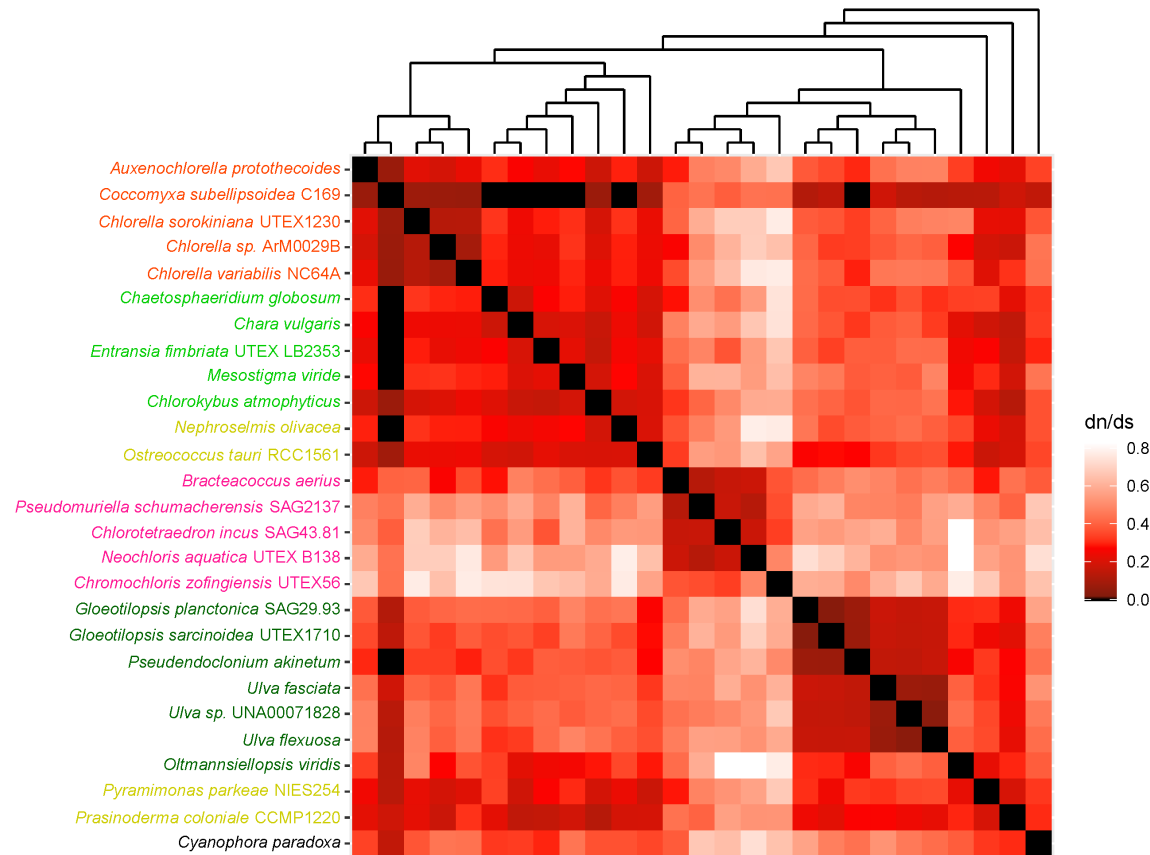
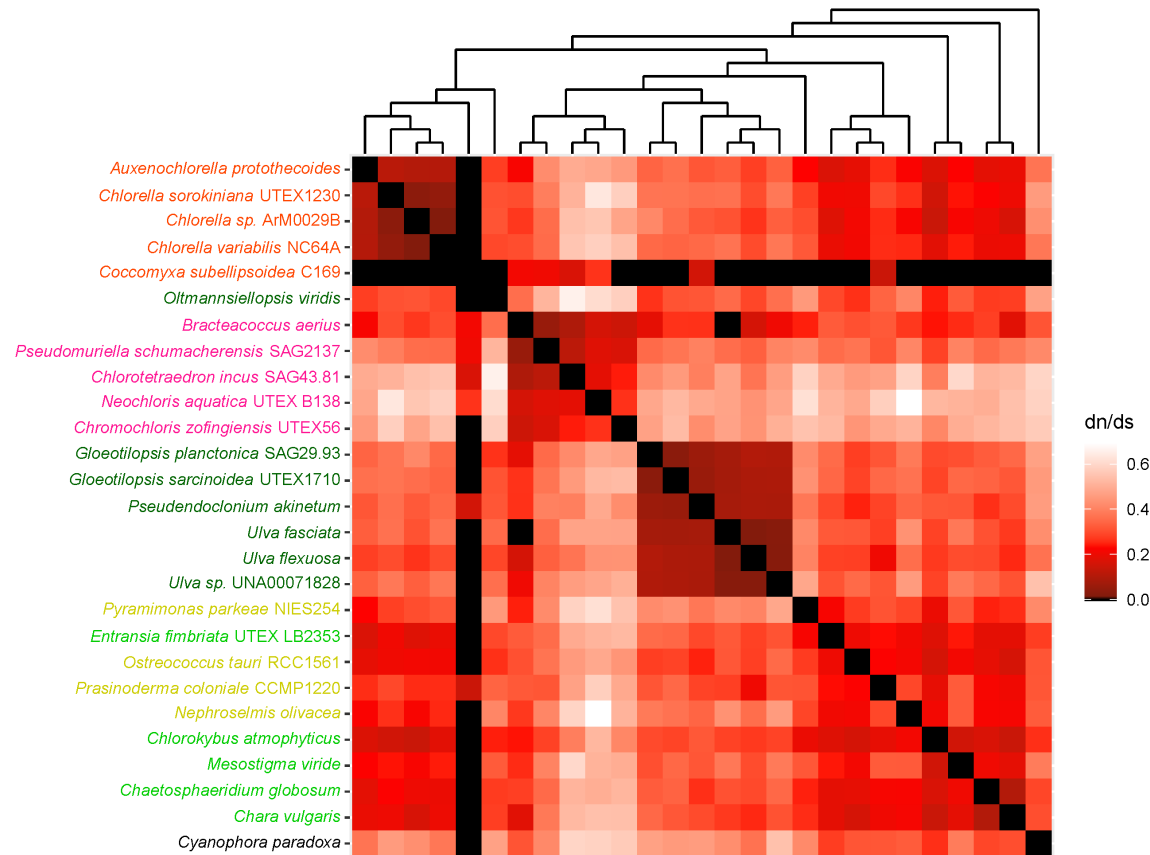


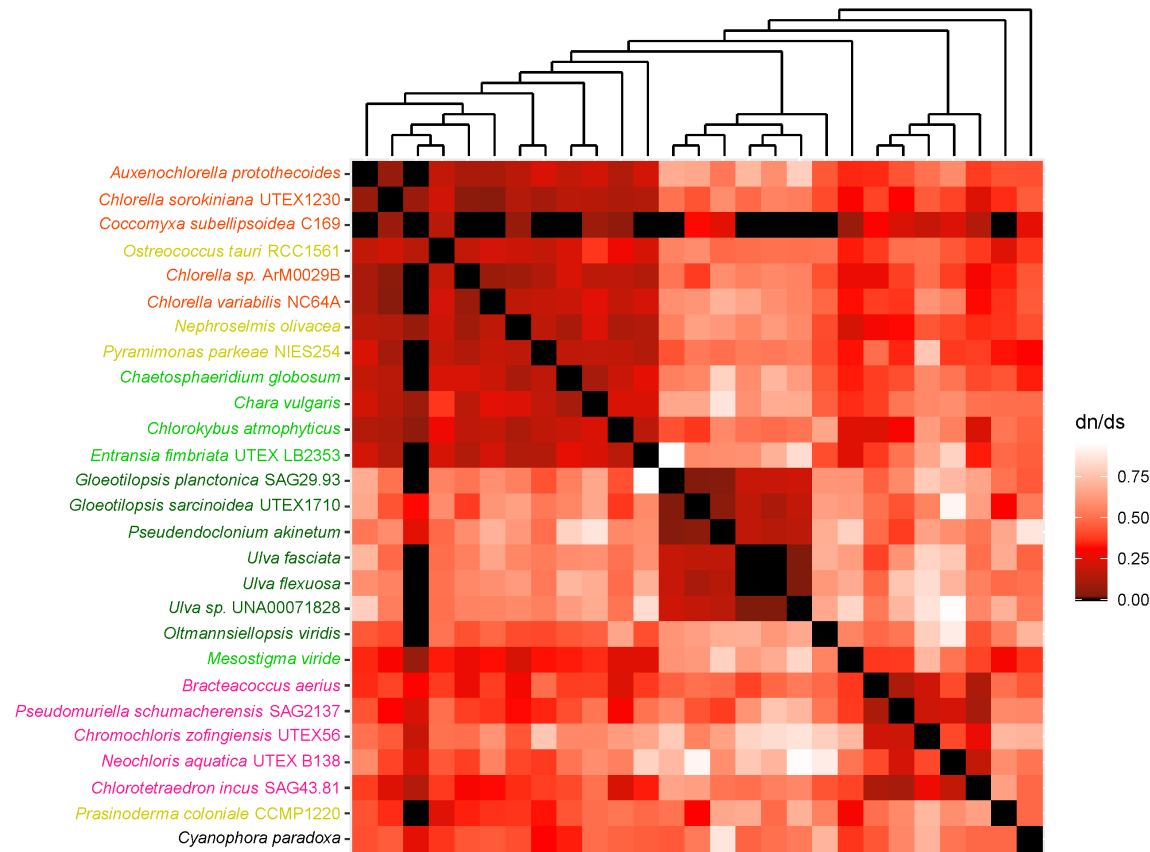
**S4 Fig. A.** Heatmap of pairwise dN/dS ratios calculated from alignment of mitochondrial *atp9* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



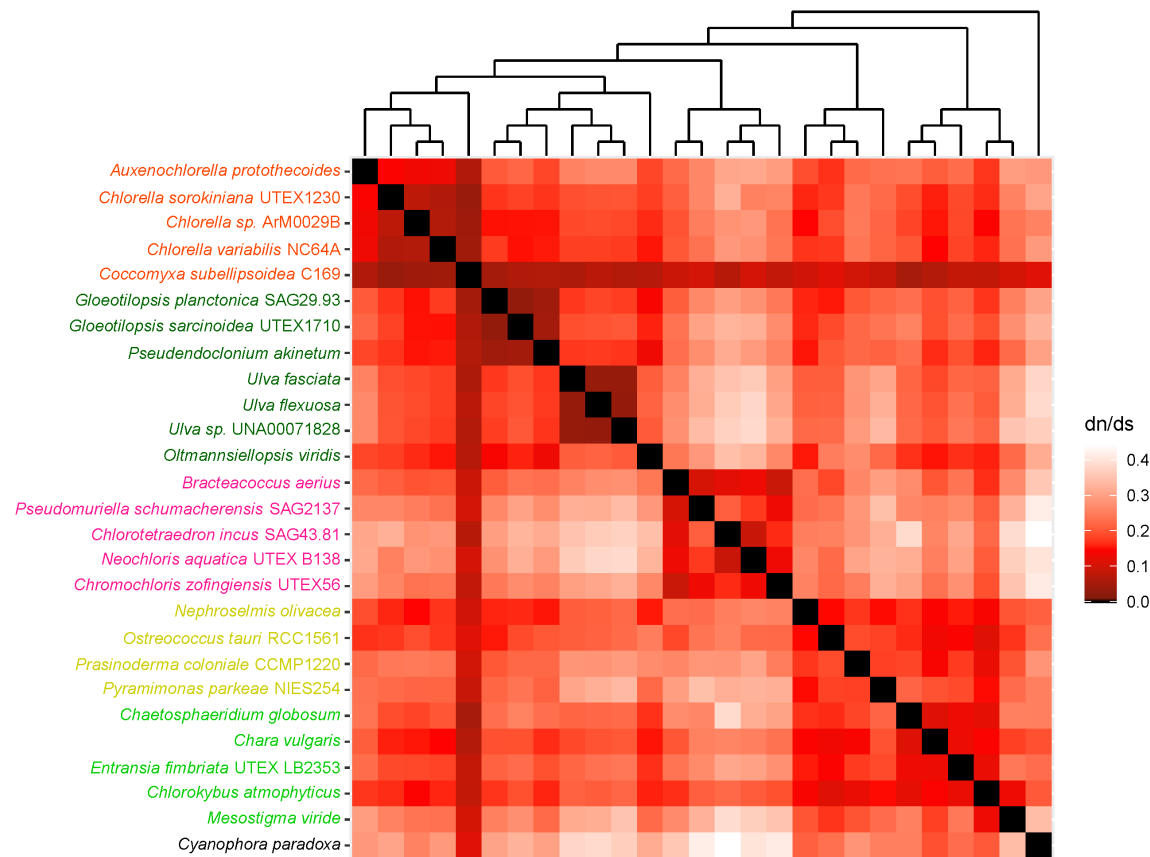
**S4 Fig. B.** Heatmap of pairwise dN/dS ratios calculated from alignment of mitochondrial *cox3* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



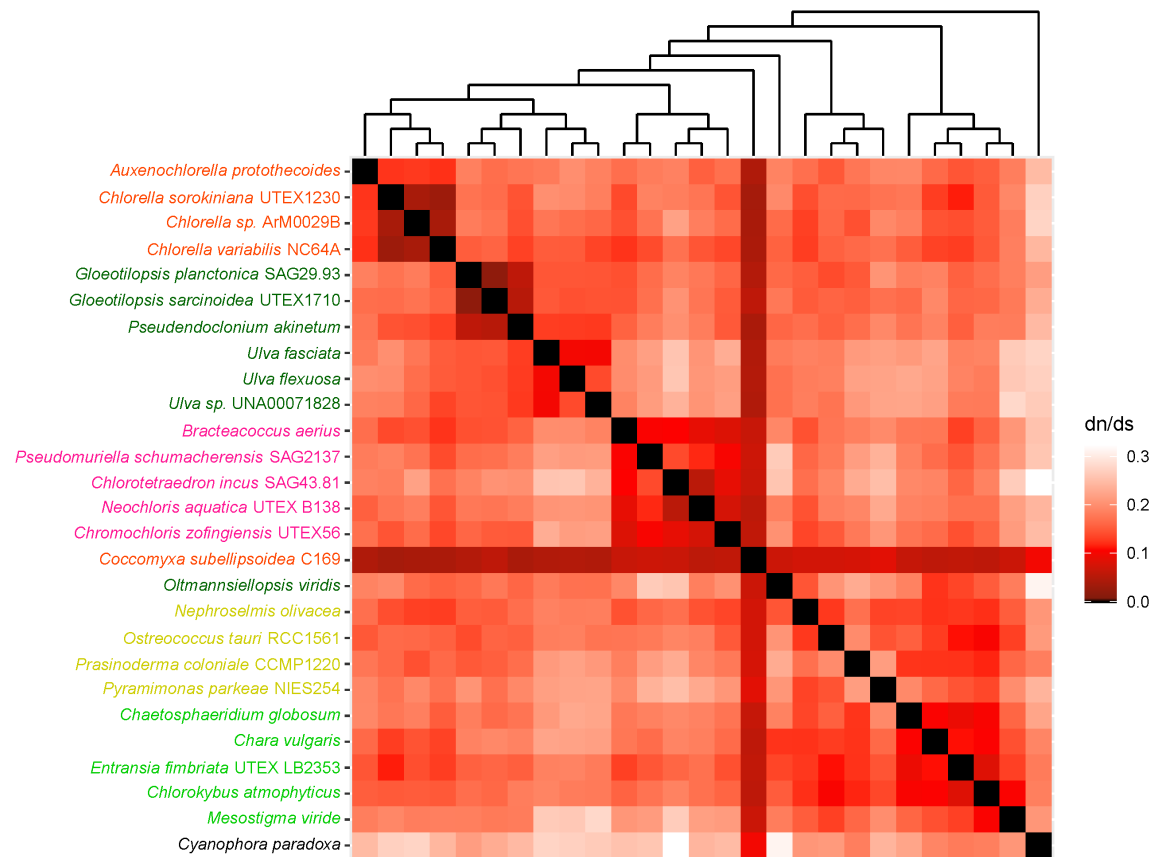
**S4 Fig. C.** Heatmap of pairwise dN/dS ratios calculated from alignment of mitochondrial *nad1* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



