotiana tabacum	44.96	430.597
Triticum aestivum	44.35	452.528
Oryza sativa Indica Group	43.84	491.515
Brassica napus	45.19	221.853
Zea mays subsp. parviglumis	43.88	680.603
Sorghum bicolor	43.73	468.628
Cycas taitungensis	46.92	414.903
Carica papaya	45.12	476.89
Vitis vinifera	44.14	773.279
Citrullus lanatus	45.08	379.236
Cucurbita pepo	42.8	982.833
Cucumis sativus	44.27	1555.935
Pongamia pinnata	45	425.718
Lotus japonicus	45.4	380.861
Nitella hyalina	40.83	80.193
Daucus carota subsp. sativus	45.42	281.132
Raphanus sativus	45.21	258.426
Malus domestica	45.39	396.947
Glycine max	45.03	402.558
Vigna angularis	45.19	404.466
Rhazya stricta	43.68	548.608
Bartramia pomiformis	39.05	106.198
Sphagnum palustre	38.99	141.276
Capsicum annuum	44.52	511.53
Ginkgo biloba	50.36	346.544
Populus tremula	44.75	783.442
Salix suchowensis	44.98	644.437
Medicago truncatula	45.39	271.618
Spinacia oleracea	43.41	329.613
Arabidopsis thaliana	44.79	367.808
Chenopodium quinoa	43.83	315.003
Pinellia ternata	46.07	876.608

Table S3 The KaKs values of 37 protein-coding genes of *P. ternata* versus 16 species.

	Suaeda glauca	Beta vulgaris	Nicotiana tabacum	Zea mays	Cycas taitungensis	Carica papaya	Vitis vinifera	Cucurbita pepo	Daucus carota	Malus domestica	Rhazya stricta	Capsicum annuum	Ginkgo biloba	Populus tremula	Medicago truncatula	Arabidopsis thaliana
Gene	MW561632	NC_002511	NC_006581	NC_008332	NC_010303	NC_012116	NC_012119	NC_014050	NC_017855	NC_018554	NC_024293	NC_024624	NC_027976	NC_028096	NC_029641	NC_037304
atp1	0.117697	0.15521	0.108459	0.148175	0.359075	0.131488	0.135662	0.136185	0.200104	0.137805	0.136633	0.108459	0.286223	0.12908	0.118686	0.19154
atp4	0.648915	NA	NA	0.653715	0.801872	0.84379	1.15839	0.591693	0.940146	0.54348	0.827274	NA	0.650397	1.31419	0.840962	1.09006
atp6	0.446076	0.466005	0.364775	0.464161	0.443176	0.421126	0.446194	0.326554	0.401928	0.475469	0.364364	0.355235	0.461238	0.429853	0.296093	0.61666
atp8	0.424154	0.436852	NA	0.506319	0.447124	0.387833	0.210872	0.257648	0.338555	0.222029	0.241447	NA	0.506472	0.325731	0.329399	0.33503
atp9	0.242099	0.192941	0.160766	0	0.393202	0.242703	0.327012	0.199684	0.144326	0.243245	0.1105	0.160766	0.692058	0.124102	0.115243	0.391145
ccmB	1.29994	NA	0.635351	0.609862	0.822861	0.94248	1.75819	0.903506	0.600697	1.31183	0.901383	0.524515	0.693055	1.04391	0.775459	1.24754
ccmC	0.518073	NA	0.682451	0.337141	0.823331	0.590232	0.758054	0.383088	0.782799	0.508742	0.72624	0.682451	0.644246	0.648605	0.578129	0.544479

	Suaeda glauca	Beta vulgaris	Nicotiana tabacum	Zea mays	Cycas taitungensis	Carica papaya	Vitis vinifera	Cucurbita pepo	Daucus carota	Malus domestica	Rhazya stricta	Capsicum annuum	Ginkgo biloba	Populus tremula	Medicago truncatula	Arabidopsis thaliana
ccmFc	0.443328	NA	0.512802	0.534138	0.626895	0.502957	0.769099	0.47273	0.446319	0.453816	0.628118	0.522049	0.681151	0.493494	0.434794	0.56832
ccmFn	0.699498	NA	0.853679	0.533305	0.833799	1.15202	1.29767	0.630962	1.00812	1.04829	0.884263	0.740338	0.78983	0.926637	0.749739	NA
cob	NA	0.391481	0.50511	0.608425	0.820522	0.514189	NA	0.283285	1.04525	0.407862	0.505659	0.469243	0.470976	0.679537	0.322673	0.384981
cox1	0.116542	0.130768	0.112044	0.224573	0.43118	0.110905	0.207834	0.0912982	0.150998	0.107074	0.102973	0.0965787	0.200103	0.197508	0.131341	0.167488
cox2	0.457799	0.503426	0.411015	0.284522	0.364837	0.449903	0.362702	0.47097	0.38811	0.536718	0.467502	0.398795	0.445687	0.482826	NA	0.553067
cox3	0.340189	0.376514	0.472426	0.441224	0.662015	0.458015	0.270736	0.227425	0.189109	0.586832	0.455177	0.457622	0.633043	0.463265	0.367461	0.258152
matR	0.644044	0.54406	0.780219	0.682963	0.835998	0.86409	0.939601	0.645304	0.686474	0.721964	0.741266	0.84457	0.746104	0.80352	0.606913	0.706592
mttB	NA	NA	NA	NA	0.682195	0.360743	NA	0.563863	0.257306	NA	0.380682	NA	0.657288	0.92008	0.262501	0.4228

