

**Table S5.** Individual characteristics of 85 protein-coding genes.

No	Genes	Nucleotid diversity (Pi value)	Gene length (bp), after alignment	Ka	Ks	$\omega =$ Ka/Ks	Gene type
1	<i>psbA</i>	0.00178	1062	0.0068	0.0003	0.037	Reverse
2	<i>matK</i>	0.00437	1557	0.0072	0.0035	0.486	Reverse
3	<i>rps16</i>	0.00569	246	0.0153	0.0026	0.168	Reverse
4	<i>psbK</i>	0.00251	186	0.0113	0	0.000	Forward
5	<i>psbI</i>	0.00541	111	0.023	0	0.000	Forward
6	<i>atpA</i>	0.00182	1524	0.0069	0.0002	0.025	Reverse
7	<i>atpF</i>	0.00482	567	0.0165	0.0015	0.092	Reverse
8	<i>atpH</i>	0.00081	246	0.003	0	0.000	Reverse
9	<i>atpI</i>	0.00054	744	0.0022	0	0.000	Reverse
10	<i>rps2</i>	0.00056	711	0.0025	0	0.000	Reverse
11	<i>rpoC2</i>	0.00258	4128	0.0058	0.0015	0.266	Reverse
12	<i>rpoC1</i>	0.00137	2061	0.0041	0.0005	0.127	Reverse
13	<i>rpoB</i>	0.00191	3213	0.005	0.001	0.191	Reverse
14	<i>petN</i>	0.00519	90	0.0226	0	0.000	Forward
15	<i>psbM</i>	0	105	0	0	0.000	Reverse
16	<i>psbD</i>	0.00082	1062	0.0016	0.0006	0.360	Forward
17	<i>psbC</i>	0.00169	1422	0.005	0.0006	0.125	Forward
18	<i>psbZ</i>	0	189	0	0	0.000	Forward
19	<i>rps14</i>	0.00528	303	0.015	0.0023	0.155	Reverse
20	<i>psaB</i>	0.00182	2205	0.0076	0.0001	0.016	Reverse
21	<i>psaA</i>	0.00188	2253	0.0077	0.0001	0.016	Reverse
22	<i>ycf3</i>	0	510	0	0	0.000	Reverse
23	<i>rps4</i>	0.00143	606	0.0032	0.0009	0.270	Reverse
24	<i>ndhJ</i>	0.0014	477	0	0.0018	0.000	Reverse
25	<i>ndhK</i>	0.00241	771	0.0056	0.0014	0.254	Reverse
26	<i>ndhC</i>	0.00337	363	0.0066	0.0024	0.369	Reverse
27	<i>atpE</i>	0.00165	405	0.0049	0.0007	0.132	Reverse
28	<i>atpB</i>	0.0026	1497	0.007	0.0012	0.165	Reverse
29	<i>rbcL</i>	0.00341	1455	0.0071	0.0023	0.316	Forward