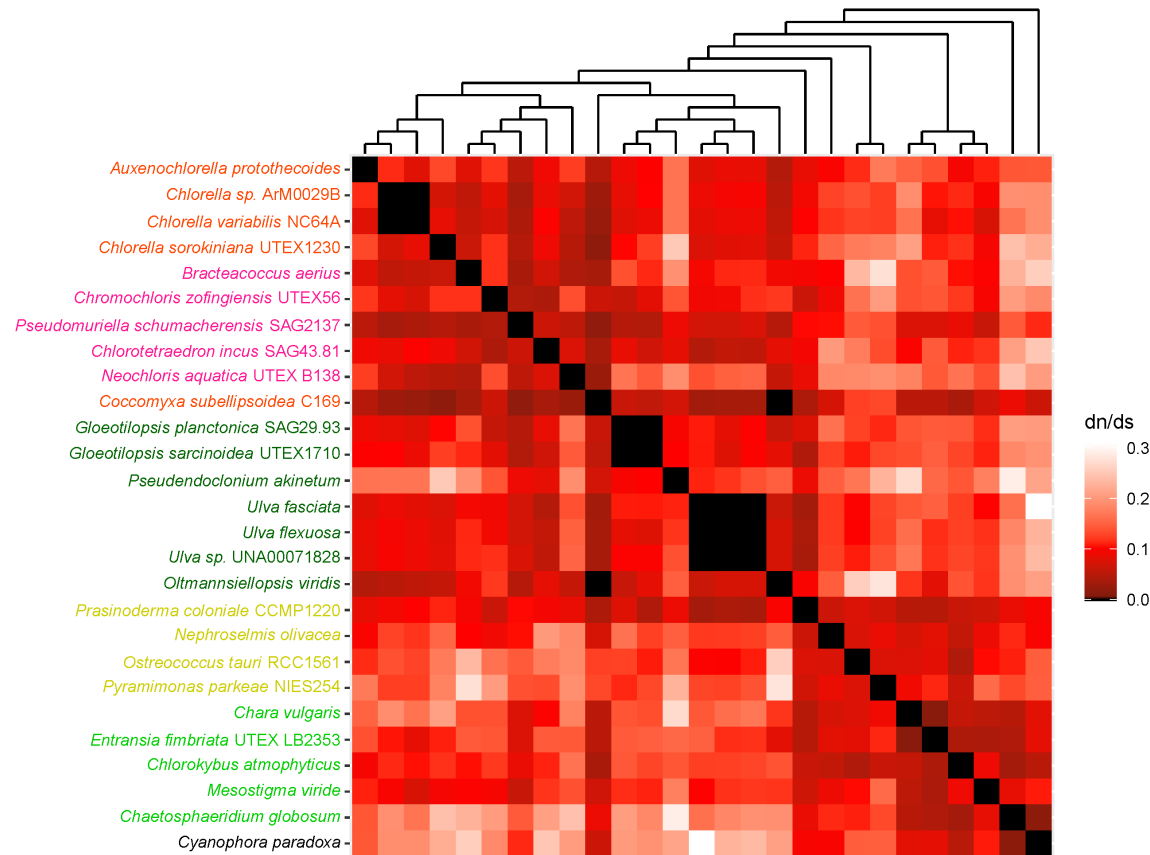
**S4 Fig. D. Heatmap of pairwise dN/dS ratios calculated from alignment of mitochondrial *nad4L* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



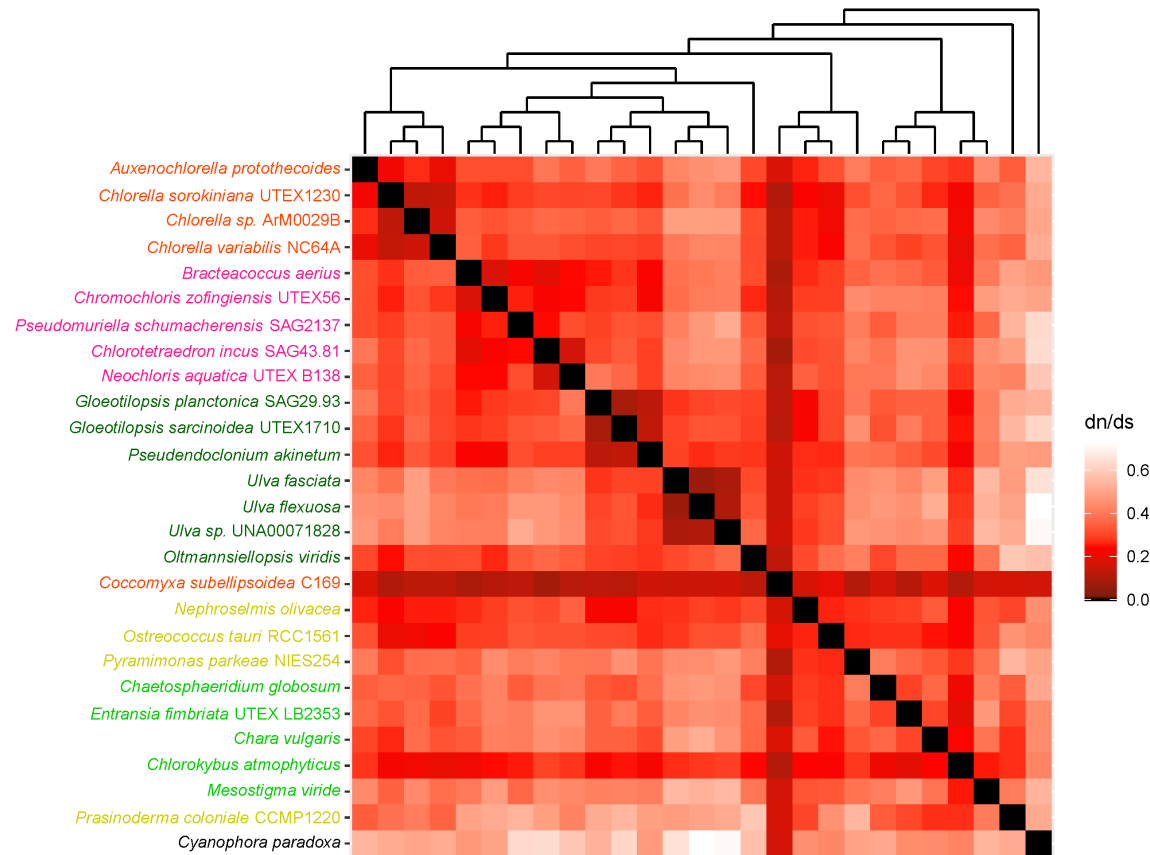
**S4 Fig. E.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *atpA* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



**S4 Fig. F. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *atpB* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**

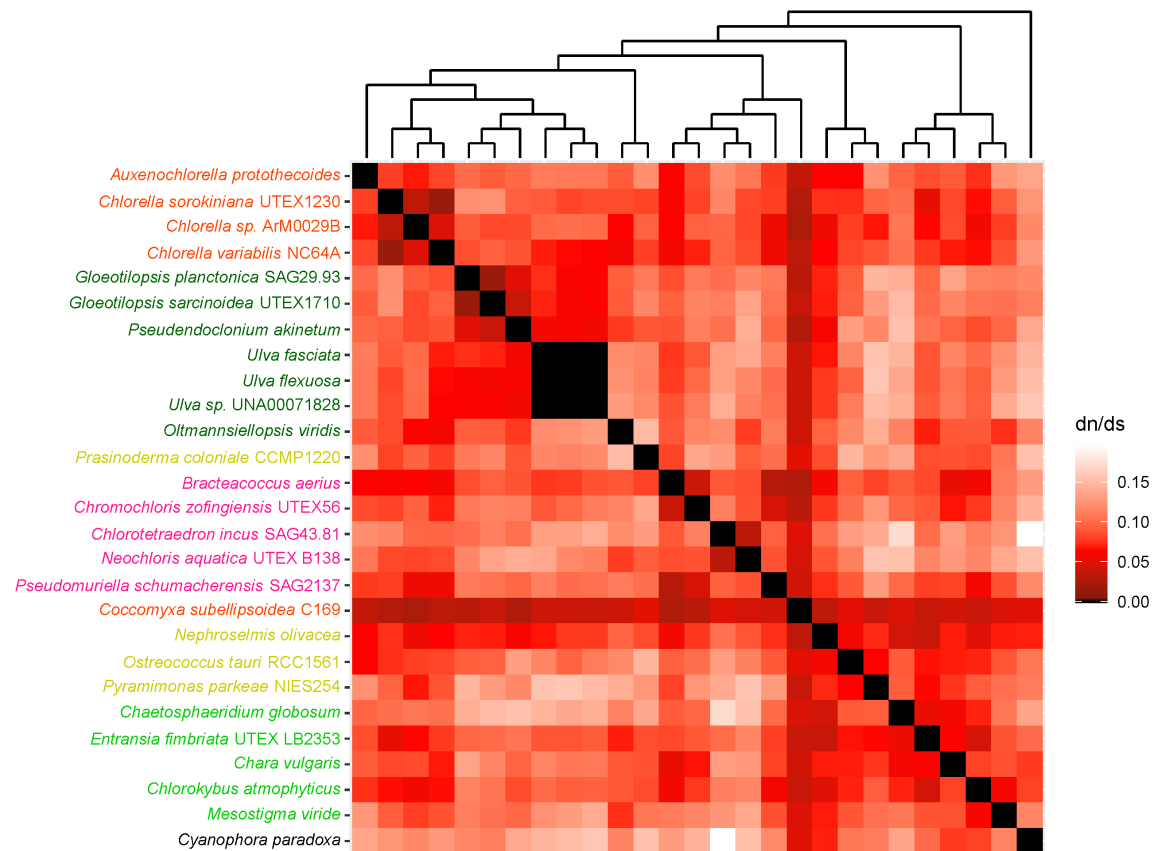


**S4 Fig. G. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *atpH* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**

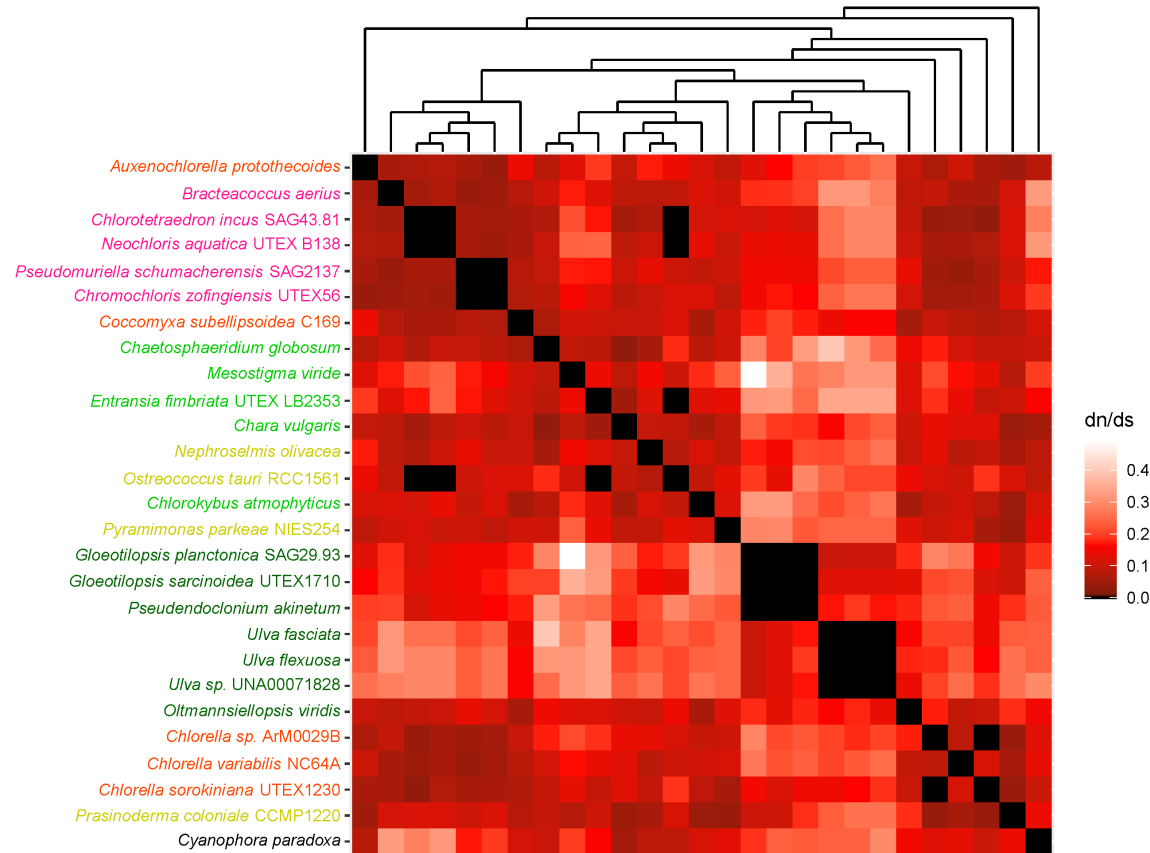


**S4 Fig. H. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *petA* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**

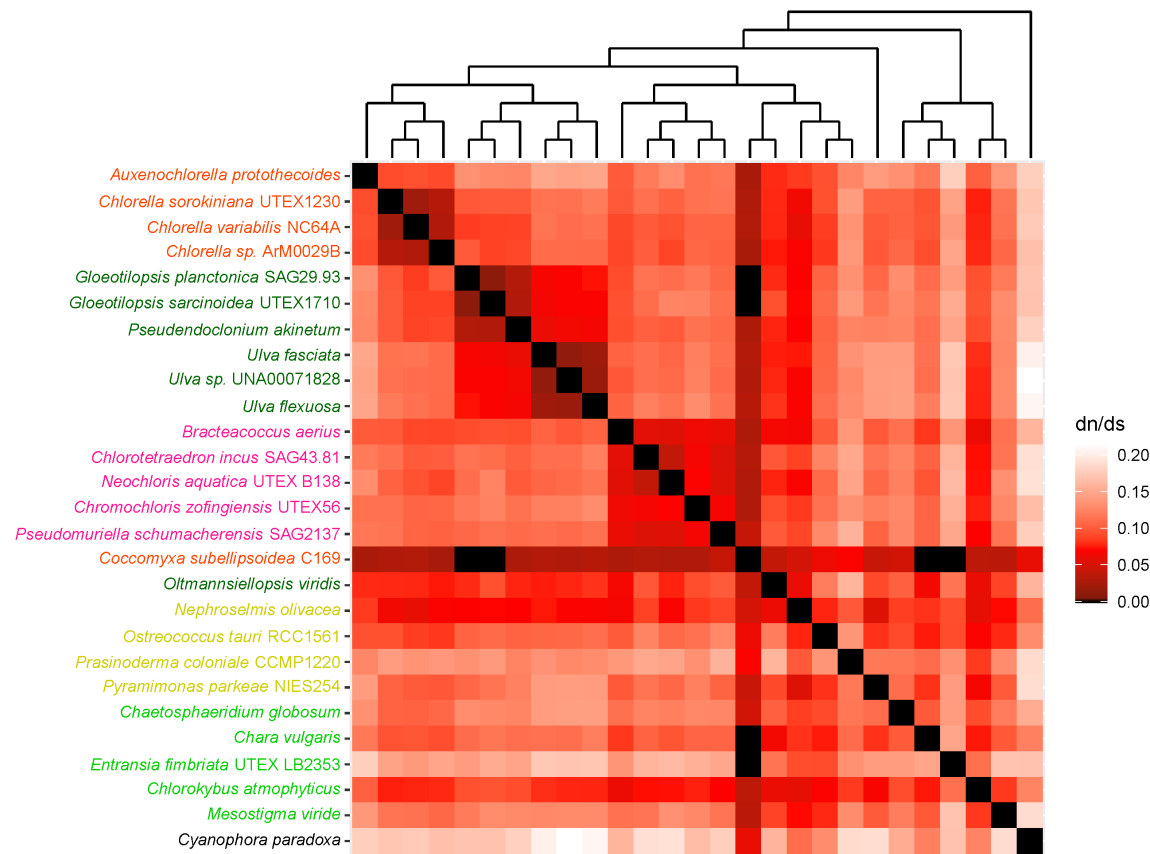




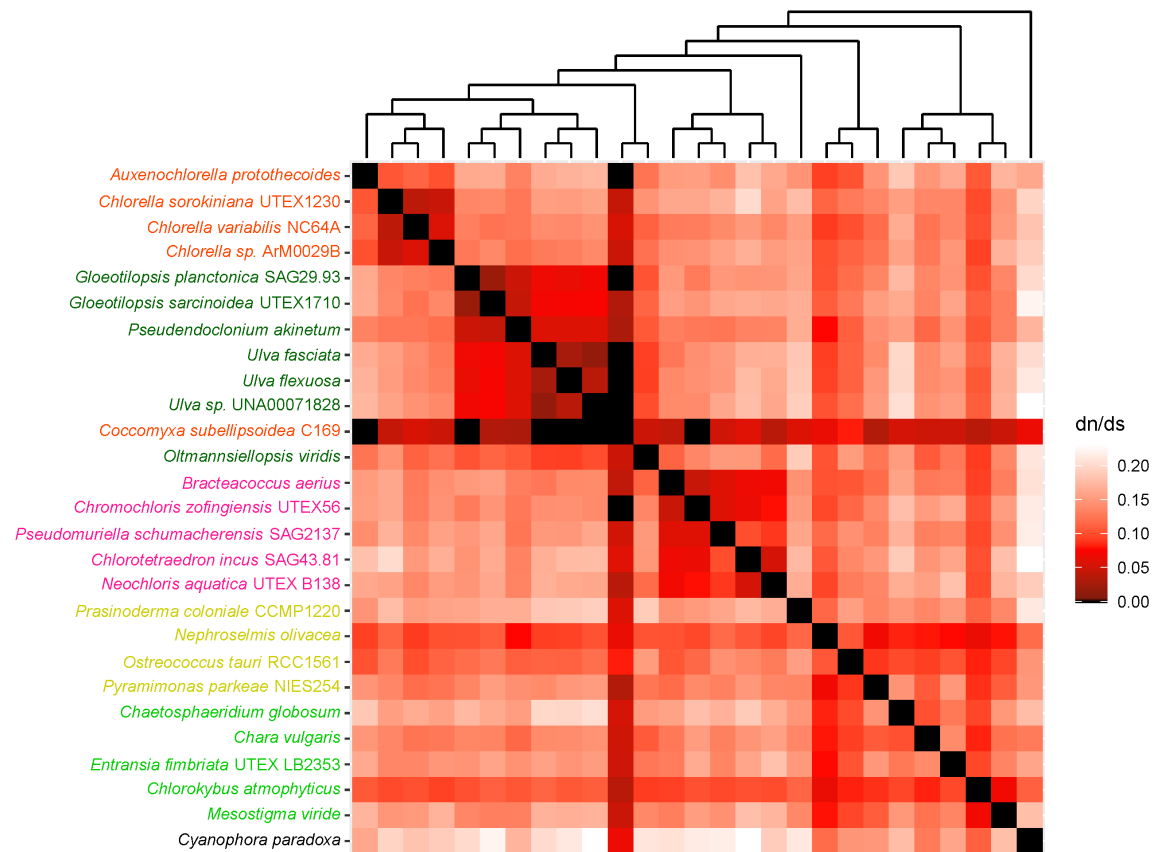
**S4 Fig. I. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *petB* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