	Suaeda glauca	Beta vulgaris	Nicotiana tabacum	Zea mays	Cycastaitungensis	Carica papaya	Vitis vinifera	Cucurbita pepo	Daucus carota	Malus domestica	Rhazya stricta	Capsicum annuum	Ginkgo biloba	Populus tremula	Medicago truncatula	Arabidopsis thaliana
nad1	NA	0.626844	1.06609	0.365044	0.648745	1.00146	0.668512	0.469917	0.642806	0.657846	0.971585	1.02266	0.781009	1.09897	0.51669	0.705208
nad2	NA	0.483014	0.700407	0.489211	NA	0.561128	0.635471	0.526256	0.378344	0.489255	0.680771	0.712824	0.943157	0.535025	0.453545	0.688782
nad3	NA	0.435586	0.261232	0.662357	0.711068	0.756131	0.207213	0.87686	0.374657	0.369635	0.332597	0.193222	1.10515	1.21353	0.362037	0.421897
nad4	NA	0.812815	0.72772	1.19215	0.990575	0.706342	0.444703	0.683092	0.605266	0.575667	0.833543	0.760977	0.980977	0.831884	0.979494	0.635451
nad4L	NA	0.310373	0.200193	0.226432	0.425612	0.286612	0.211158	0.247896	0.200193	0.755585	0.20142	0.200193	0.52364	0.474982	0.235725	0.219819
nad5	NA	0.320957	0.454749	0.408056	NA	0.29587	0.316308	0.275098	0.365817	0.342138	0.382246	0.444368	0.910486	0.343894	0.284112	0.329607
nad6	NA	0.570089	0.749357	0.713022	0.923783	1.33743	0.834365	0.647689	0.957457	0.547022	0.895831	0.50454	1.05814	0.423405	0.502397	0.458442
nad7	NA	0.591697	0.912945	0.558293	0.507308	0.432923	0.263565	0.394809	0.364727	0.324803	0.565374	0.844186	0.462778	0.739378	0.416759	0.672653

	Suaeda glauca	Beta vulgaris	Nicotiana tabacum	Zea mays	Cycas taitungensis	Carica papaya	Vitis vinifera	Cucurbita pepo	Daucus carota	Malus domestica	Rhazya stricta	Capsicum annuum	Ginkgo biloba	Populus tremula	Medicago truncatula	Arabidopsis thaliana
nad9	NA	0.378302	0.658453	0.163523	0.536384	0.414741	0.331672	0.388319	0.446231	0.325545	0.522872	0.658453	0.595021	0.457477	1.07464	0.415551
rpl10	NA	NA	NA	NA	NA	NA	NA	NA	0.732796	NA	0.5126	0.509845	NA	0.630877	NA	NA
rpl16	NA	NA	0.474797	0.444475	0.467432	0.184101	0.0510924	0.264888	0.844959	NA	0.528113	0.600599	0.542318	NA	0.837905	0.172093
rpl5	0.465159	0.419148	0.40088	NA	0.422493	0.629145	0.486108	0.389091	0.488537	0.565587	0.491335	0.388649	0.66392	NA	0.382142	0.478295
rps1	NA	NA	NA	0.998906	0.780584	0.510026	0.530953	0.486374	0.711614	0.48208	0.941688	NA	0.899464	0.656634	0.617699	NA
rps12	0.313016	0.404449	0.522097	0.509384	0.650169	0.19996	0.17264	0.344188	0.266446	0.3473	0.58072	0.428708	0.753769	0.730271	0.3751	0.281546
rps13	NA	1.04985	0.835953	0.781821	0.792372	0.967165	1.00597	0.902917	0.591209	0.725012	0.72959	0.741672	1.24342	NA	NA	NA