30	<i>accD</i>	0.00287	1482	0.0034	0.0028	0.824	Forward
31	<i>psaI</i>	0.0032	111	0.0139	0	0.000	Forward
32	<i>ycf4</i>	0.00156	555	0.0016	0.0016	0.981	Forward
33	<i>cemA</i>	0.00177	690	0.0038	0.0012	0.329	Forward
34	<i>petA</i>	0.0018	963	0.0056	0.0006	0.115	Forward
35	<i>psbJ</i>	0.00379	123	0	0.0054	0.000	Reverse
36	<i>psbL</i>	0	117	0	0	0.000	Reverse
37	<i>psbF</i>	0.00389	120	0	0.0054	0.000	Reverse
38	<i>psbE</i>	0	252	0	0	0.000	Reverse
39	<i>petL</i>	0	96	0	0	0.000	Forward
40	<i>petG</i>	0	114	0	0	0.000	Forward
41	<i>psaJ</i>	0	129	0	0	0.000	Forward
42	<i>rpl33</i>	0	201	0	0	0.000	Forward
43	<i>rps18</i>	0.00065	306	0	0.0009	0.000	Forward
44	<i>rpl20</i>	0.00113	354	0	0.0015	0.000	Reverse
45	<i>rps12</i>	0	372	0	0	0.000	Reverse
46	<i>rps12</i>	0	372	0	0	0.000	Mixed
47	<i>clpP</i>	0.0009	615	0.0039	0	0.000	Reverse
48	<i>psbB</i>	0.00188	1527	0.0073	0.0002	0.023	Forward
49	<i>psbT</i>	0.0037	102	0.0159	0	0.000	Forward
50	<i>psbN</i>	0	132	0	0	0.000	Reverse
51	<i>psbH</i>	0.0033	222	0	0.0044	0.000	Forward
52	<i>petB</i>	0	657	0	0	0.000	Forward
53	<i>petD</i>	0.00162	534	0.0066	0	0.000	Forward
54	<i>rpoA</i>	0.00251	1020	0.007	0.0012	0.173	Reverse
55	<i>rps11</i>	0.00368	417	0.0141	0	0.000	Reverse
56	<i>rpl36</i>	0.00585	114	0.025	0	0.000	Reverse
57	<i>rps8</i>	0	399	0	0	0.000	Reverse
58	<i>rpl14</i>	0.00054	369	0.0023	0	0.000	Reverse
59	<i>rpl16</i>	0.00254	420	0.0063	0.0013	0.205	Reverse
60	<i>rps3</i>	0.00259	651	0.007	0.0013	0.188	Reverse
61	<i>rpl22</i>	0.00322	393	0.0044	0.0022	0.509	Reverse
62	<i>rps19</i>	0.00536	225	0.0041	0.0058	1.423	Reverse

63	<i>rpl2</i>	0.00026	759	0.0011	0	0.000	Reverse
64	<i>rpl23</i>	0	282	0	0	0.000	Reverse
65	<i>ycf2</i>	0.00102	6855	0.0016	0.0009	0.531	Forward
66	<i>ndhB</i>	0.00057	1533	0.0005	0.0006	1.074	Reverse
67	<i>rps7</i>	0.00043	468	0.0018	0	0.000	Reverse
68	<i>ycf1</i>	0.00121	1268	0.0014	0.0012	0.817	Forward
69	<i>ndhF</i>	0.00513	2226	0.0111	0.0033	0.296	Reverse
70	<i>ccsA</i>	0.00352	972	0.0044	0.0033	0.744	Forward
71	<i>ndhD</i>	0.00433	1503	0.0155	0.0009	0.056	Reverse
72	<i>psaC</i>	0.00163	246	0.0071	0	0.000	Reverse
73	<i>ndhE</i>	0.00196	306	0.0087	0	0.000	Reverse
74	<i>ndhG</i>	0.0036	531	0.0113	0.001	0.090	Reverse
75	<i>ndhI</i>	0.00037	543	0.0017	0	0.000	Reverse
76	<i>ndhA</i>	0.00317	1092	0.0056	0.0024	0.421	Reverse
77	<i>ndhH</i>	0.00186	1182	0.0067	0.0004	0.065	Reverse
78	<i>rps15</i>	0.00626	270	0.0078	0.0059	0.762	Reverse
79	<i>ycf1</i>	0.00961	5727	0.0087	0.0099	1.128	Reverse
80	<i>rps7</i>	0.00043	468	0.0018	0	0.000	Forward
81	<i>ndhB</i>	0.00057	1533	0.0005	0.0006	1.074	Forward
82	<i>ycf2</i>	0.00102	6855	0.0016	0.0009	0.531	Reverse
83	<i>rpl23</i>	0	282	0	0	0.000	Forward
84	<i>rpl2</i>	0.00026	759	0.0011	0	0.000	Forward
85	<i>rps19</i>	0.00167	279	0.0074	0	0.000	Forward