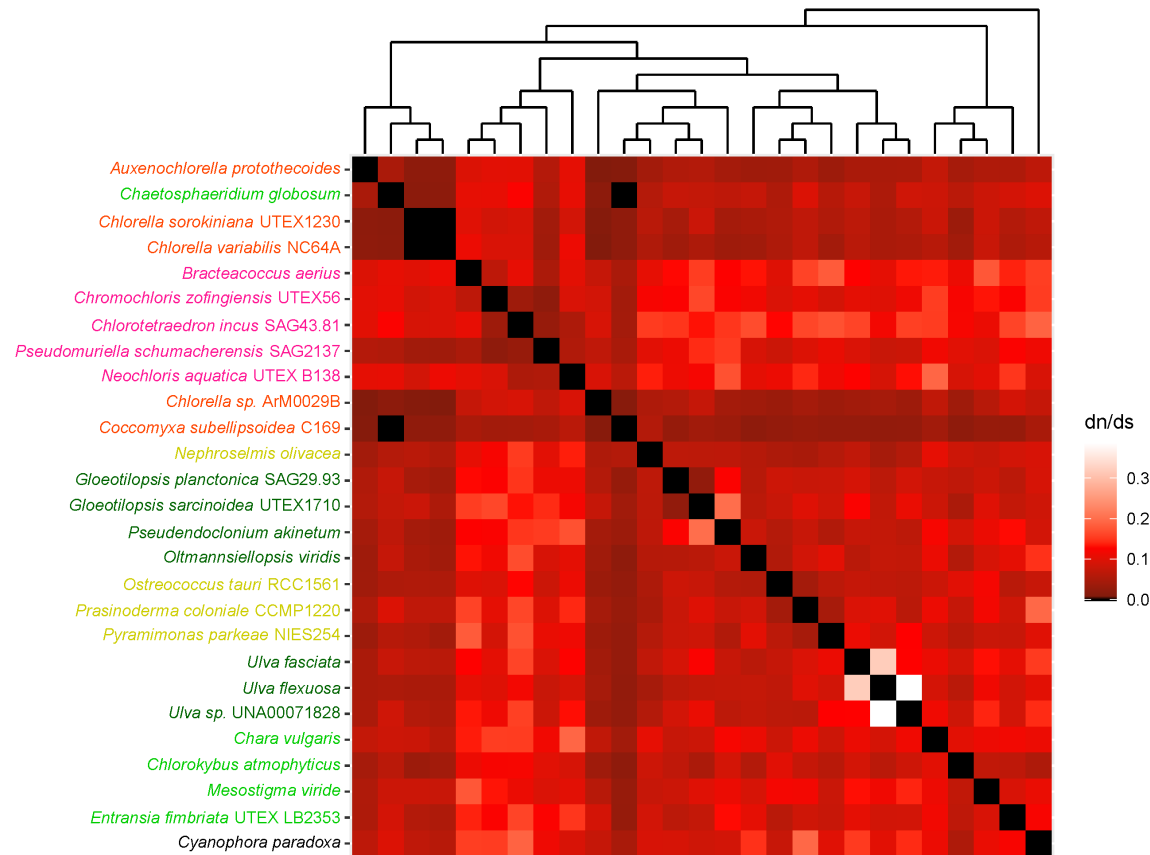
**S4 Fig. J. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *petG* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



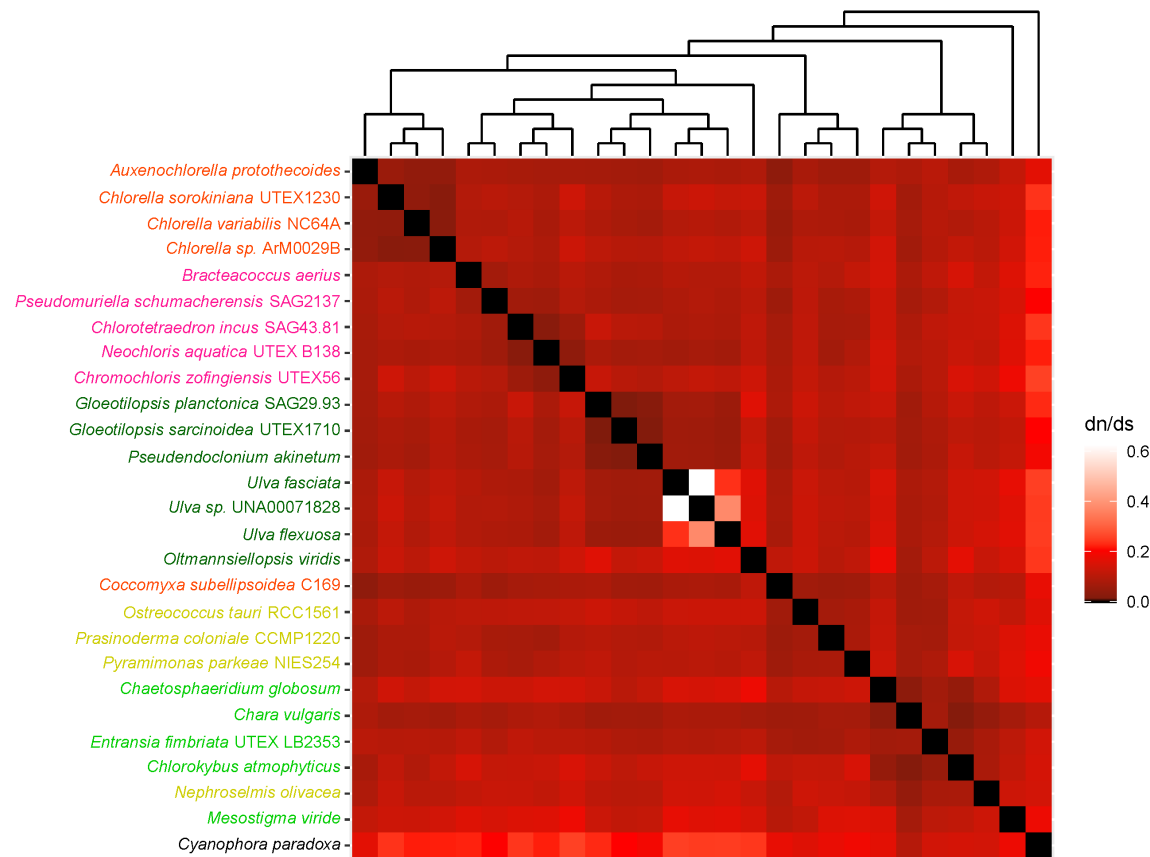
**S4 Fig. K. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psaA* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dN/dS ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



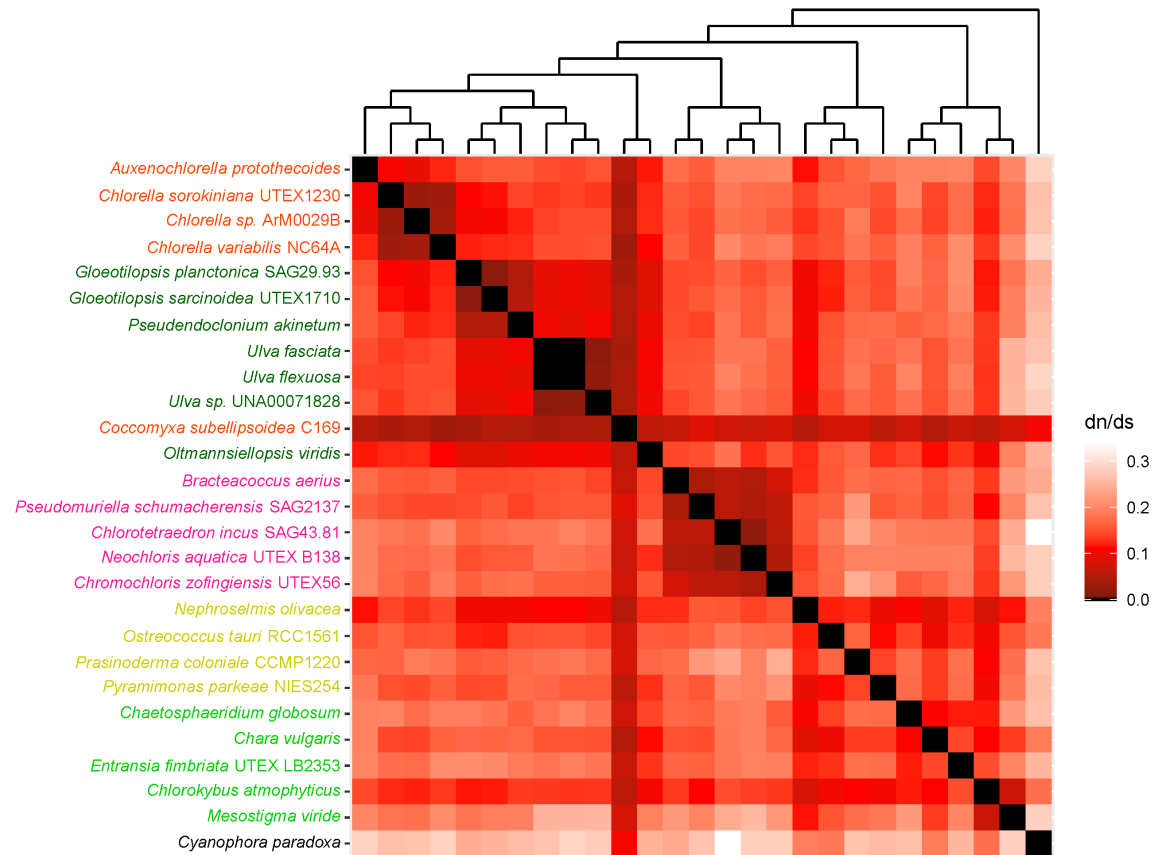
**S4 Fig. L. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psaB* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



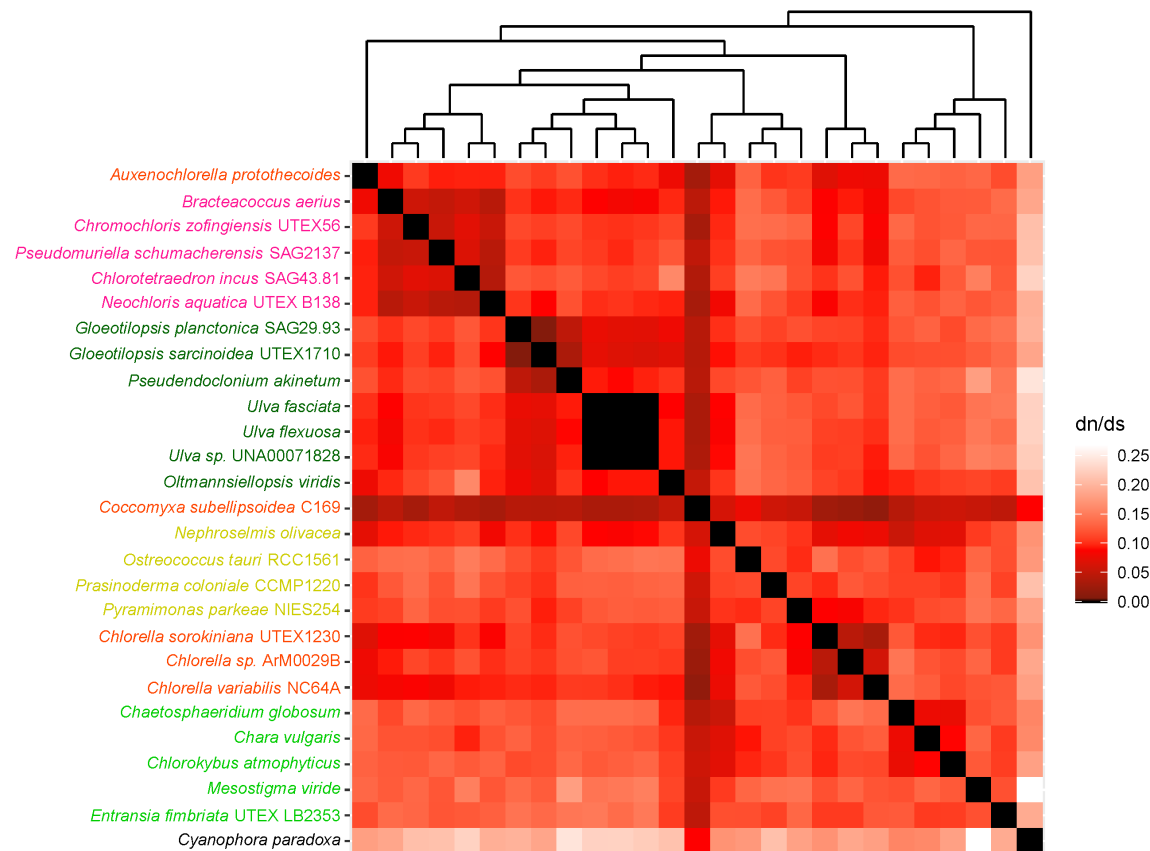
**S4 Fig. M. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psaC* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



**S4 Fig. N.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbA* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.

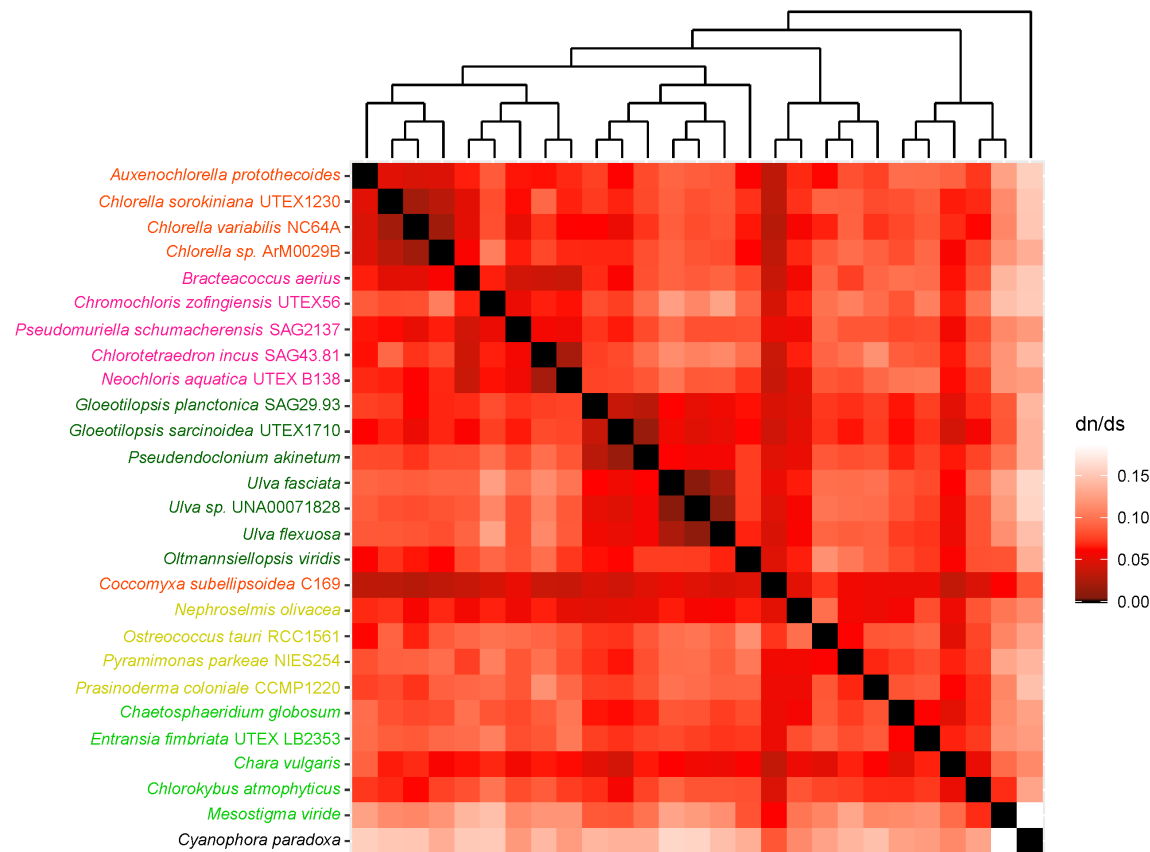


**S4 Fig. O.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbB* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.

