

Table S7 List of genes identified of plastomes in Plantaginaceae.

Category of Genes	Group of gene	Name of gene
Self-replication	Ribosomal RNA genes	<i>rrn4.5</i> (×2), <i>5</i> (×2), <i>16</i> (×2), <i>23</i> (×2)
	Transfer RNA genes	<i>trnA</i> -UGC*(×2), <i>trnC</i> -GCA, <i>trnD</i> -GUC, <i>trnE</i> -UUC, <i>trnF</i> -GAA, <i>trnI</i> M-CAU, <i>trnG</i> -GCC, <i>trnG</i> -UCC*, <i>trnH</i> -GUG, <i>trnI</i> -CAU(×2), <i>trnI</i> -GAU*(×2), <i>trnK</i> -UUU*, <i>trnL</i> -CAA(×2), <i>trnL</i> -UAA*, <i>trnL</i> -UAG, <i>trnM</i> -CAU, <i>trnN</i> -GUU(×2), <i>trnP</i> -UGG, <i>trnQ</i> -UUG, <i>trnR</i> -ACG(×2), <i>trnR</i> -UCU, <i>trnS</i> -GCU, <i>trnS</i> -GGA, <i>trnS</i> -UGA, <i>trnT</i> -UGU, <i>trnT</i> -GGU, <i>trnV</i> -GAC(×2), <i>trnV</i> -UAC*, <i>trnW</i> -CCA, <i>trnY</i> -GUA, <i>trnL</i> -CAG <sup>b</sup>
	Ribosomal protein (small subunit)	<i>rps2</i> , 3, 4, 7(×2), 8, 11, 12**(×2), 14, 15, 16*, 18, 19
	Ribosomal protein (large subunit)	<i>rpl2</i> *(×2), 14, 16*, 20, 22, 23(×2), 32, 33, 36
	RNA polymerase	<i>rpoA</i> , B, C1*, C2
	Translational initiation factor	<i>infA</i> <sup>d</sup>
Genes for photosynthesis	Subunits of photosystem I	<i>psaA</i> , B, C, I, J, <i>ycf3</i> **, <i>ycf4</i>
	Subunits of photosystem II	<i>psbA</i> , B, C, D, E, F, H, I, J, K, L, M, N, T, Z
	Subunits of cytochrome	<i>petA</i> , B*, D*, G, L, N
	Subunits of ATP synthase	<i>atpA</i> , B, E, F*, H, I
	Large subunit of Rubisco	<i>rbcL</i>
	Subunits of NADH dehydrogenase	<i>ndhA</i> <sup>e</sup> *, <i>B</i> <sup>e</sup> *(×2), C <sup>e</sup> , D <sup>e</sup> , E, F <sup>e</sup> , G <sup>e</sup> , H <sup>e</sup> , I <sup>e</sup> , J <sup>e</sup> , K <sup>e</sup>
Other genes	Maturase	<i>matK</i>
	Envelope membrane protein	<i>cemA</i>
	Subunit of acetyl-CoA	<i>accD</i>
	Synthesis gene	<i>ccsA</i>
	ATP-dependent protease	<i>clpP</i> **
	Component of TIC complex	<i>ycf1</i> <sup>a</sup>
	Component of 2-MD heteromeric AAA-ATPase complex	<i>ycf2</i> (×2)
Genes of unknown function	Conserved open reading frames	<i>ycf15</i> <sup>c</sup> (×2)

Notes: ×2: Two gene copies in IR regions; \*: Gene with one intron; \*\*: Gene with two introns. <sup>a</sup>: partially duplicated genes; <sup>b</sup>: Gain gene in *Plantago* subg. *Coronopus* (Mower et al., 2021a) <sup>c</sup>: Loss gene in *Plantago*, *Littorella uniflora*, *Veronica polita*, *V. persica*, *V. eriogyne*, and *Angelonia angustifolia*; <sup>d</sup>: Loss gene in *Angelonia angustifolia* and *Scoparia dulcis*; <sup>e</sup>: Loss gene in *Littorella uniflora*.