**Table S2.** Plastid genes and functional groups included in rates analyses.

|  |  |
| --- | --- |
| **Category** | **Genes**  |
| Photosystem I(PSA) | *psaA, psaB, psaD, psaF, psaJ, psaL* |
| Photosystem II(PSB) | *psbA, psbB, psbC, psbD, psbE, psbF, psbH, psbI , psbJ, psbK, psbL, psbN, psbT, psbV, psbX, psbY, psbZ* |
| Cytochrome B6f complex (PET) | *petA, petB, petD, petG, petL, petM, petN* |
| ATP synthase | *atpA, atpB, atpD, atpE, atpF, atpG, atpH, atpI* |
| RubisCo subunit | *rbcL, rbcS, rbcR* |
| RNA polymerase(RPO) | *rpoA, rpoB, rpoC1, rpoC2* |
| Ribosomal proteins large subunit(RPL) | *rpl1, rpl2, rpl3, rpl4, rpl5, rpl6, rpl11, rpl12, rpl13, rpl14, rpl16, rpl18, rpl19, rpl20, rpl21, rpl22, rpl23, rpl24, rpl27, rpl29, rpl31, rpl32, rpl33, rpl34, rpl35* |
| Ribosomal proteins small subunit(RPS) | *rps2, rp, rpS3, rpS4, rpS6, rps9, rps10, rps11, rps12, rps13, rps14, rps16, rps17, rps18, rps19, rps20* |
| Cytochrome c biogenesis protein | *ccs1, ccsA* |
| Protein translocase subunit | *secA, secG, secY* |
| Fe-S cluster assembly protein | *sufB, sufC* |
| Other genes | *cbbX, chlI, clpC, dnaB, ftsH, groEL, tatC, ycf3, ycf12, ycf46* |