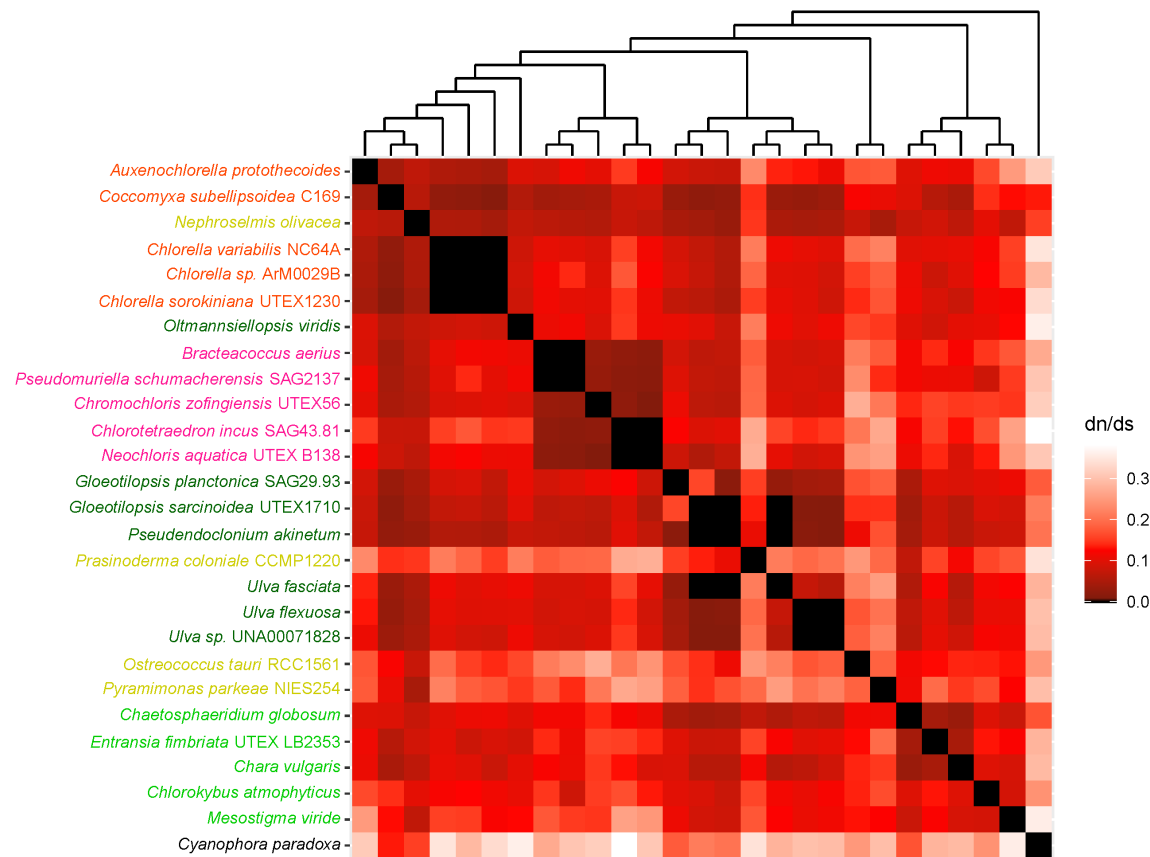


**S4 Fig. P. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbC* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**

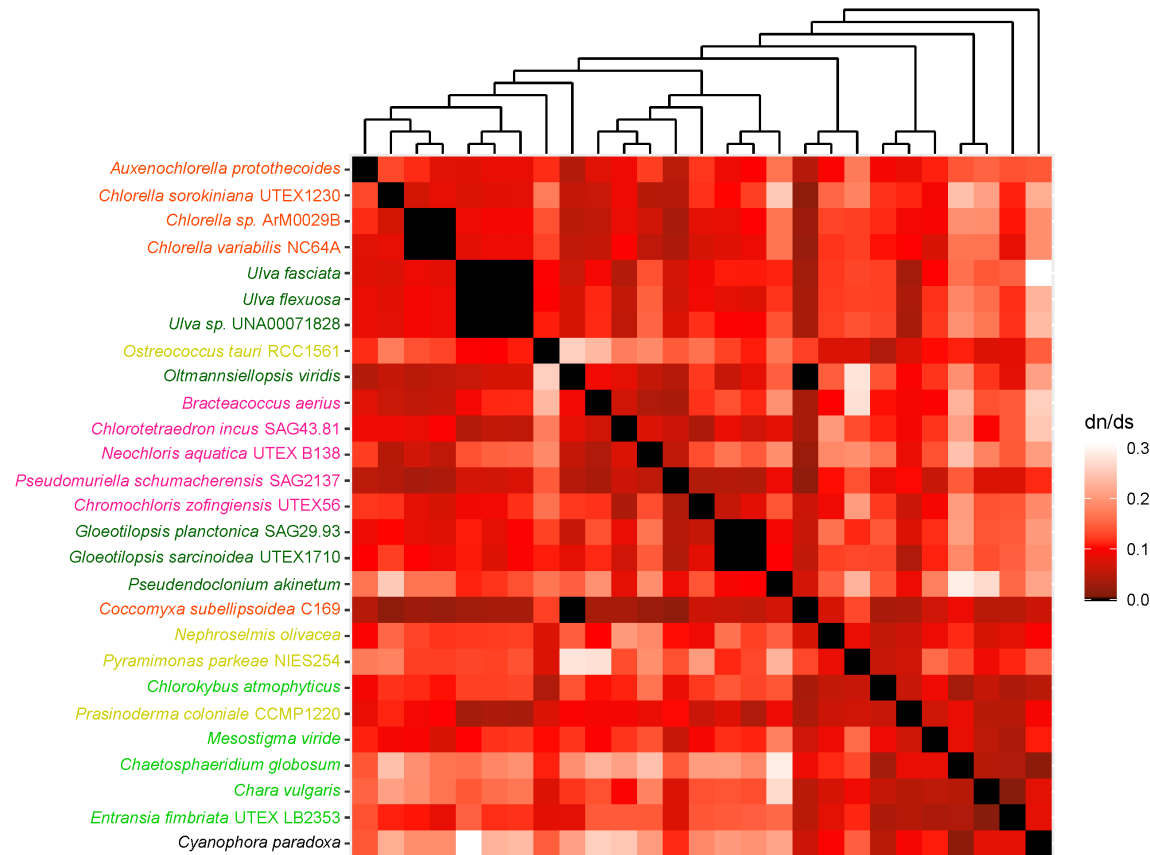




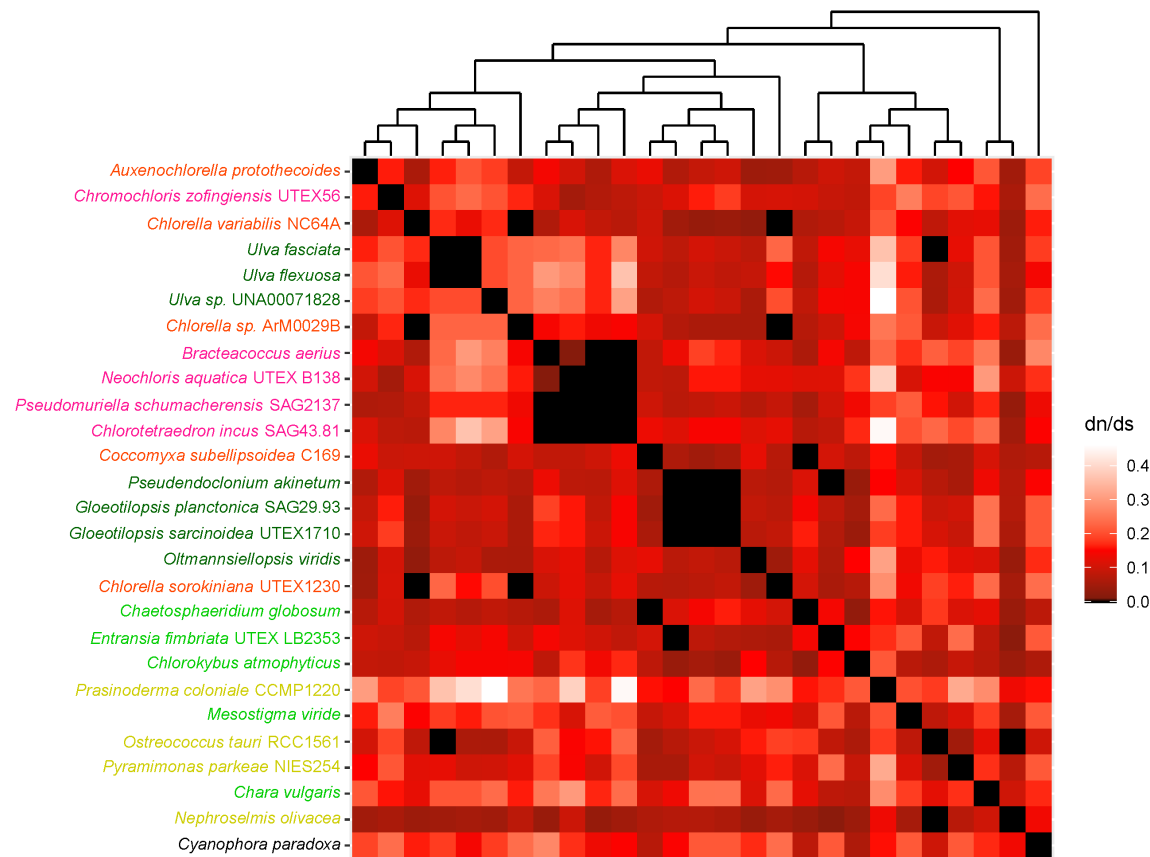
**S4 Fig. Q. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbD* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



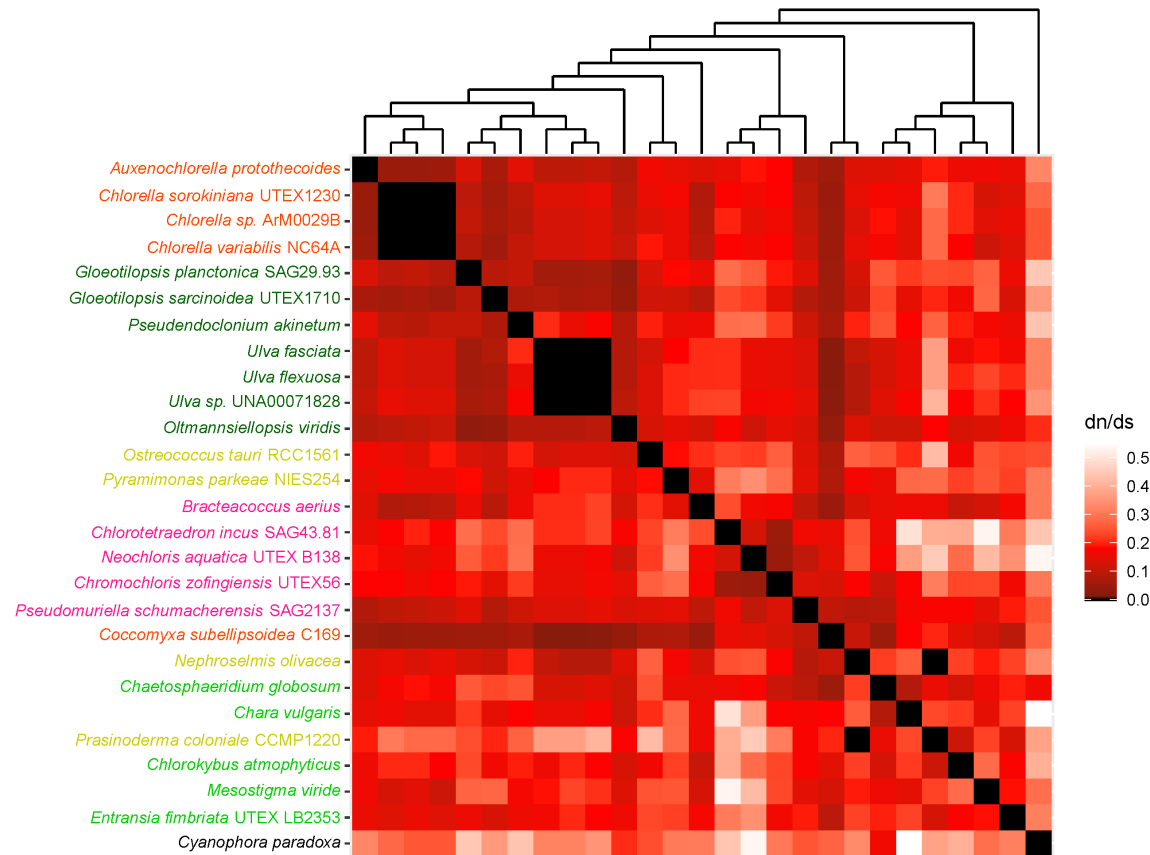
**S4 Fig. R. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbE* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



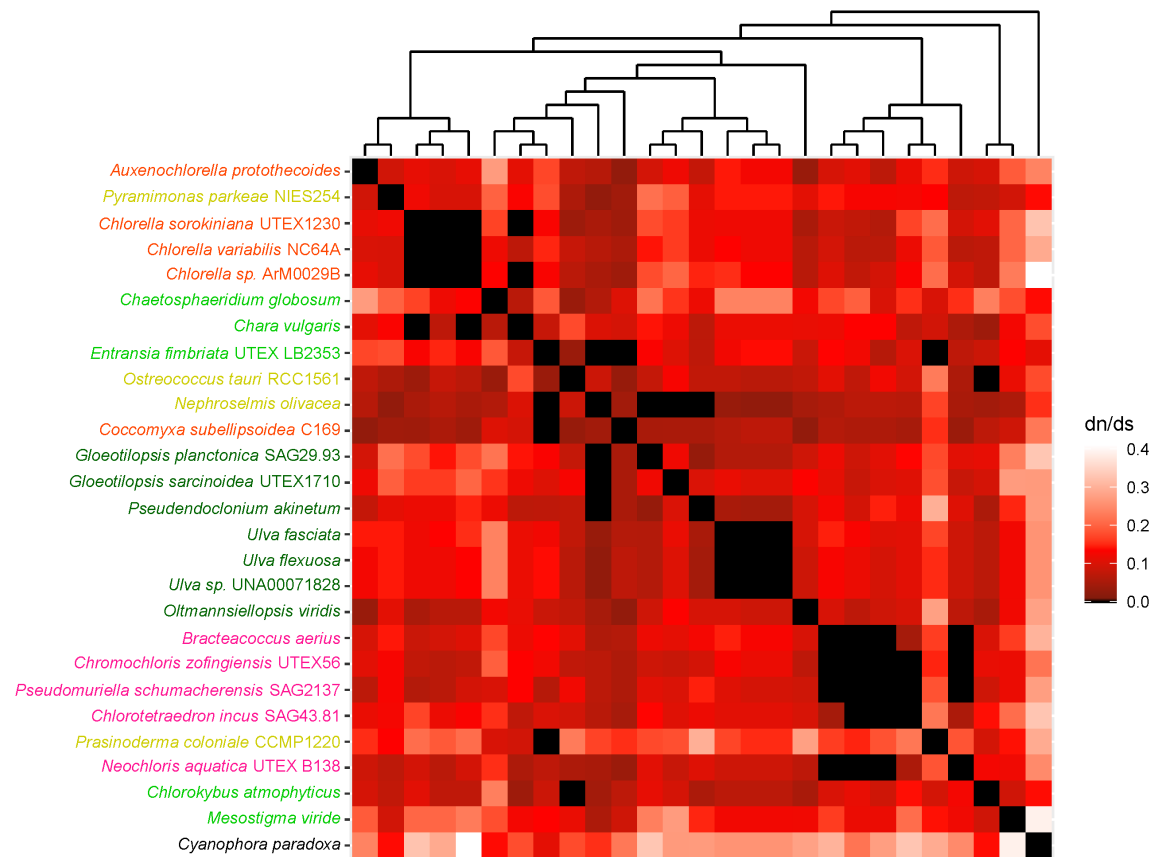
**S4 Fig. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbH* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor).** The scale bar showed the color corresponded to dN/dS ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



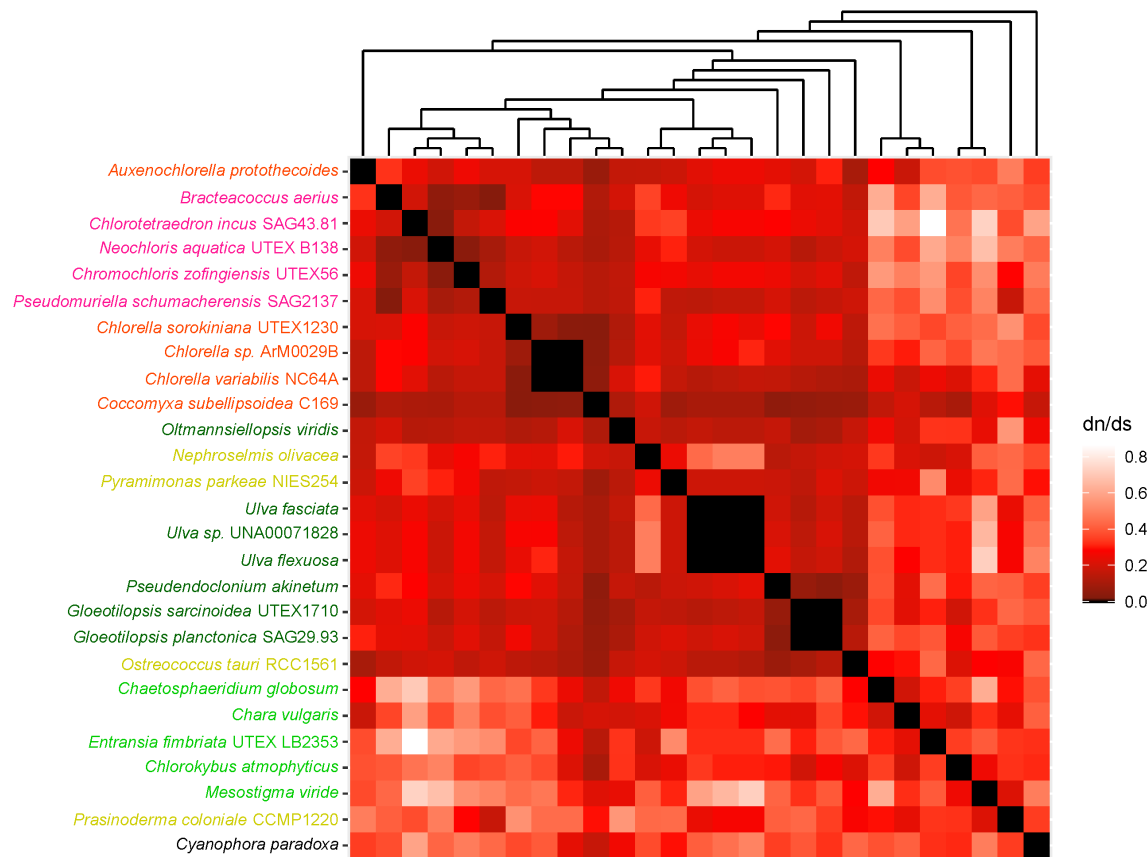
**S4 Fig. S.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbI* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