	Suaeda glauca	Beta vulgaris	Nicotiana tabacum	Zea mays	Cycas taitungensis	Carica papaya	Vitis vinifera	Cucurbita pepo	Daucus carota	Malus domestica	Rhazya stricta	Capsicum annuum	Ginkgo biloba	Populus tremula	Medicago truncatula	Arabidopsis thaliana
rps14	NA	NA	0.594212	NA	0.629269	0.366614	0.677323	NA	NA	0.616721	0.426692	NA	0.763121	0.59321	0.400318	NA
rps2	NA	NA	NA	NA	0.59852	NA	NA	NA	NA	NA	NA	NA	0.909884	NA	NA	NA
rps3	0.393147	0.319286	0.325871	0.327599	0.471827	0.395611	0.334435	0.346083	0.375669	0.406592	0.352903	0.316442	0.637082	0.594825	0.371307	0.431701
rps4	NA	0.900935	0.435868	NA	0.804362	0.591713	0.513411	0.394825	0.474917	NA	0.544951	0.431257	0.726164	0.649375	0.44876	0.55842
rps7	0.383418	0.443827	NA	0.343648	0.575682	0.385654	0.316139	0.235353	0.372314	NA	0.295381	NA	0.713157	0.260991	NA	0.295322
sdh3	NA	NA	0.447373	NA	0.552126	0.485057	0.370179	0.486373	NA	NA	NA	0.45533	0.519057	NA	NA	NA
sdh4	0.525561	NA	NA	NA	NA	0.43478	0.506901	0.356241	NA	0.547091	0.476825	0.420589	0.690611	0.55088	NA	NA

Table S4. Primers used for real-time quantitative PCR

Gene name	Sequence
PtATP4-qPCR-F	TCATATTCAGTCGGAAGAGT
PtATP4-qPCR-R	CGTTGTTGTTCATTGGATTC
PtCCMC-qPCR-F	CGTATTCCACCAGTTGAC
PtCCMC-qPCR-R	TCTGTATTCATCTCGTTCCT
PtCCMFN-qPCR-F	TCCTCGTGTATCATCTGTAG
PtCCMFN-qPCR-R	CTTGGACCTCGCTTCTTA
PtCCMB-qPCR-F	CCAACCACTTCACCTACT
PtCCMB-qPCR-R	GGAGATACGAACGGAGAG
PtCOB-qPCR-F	CAACCTATATCCTCCACACT
PtCOB-qPCR-R	AAACGCCAGTCACTATCT
PtCOX1-qPCR-F	TTGTTACGACCACGAAGA
PtCOX1-qPCR-R	CCAGATTATCCAGATGCTTAC
PtCOX2-qPCR-F	TTGTTGTTGCTGGAGGTA
PtCOX2-qPCR-R	TGCCGATAGATTCACTACTT
PtCOX3-qPCR-F	CGCAAGTATAGCATGATGAG
PtCOX3-qPCR-R	CGGTAGAGATCGGAGGTA
PtNAD2-qPCR-F	GGTATTCCTGCGTATGAGA
PtNAD2-qPCR-R	GCCATAGTTCCAGCATTAC
PtNAD3-qPCR-F	ATCAATCTTGTTGGGAGGTA
PtNAD3-qPCR-R	GATGCCAGAAGTCGTTTC
PtNAD4-qPCR-F	ATTCTACCGATGTCAAGTCA
PtNAD4-qPCR-R	GCTCACTGAACCTCCATA
PtNAD4L-qPCR-F	GGAATCCTCCTTAATAGACGA
PtNAD4L-qPCR-R	CTGTTGGAACTAATGAAGCA
PtNAD6-qPCR-F	GGTTGGTAGTAATGGAATGG
PtNAD6-qPCR-R	GAGACTCACGAAGAAGTATTG
PtNAD7-qPCR-F	AGGTGCTGTCATCTATCTC
PtNAD7-qPCR-R	GGAATGGTCAATCGTCAAG
PtNAD9-qPCR-F	CGGATGATTGATGGAAGAAA
PtNAD9-qPCR-R	GGTATAACTCACGCATTCG
PtSDH3-qPCR-F	CGGACTTAACAAGACAAGAG
PtSDH3-qPCR-R	ACCATTAGCACCGAATCT
PtSDH4-qPCR-F	ATGTGCCAGAATACAGAGA
PtSDH4-qPCR-R	ACGAATAAGTGGATTGAGGA
PtRPL16-qPCR-F	GGTAAGAGTTCTCGCAGAT
PtRPL16-qPCR-R	CTCACACCATCCATTTCAAA
Pt18S-qPCR-F	CGCATATAAATAAACGGAGGAA
Pt18S-qPCR-R	GACGCTTCTACAGACTACA