**Table S1** Gene compositions in plastomes of *Dioscorea nipponica*

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| Category of genes | Group of genes | Name of gene |
| RNA genes | Ribosomal RNAs | *rrn16* (×2), *rrn23* (×2), *rrn4.5* (×2), *rrn5* (×2) |
| Transfer RNAs | *trnK*-UUUa, *trnQ*-UUG, *trnS*-GCU, *trnG*-UCCa, *trnR*-UCU, *trnC*-GCA, *trnD*-GUC, *trnY*-GUA, *trnE*-UUC, *trnT*-GGU, *trnS*-UGA, *trnG*-GCC, *trnfM*-CAU, *trnS*-GGA, *trnT*-UGU, *trnL*-UAAa, *trnF*-GAA, *trnV*-UACa, *trnM*-CAU, *trnW*-CCA, *trnP*-UGG, *trnH*-GUG (×2), *trnI*-CAU (×2), *trnL*-CAA (×2), *trnV*-GAC (×2), *trnI*-GAUa (×2), *trnA*-UGCa (×2), *trnR*-ACG (×2), *trnN*-GUU (×2), *trnL*-UAG |
| Photosynthesis related genes | Rubisco | *rbcL* |
| Photosystem I | *psaB*, *psaA*, *psaI*, *psaJ*, *psaC* |
| Assembly/stability of photosystem I | *ycf3*b, *ycf4* |
| Photosystem II | *psbA*, *psbK*, *psbI*, *psbM*, *psbD*, *psbC*, *psbZ*, *psbJ*, *psbL*, *psbF*, *psbE*, *psbB*, *psbT*, *psbN*, *psbH* |
| ATP synthase | *atpA*, *atpF*a, *atpH*, *atpI*, *atpE*, *atpB* |
| Cytochrome b/f complex | *petN*, *petA*, *petL*, *petG*, *petB*a, *petD*a |
| Cytochrome c synthesis | *ccsA* |
| NADH dehydrogenease | *ndhJ*, *ndhK*, *ndhC*, *ndhB*a (×2), *ndhH*, *ndhA*a, *ndhI*, *ndhG*, *ndhE*, *ndhD*, *ndhF* |
| Transcription and translation related genes | Transcription | *rpoC2*, *rpoC1*a, *rpoB*, *rpoA* |
| Ribosomal proteins (large units) | *rpl33*, *rpl20*, *rpl36*, *rpl14*, *rpl16*a, *rpl22*, *rpl2*a (×2),*rpl23* (×2), *rpl32* |
| Ribosomal proteins (small units) | *rps16a*, *rps2*, *rps14*, *rps4*, *rps18*, *rps12*b (×2), *rps11*, *rps8*, *rps3*, *rps19*, *rps7* (×2), *rps15* |
| Translation initiation factor | *infA* |
| Other genes | RNA processing | *matK* |
| Fatty acid synthesis | *accD*  |
| Caseinolytic protease proteolytic subunit  | *clpP*b |
| Carbon metabolism | *cemA* |
| Genes of unknown function | Conserved reading frame | *ycf2* (×2), *ycf15* (×2), *ycf1* |

a indicates the genes containing a single intron; b indicates the genes containing two introns; (×2) indicates genes duplicated in the IR regions.