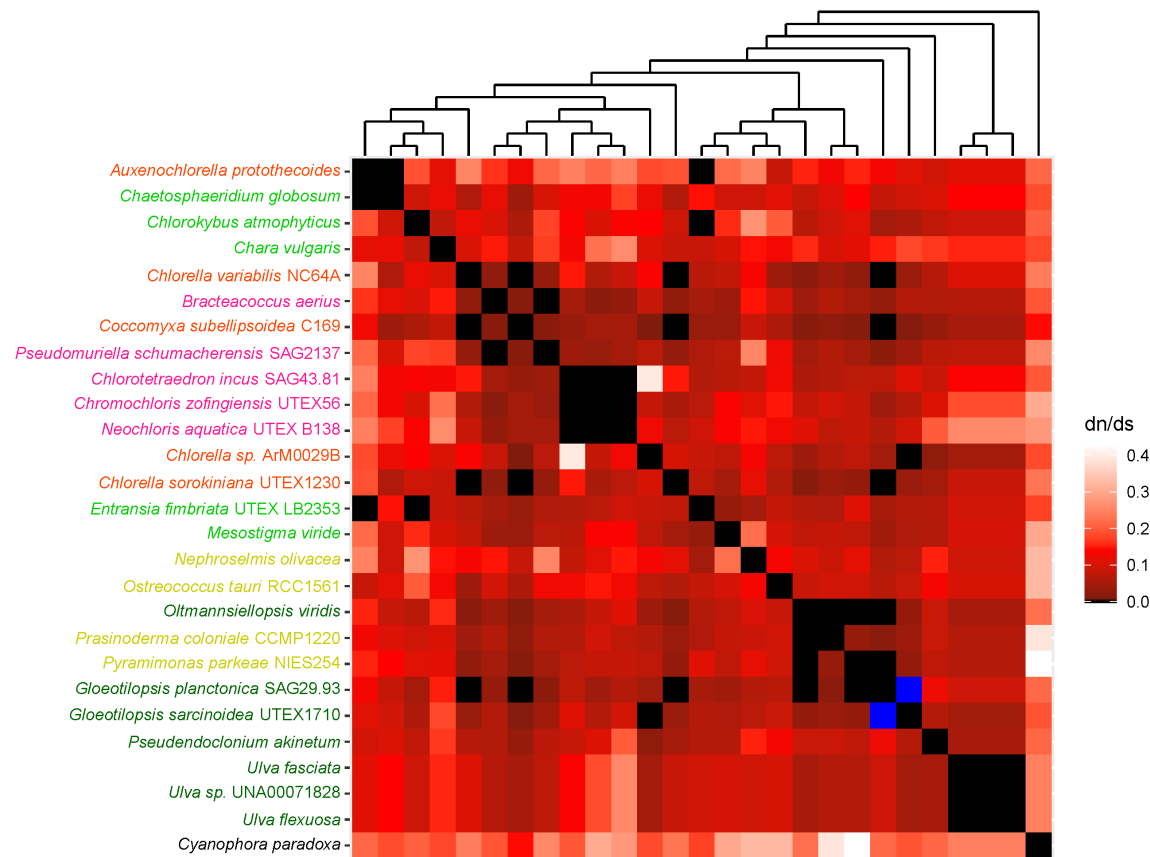
**S4 Fig. T. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbK* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



**S4 Fig. U. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbL* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**

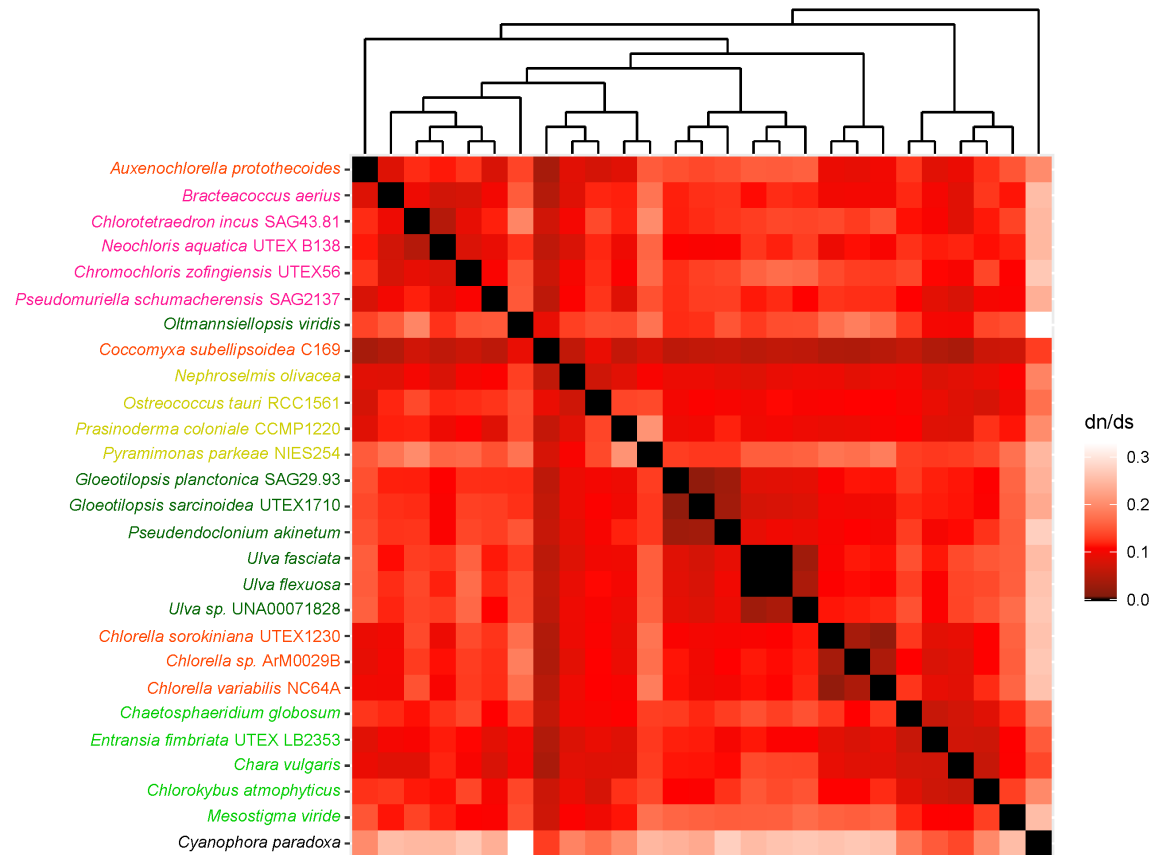


**S4 Fig. V.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbN* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.

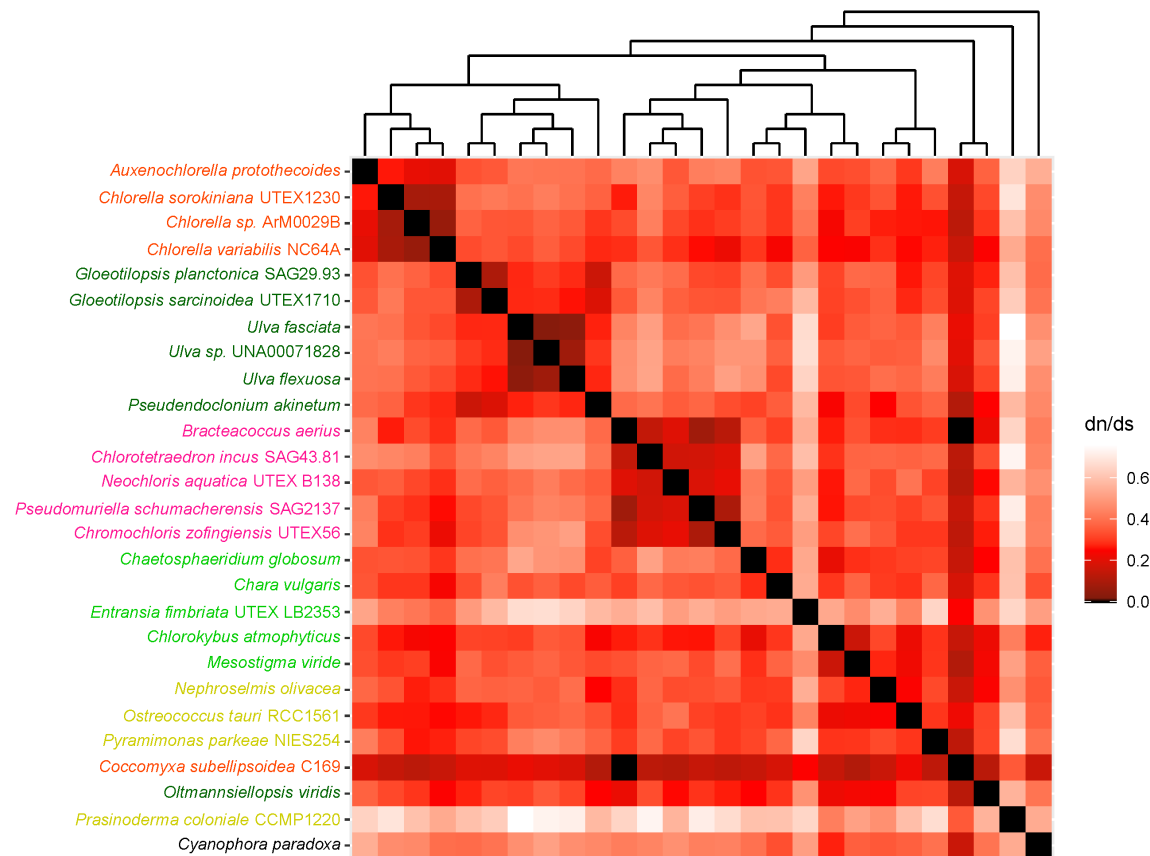


**S4 Fig. W.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbT* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.

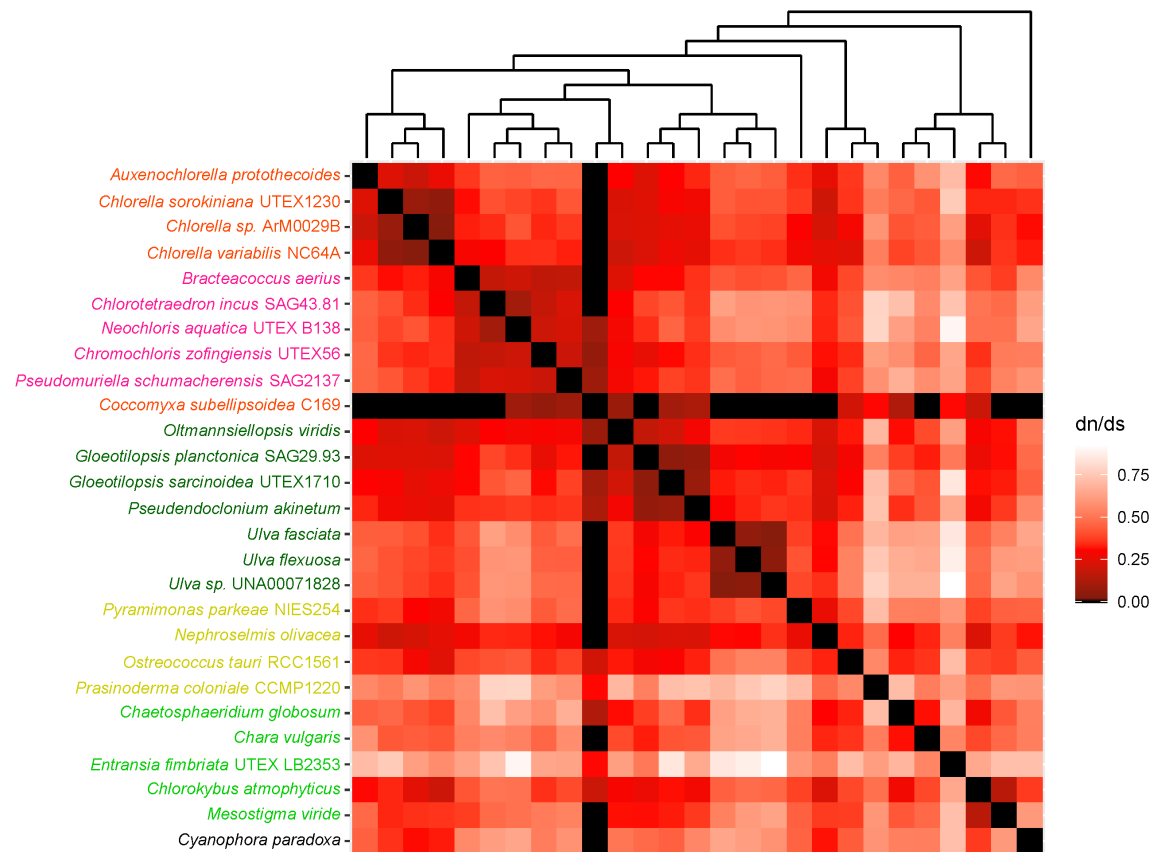




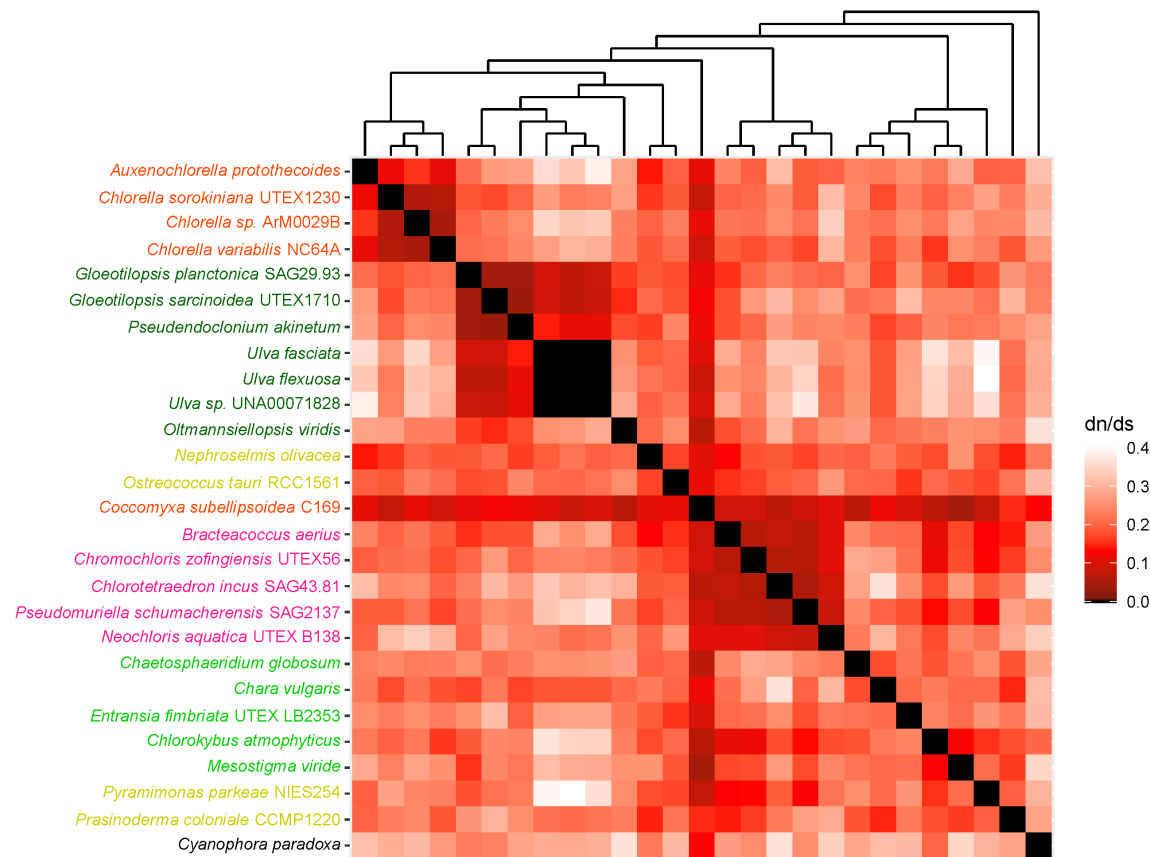
**S4 Fig. X. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rbcL* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor).** The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



