

Supplementary Table S1

**Supplementary Table S1.** List of genes annotated in the chloroplast genomes of *P. mugo*, *P. rotundata* and *P. uncinata* sequenced in this study.

No.	Classification of genes	Name of genes	Number
1	Photosystem I	<i>psaA, psaB, psaC, psaI, psaJ, psaM(x2), ycf3, ycf4</i>	9
2	Photosystem II	<i>psbA, psbB, psbC, psbD, psbE, psbF, psbH, psbI, psbJ, psbK, psbL, psbM, psbN, psbT, psbZ</i>	15
3	Cytochrome b/f complex	<i>petA, petB, petD, petG, petL, petN</i>	6
4	ATP synthase	<i>atpA, atpB, atpE, atpF, atpH, atpI</i>	6
5	NADH dehydrogenase	<i>ndhB, ndhC, ndhD, ndhE, ndhH, ndhI, ndhK</i>	7
6	RubisCO large subunit	<i>rbcL</i>	1
7	RNA polymerase	<i>rpoA, rpoB, rpoC1, rpoC2</i>	4
8	Ribosomal proteins – small units (SSU)	<i>rps2, rps3, rps4, rps7, rps8, rps11, rps12, rps14, rps15, rps18, rps19</i>	11
9	Ribosomal proteins – large units (LSU)	<i>rpl2, rpl14, rpl16, rpl20, rpl22, rpl23, rpl32, rpl33, rpl36</i>	9
10	Other genes/Miscellaneous	<i>accD, ccsA, cemA, chlB, chlL, chlN, clpP, infA, matK</i>	9
11	Protein of unknown function / Hypothetical chloroplast reading frames	<i>ycf1, ycf2, ycf12, ycf68</i>	4
12	Transfer RNAs	<i>trnA-UGC, trnC-GCA, trnD-GUC, trnE-UUC, trnF-GAA, trnFM-CAU, trnG-GCC, trnG-UCC, trnH-GUG (x2), trnI-GAU, trnK-UUU, trnL-CAA, trnL-UAG, trnL-UAA, trnM-CAU (x3), trnN-GUU, trnP-GGG, trnP-UGG, trnQ-UUG, trnR-ACG, trnR-CCG, trnR-UCU, trnS-UGA, trnS-GGA, trnS-GCU (x2), trnT-UGU, trnT-GGU, trnV-GAC (x2), trnV-UAC, trnW-CCA, trnY-GUA</i>	36
13	Ribosomal RNAs	<i>rrn4.5, rrn5, rrn16, rrn23</i>	4
<b>Total</b>			<b>121</b>

(x2) indicates that the number of the repeat unit is 2