**Table 3.** Categorization of genes present in each of the chloroplast genomes of Sanicula species sequenced in this study

|  |  |  |  |
| --- | --- | --- | --- |
| **Group** | **Category** | **Gene Name** | **Number of Genes** |
| Self replication | Ribosomal RNA | *rrn4.5(×2), rrn5(×2), rrn16(×2), rrn 23(×2)* | 8 |
| Transfer RNAs | *trnA-UGC\*(×2), trnC-GCA, trnD-GUC, trnE-UUC, trnF-GAA, trnfM-CAU, trnG-GCC\*, trnG-UCC, trnH-GUG, trnI-CAU(×2), trnI-GAU\*(×2), trnK-UUU\*, trnL-CAA(×2), trnL-UAA\*, trnL-UAG, trnM-CAU, trnN-GUU(×2), trnP-UGG, trnQ-UUG, trnR-ACG(×2), trnR-UCU, trnS-GCU, trnS-GGA, trnS-UGA, trnT-GGU, trnT-UGU, trnV-GAC(×2), trnV-UAC\*, trnW-CCA, trnY-GUA* | 37 |
| Small subunit of ribosome (SSU) | *rps2\*, rps3, rps4, rps7(×2), rps8, rps11, rps12\*, rps14, rps15, rps16\*, rps18, rps19* | 13 |
| Large subunit of ribosome (LSU) | *rpl2\*(×2), rpl14, rpl16\*, rpl20, rpl22, rpl23(×2), rpl32 rpl33, rpl36* | 11 |
| RNA polymerase | *rpoA, rpoB, rpoC1\*, rpoC2* | 4 |
| Genes for photosynthesis | Photosystem Ⅰ | *psaA, psaB, psaC, psaI, psaJ* | 5 |
| Photosystem Ⅱ | *psbA, psbB, psbC, psbD, psbE, psbF, psbH, psbI, psbJ, psbK, psbL, psbM, psbN, psbT, psbZ* | 15 |
| Cytochrome b/f complex | *petA, petB\*, petD, petG, petL, petN* | 6 |
| Subunits of ATP synthase | *atpA, atpB, atpE, atpF\*, atpH, atpI* | 6 |
| ATP-dependent protease subunit p gene | *clpP\** | 1 |
| RubiscoCO large subunit | *rbcL* | 1 |
| NADH dehydrogenase | *ndhA\*, ndhB\*(×2), ndhC, ndhD, ndhE, ndhF, ndhG, ndhH, ndhI, ndhJ, ndhK* | 12 |
| Other genes | Maturase | *matK* | 1 |
| Envelop membrane protein | *cemA* | 1 |
| Subunit of acetyl-CoA-carboxylase | *accD* | 1 |
| c-type cytochrome synthesis ccsA gene | *ccsA* | 1 |
| Translation initiation factor | *infA* | 1 |
| Genes of unknown function | Conserved open reading frames | *ycf1, ycf2(×2), ycf3\*, ycf4* | 5 |

Note: *(×2)* represents the gene has two copies; \* represents the gene contains an intron