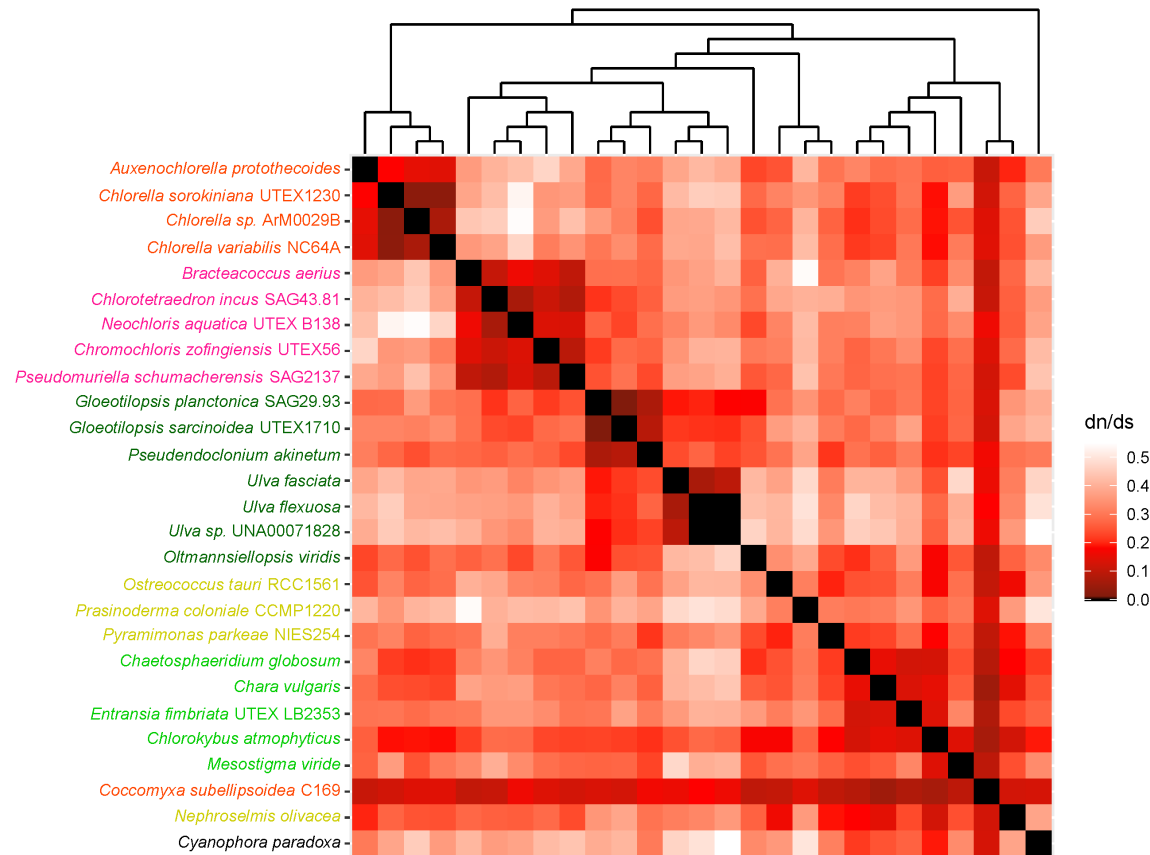
**S4 Fig. Y.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rpl2* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



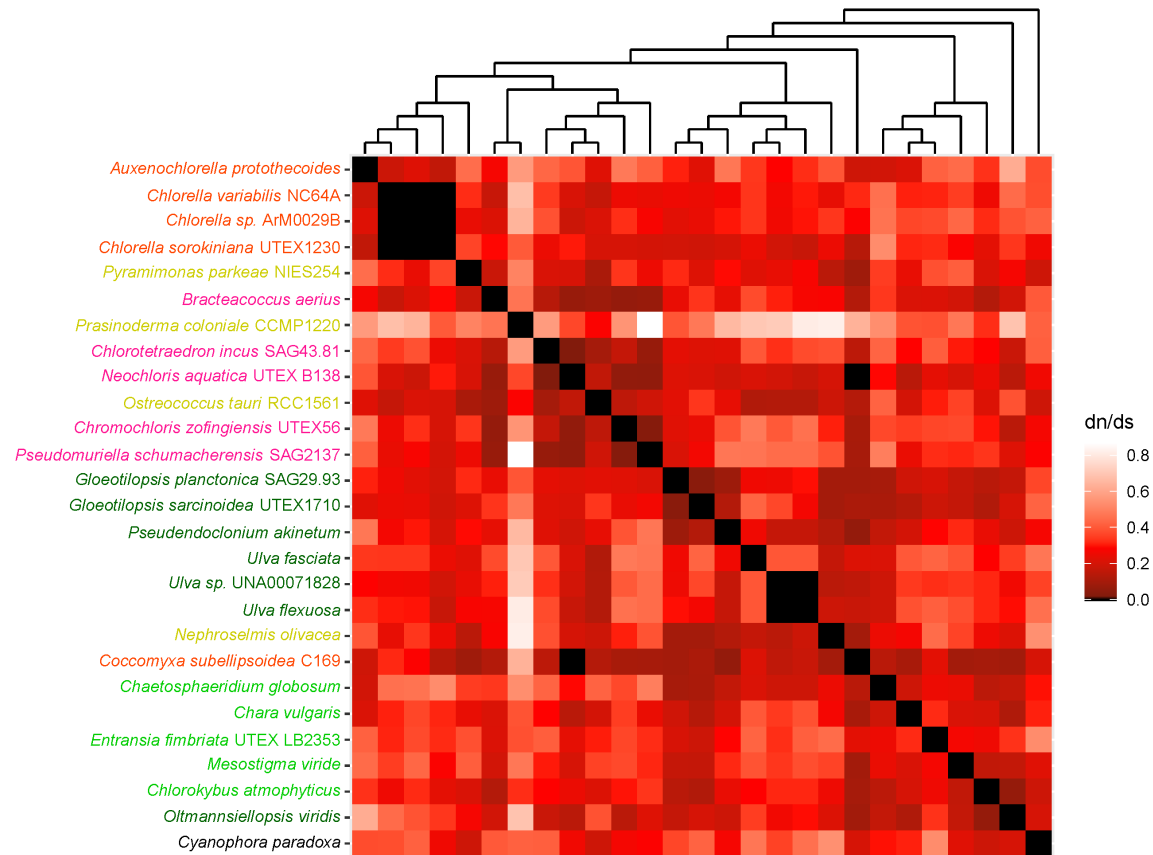
**S4 Fig. Z.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rpl5* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



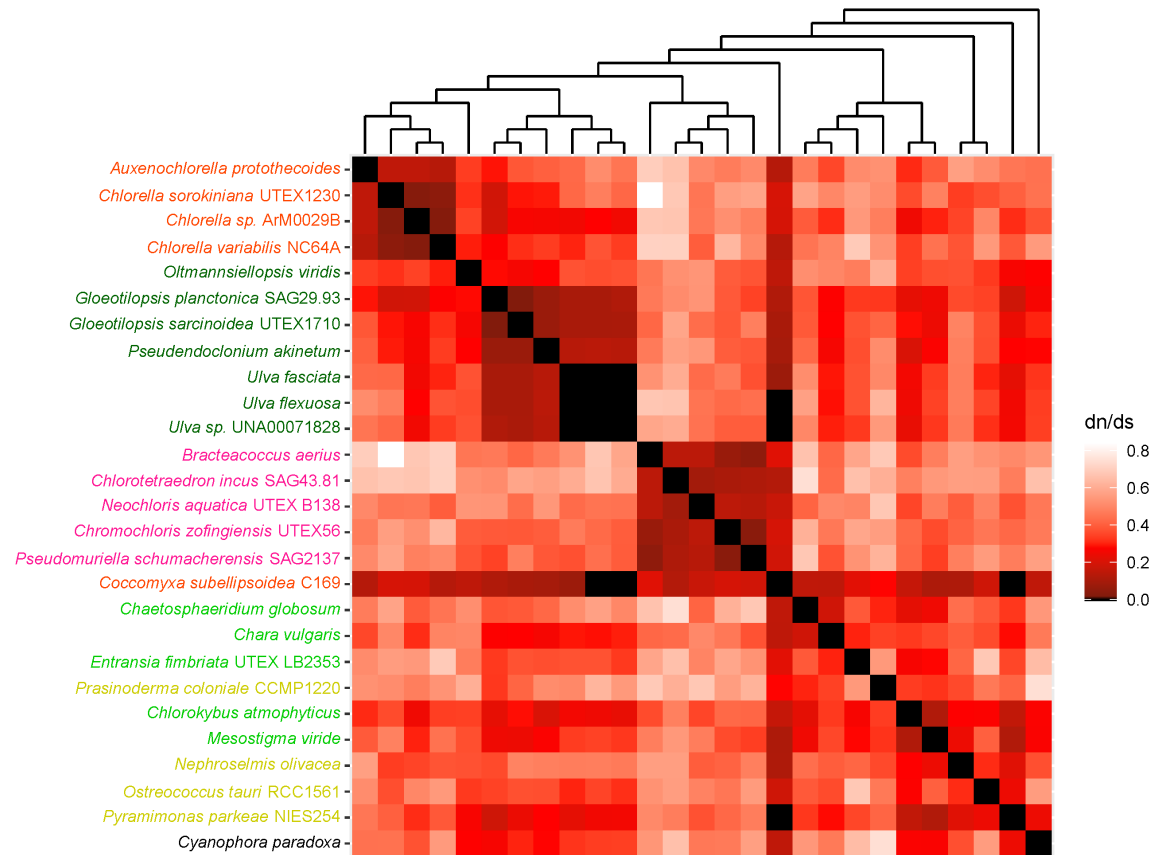
**S4 Fig. AA. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rpl14* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



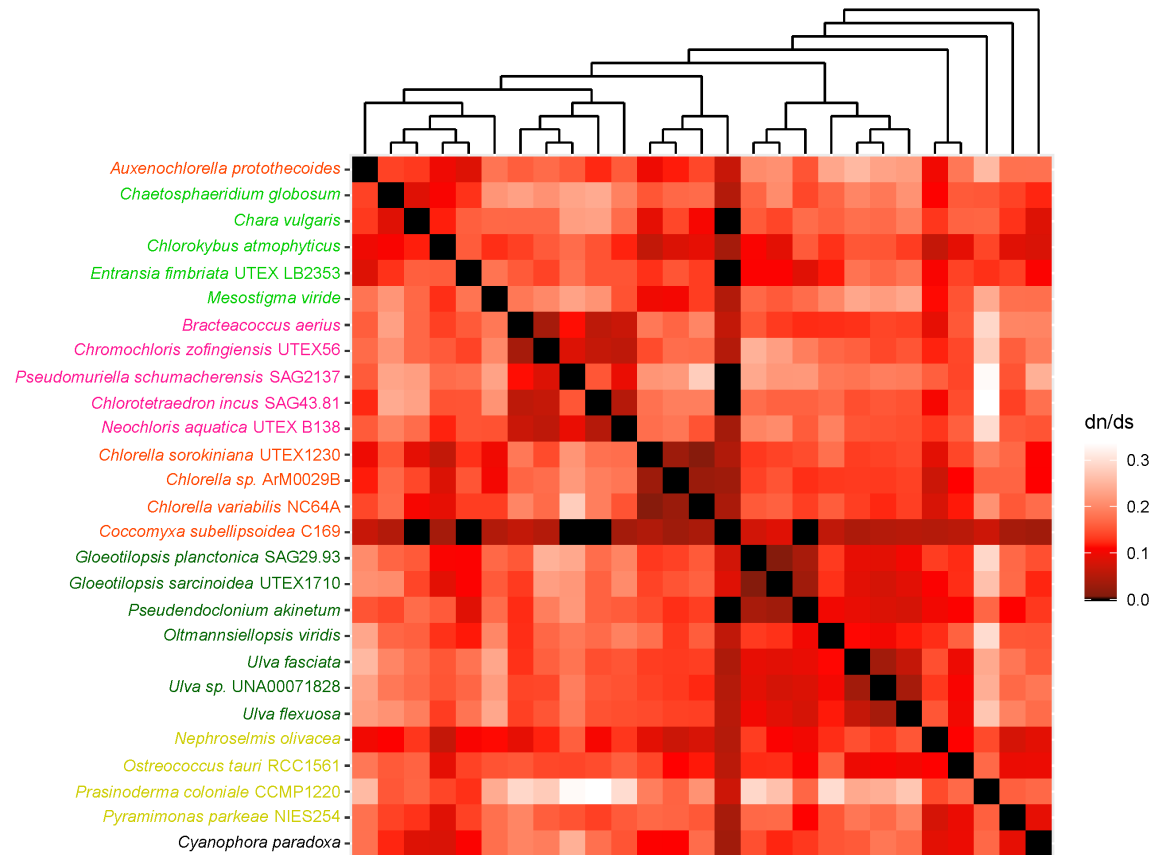
**S4 Fig. AB. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rpl16* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



**S4 Fig. AC Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rpl36* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor).** The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.

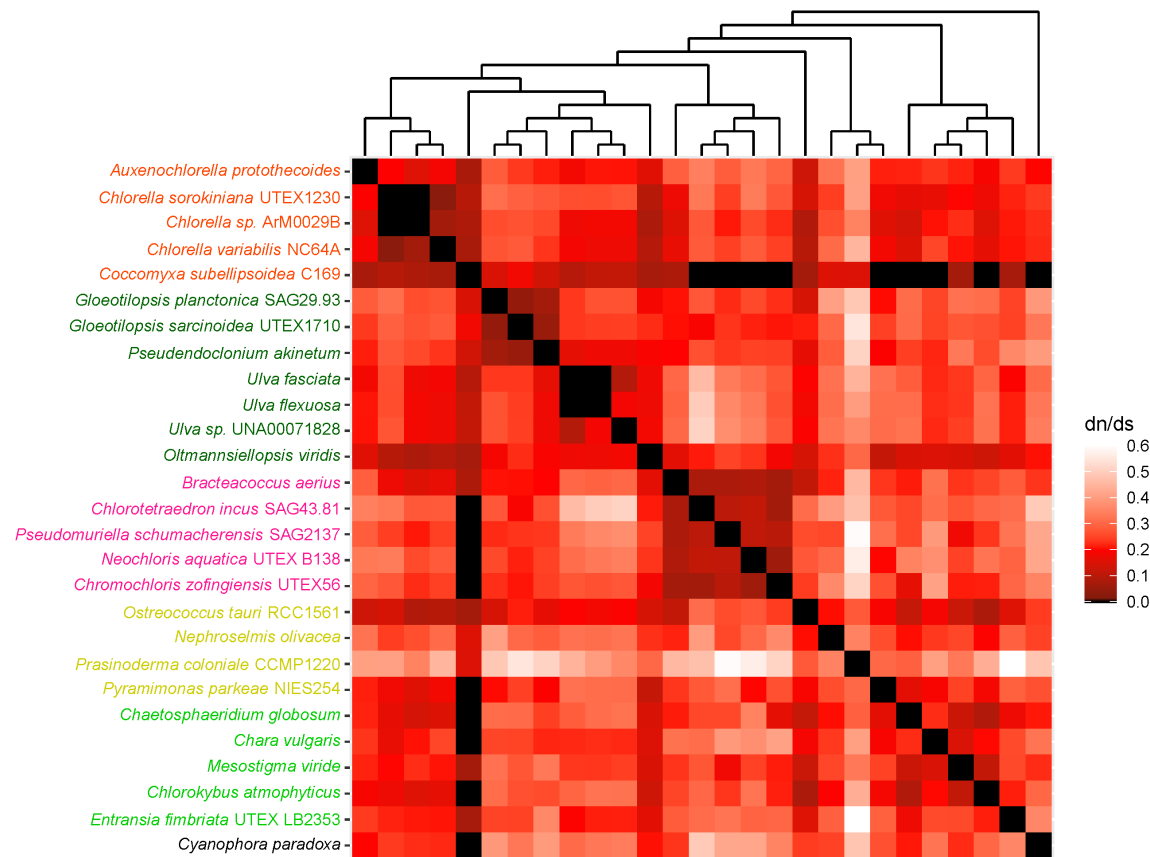


**S4 Fig. AD. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rps11* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**

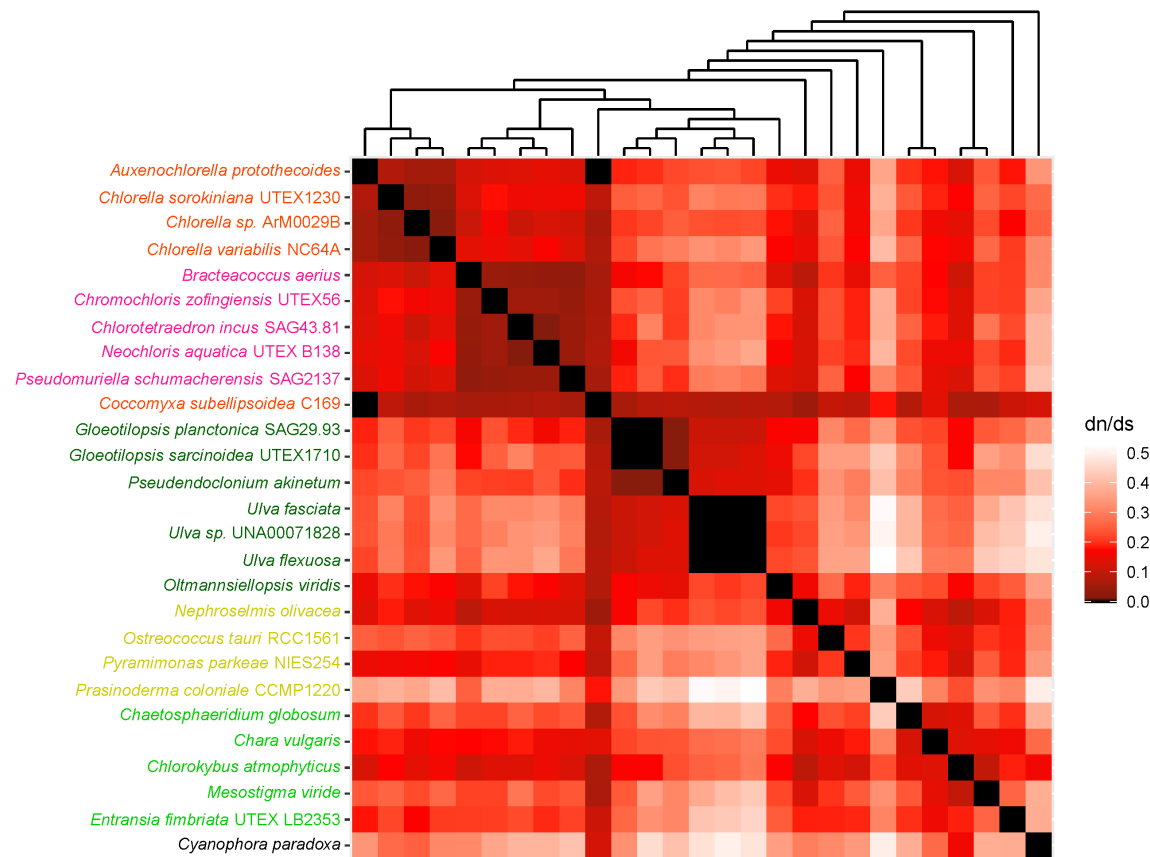


**S4 Fig. AE.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rps12* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.

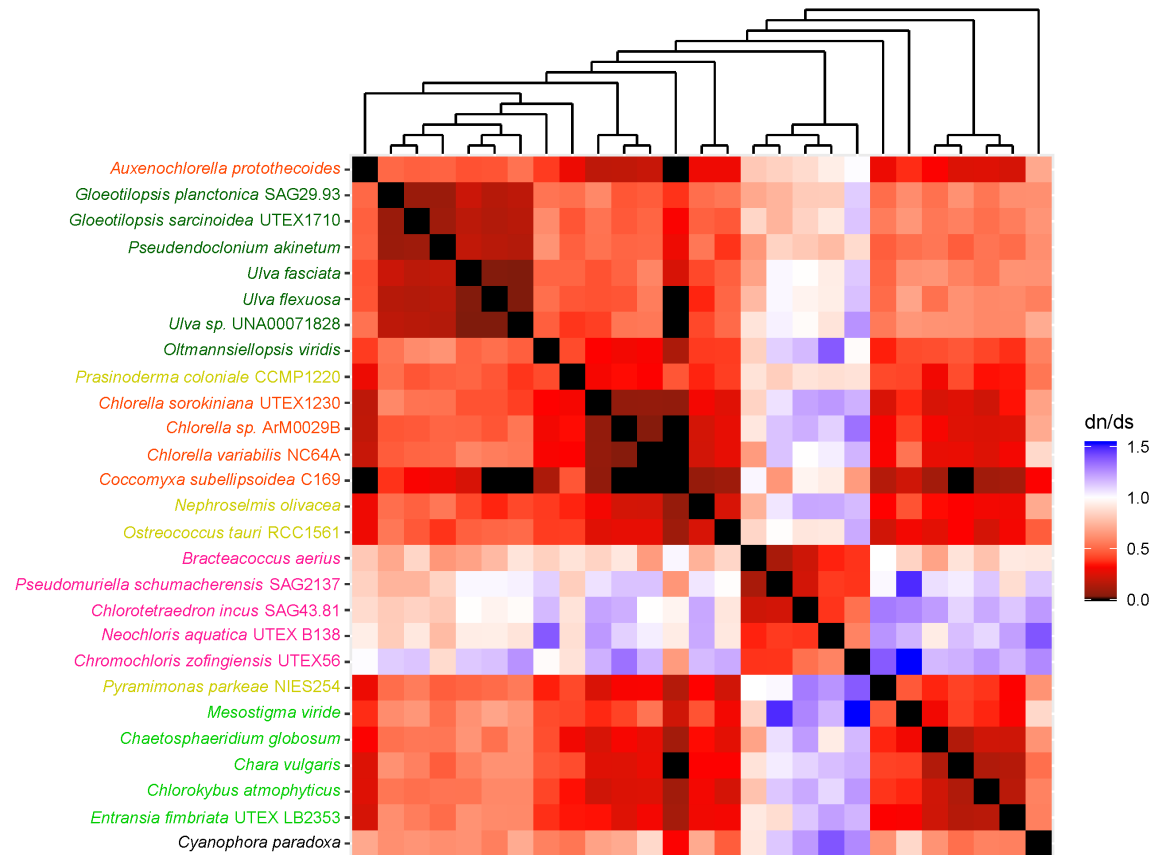




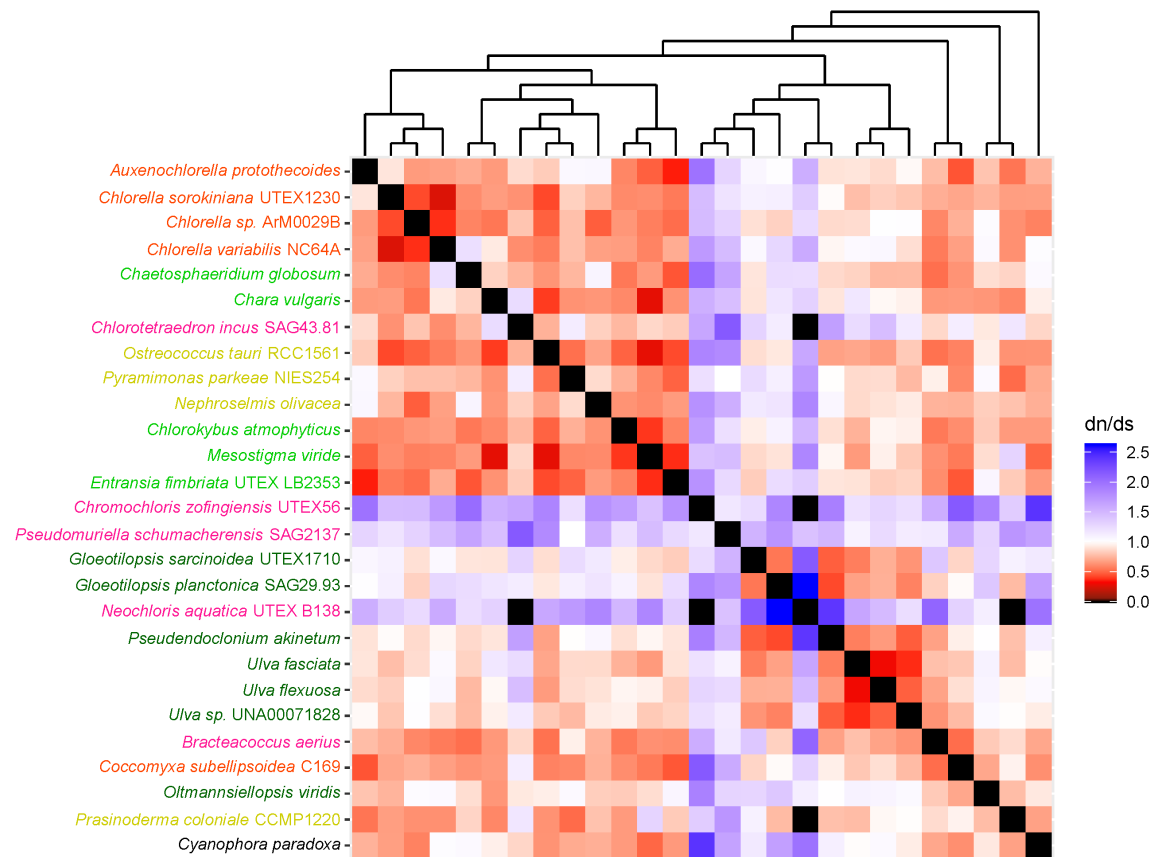
**S4 Fig. AF.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rps19* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



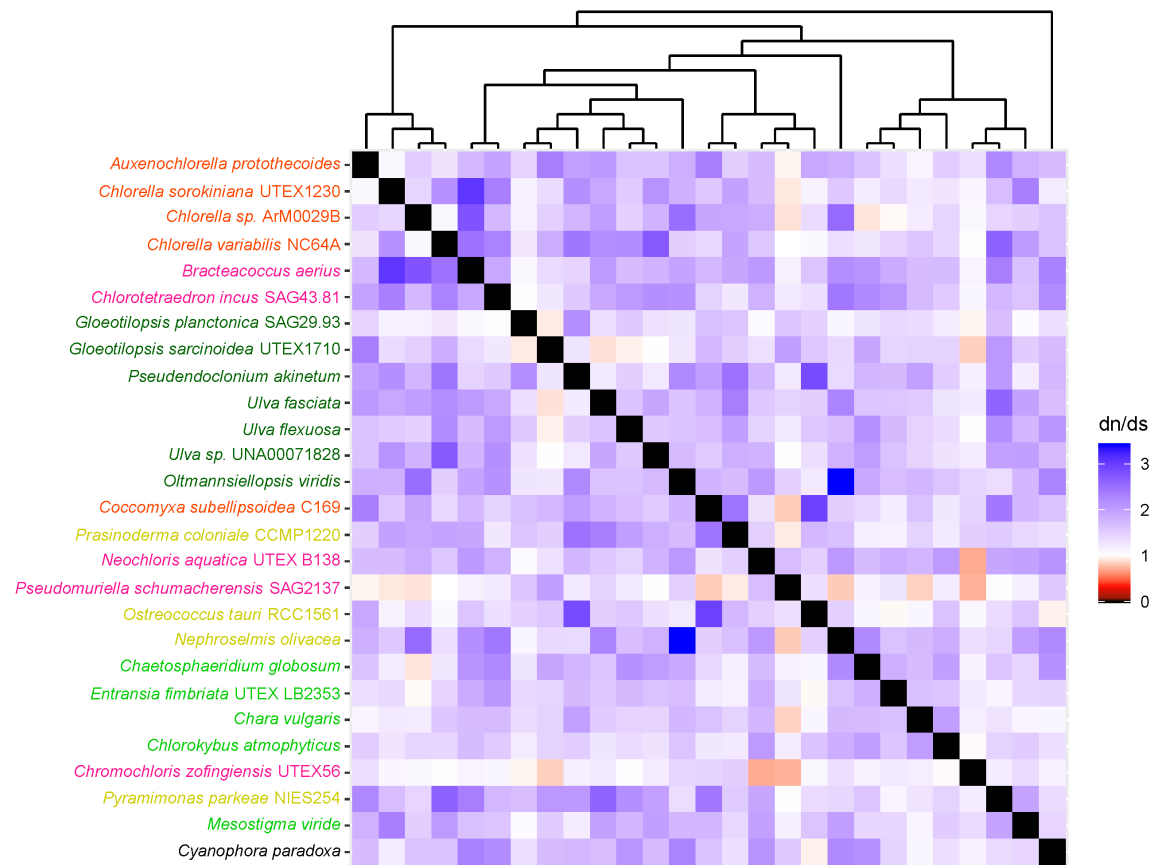
**S4 Fig. AG.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *ycf3* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



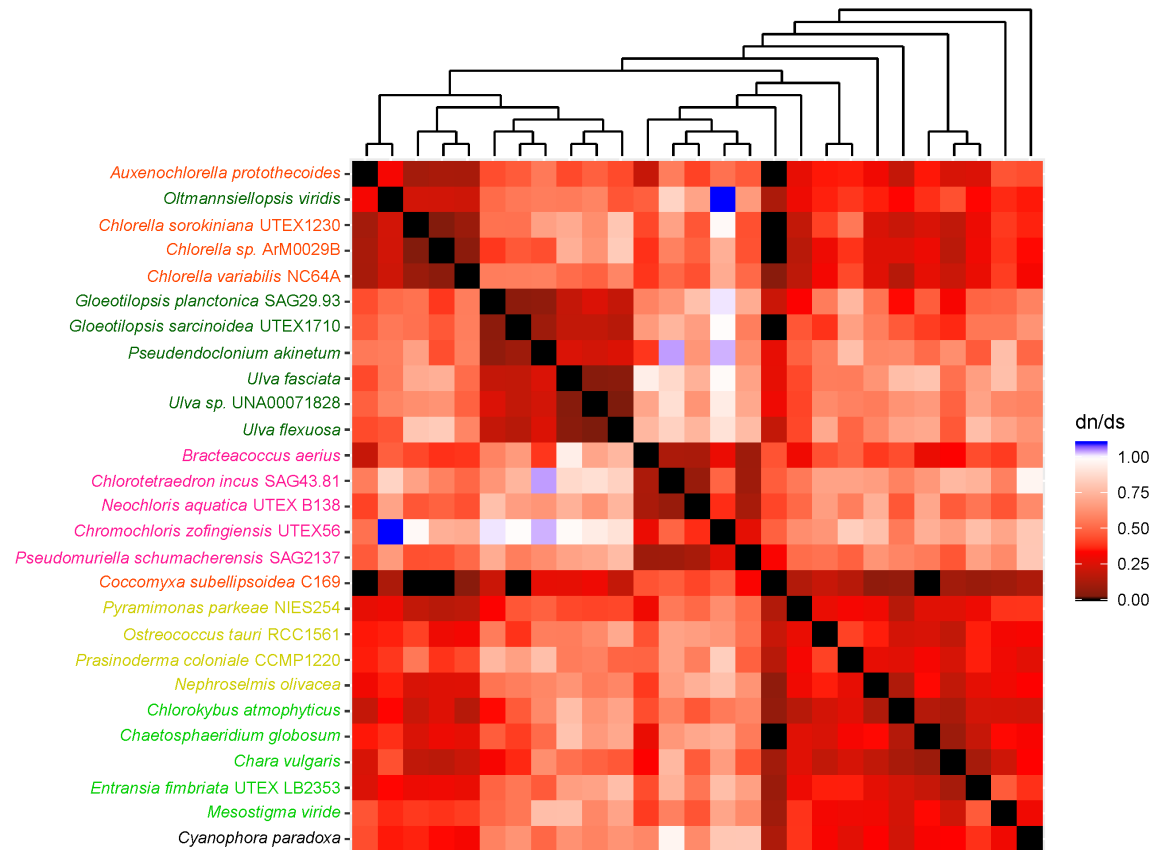
**S4 Fig. AH.** Heatmap of pairwise dN/dS ratios calculated from alignment of mitochondrial *atp6* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



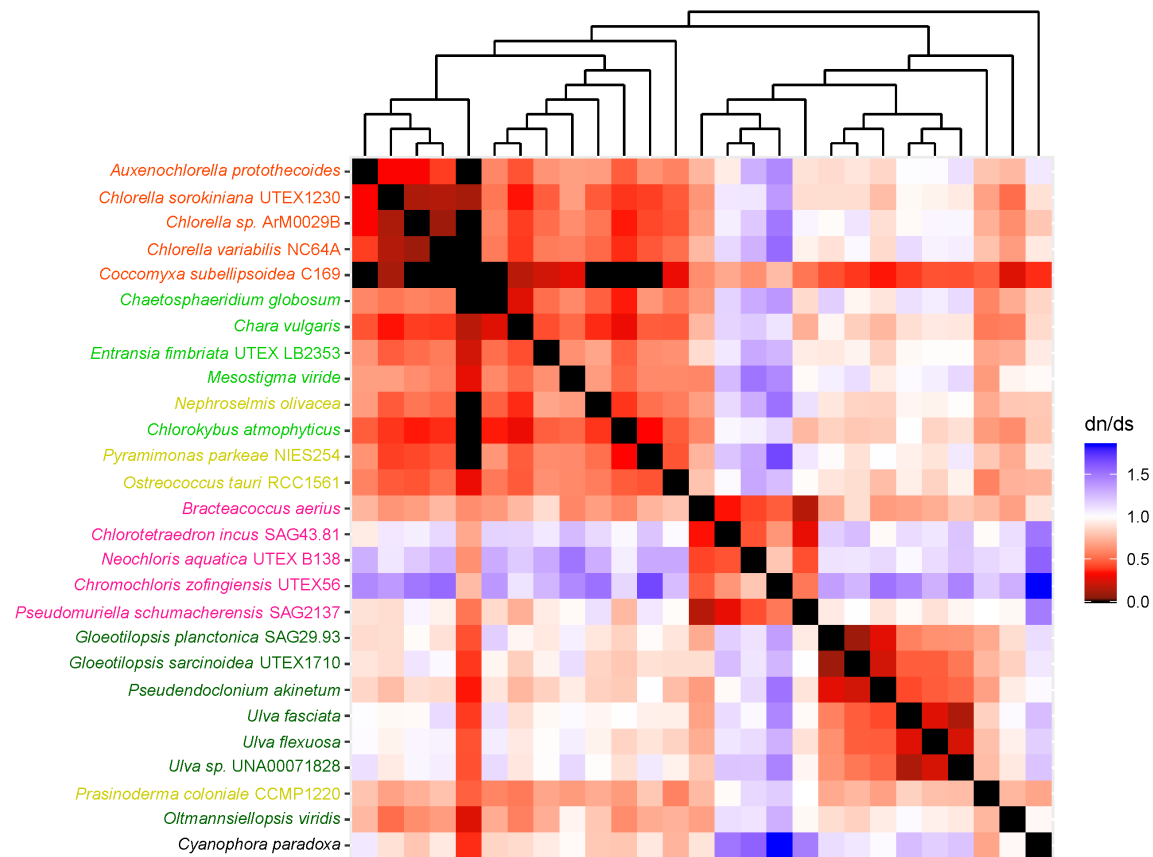
**S4 Fig. AI. Heatmap of pairwise dN/dS ratios calculated from alignment of mitochondrial *cob* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



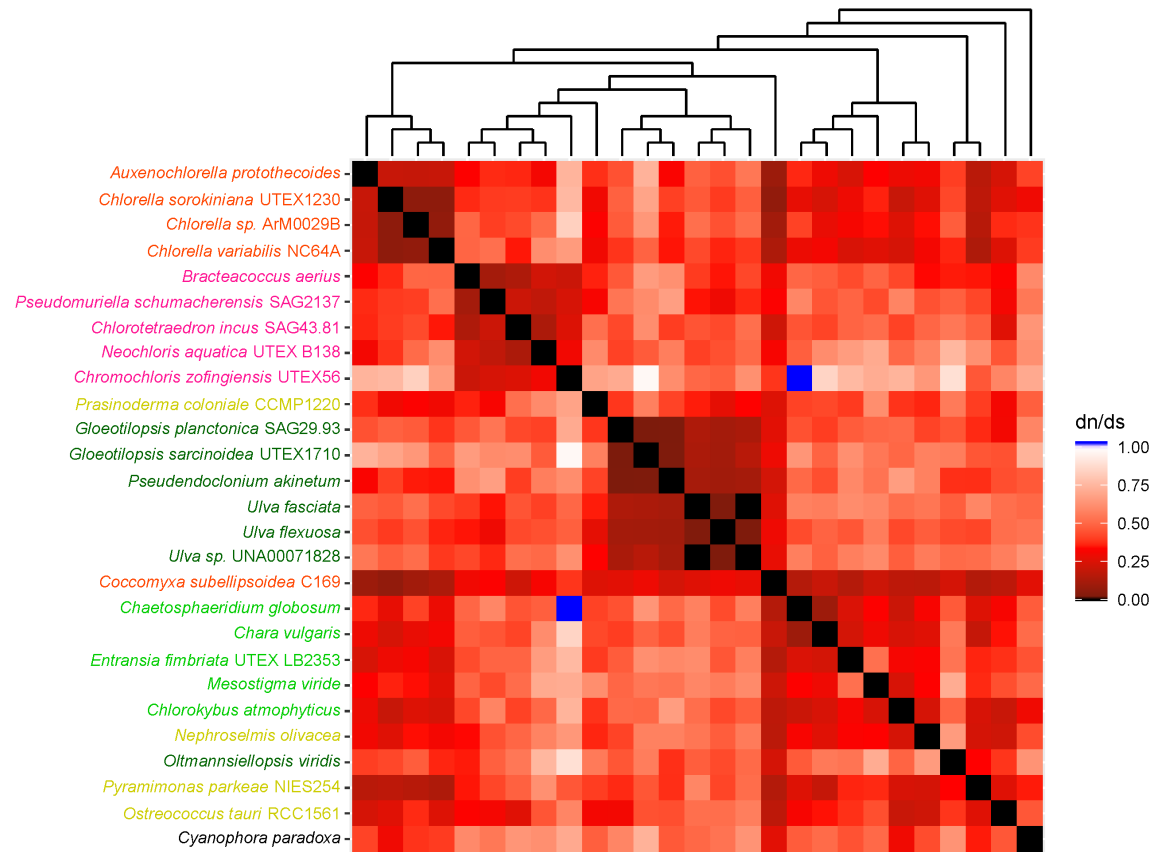
**S4 Fig. AJ. Heatmap of pairwise dN/dS ratios calculated from alignment of mitochondrial *cox1* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor).** The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



**S4 Fig. AK.** Heatmap of pairwise dN/dS ratios calculated from alignment of mitochondrial *cox2* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dN/dS ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.

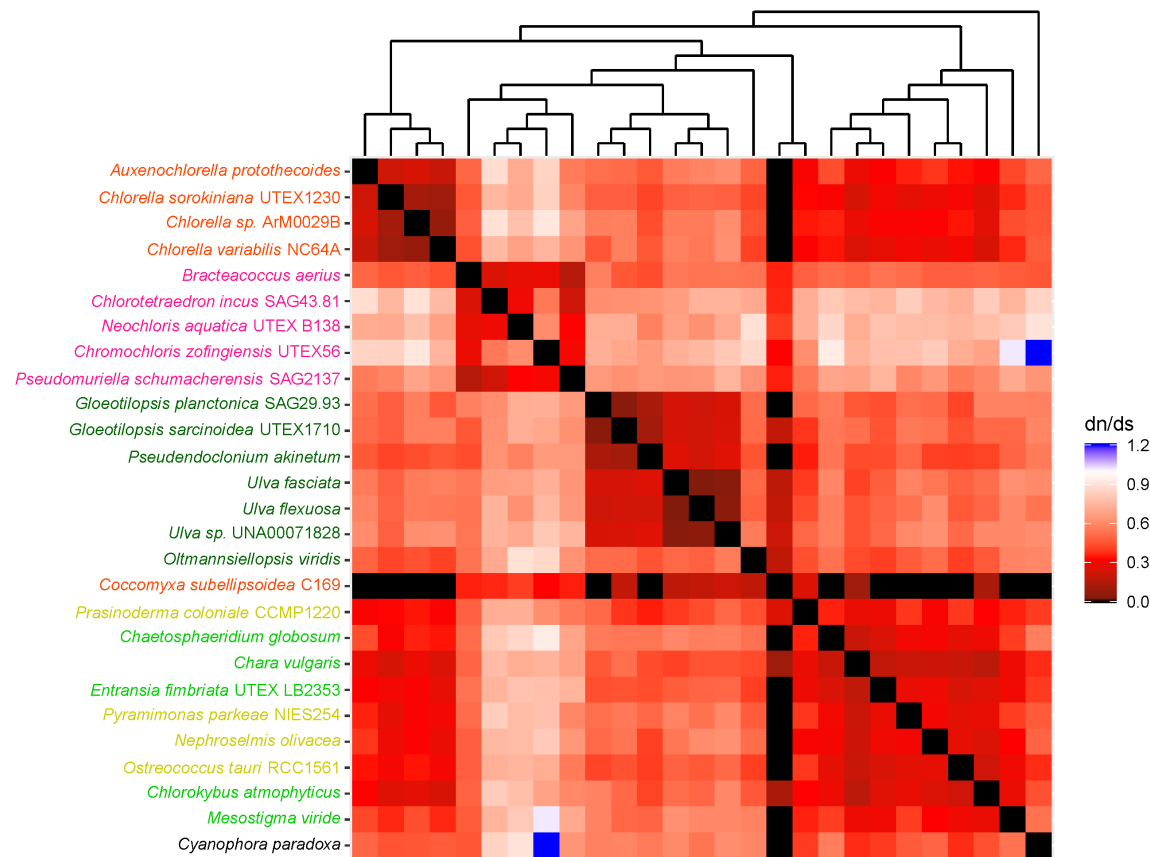


**S4 Fig. AL.** Heatmap of pairwise dN/dS ratios calculated from alignment of mitochondrial *nad2* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dN/dS ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.

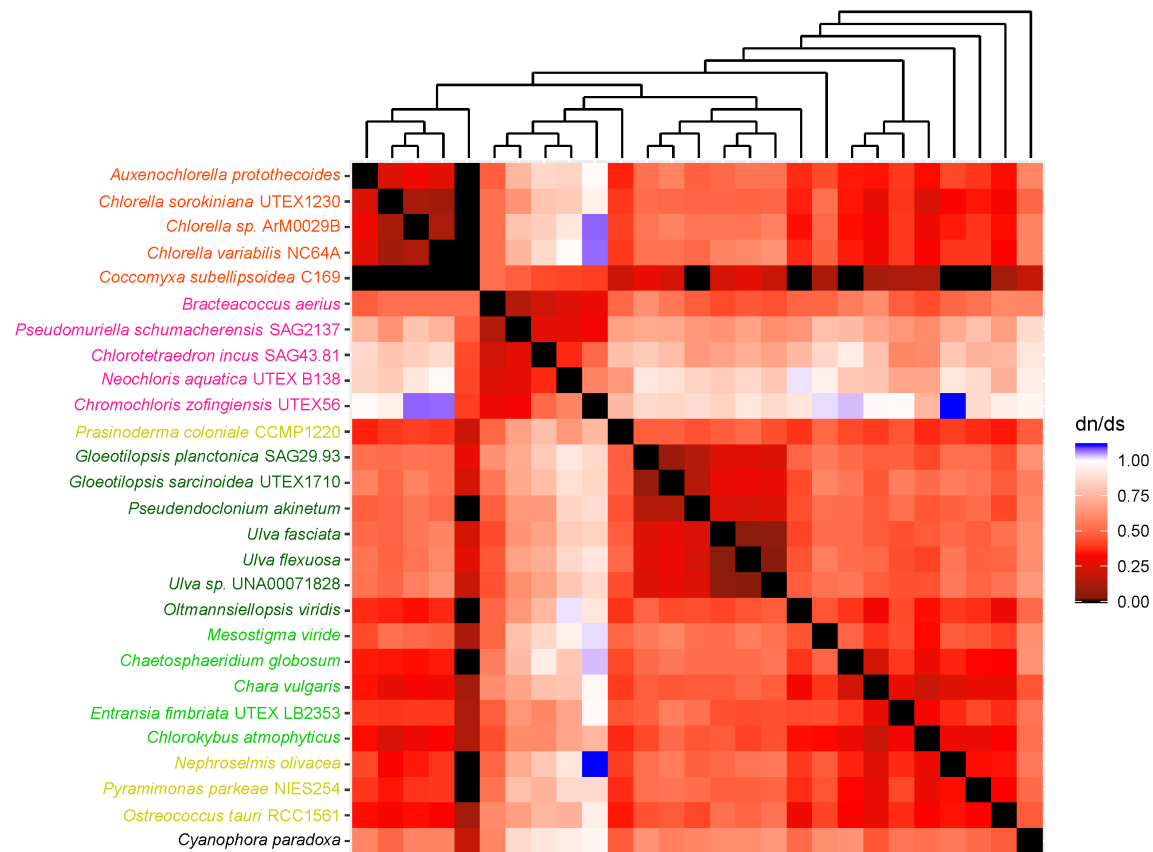


**S4 Fig. AM.** Heatmap of pairwise dN/dS ratios calculated from alignment of mitochondrial *nad3* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.

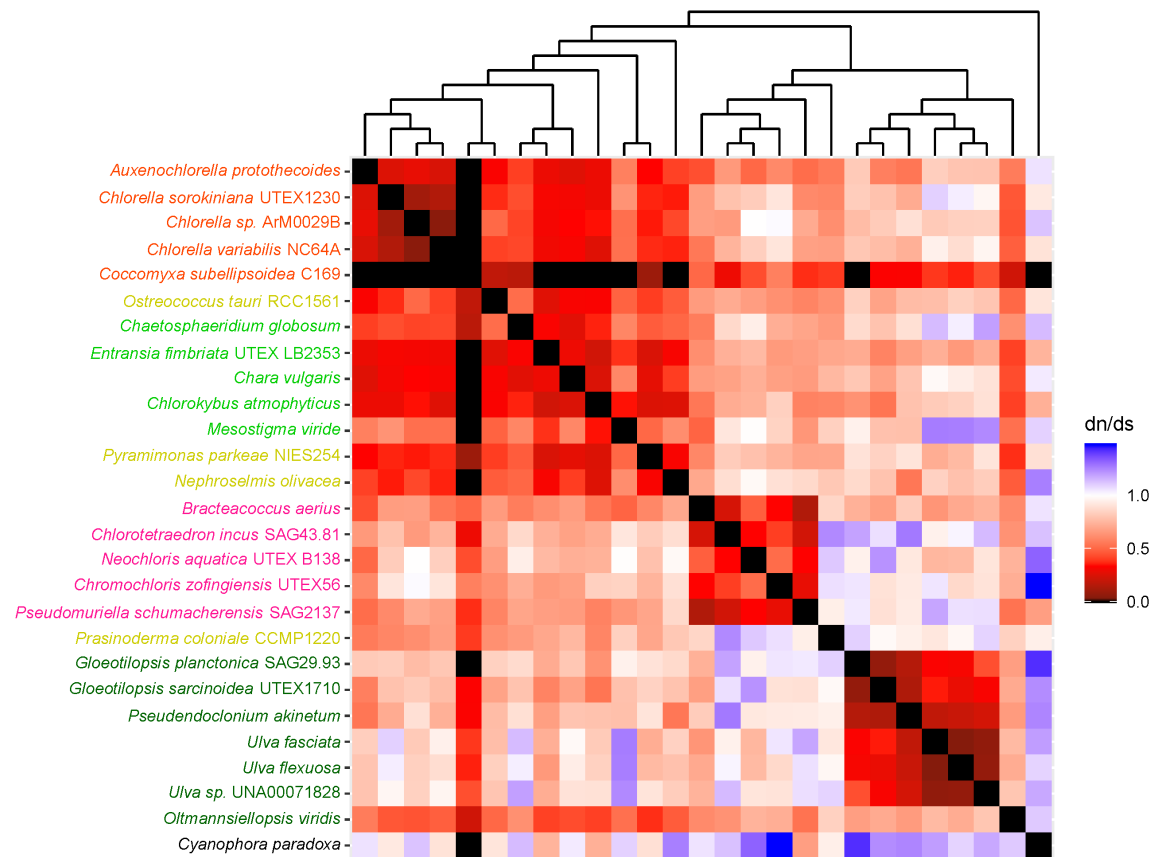




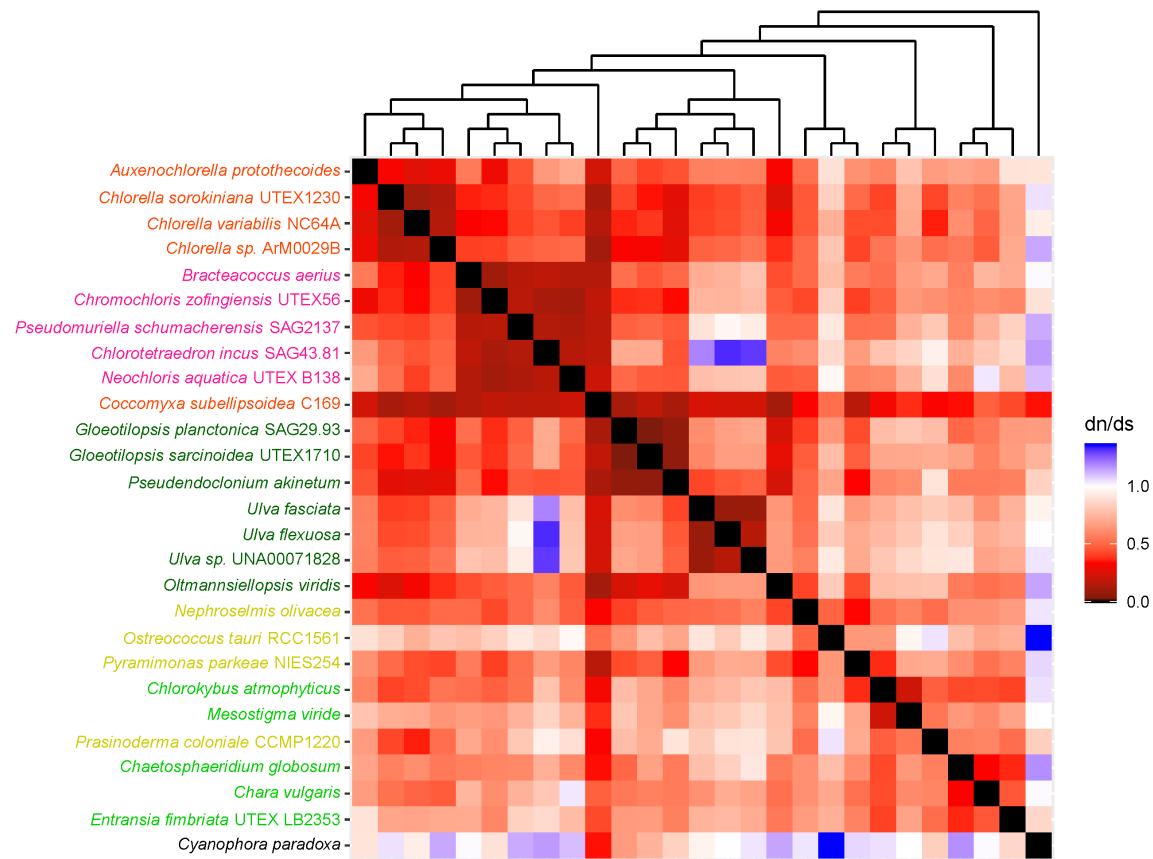
**S4 Fig. AN. Heatmap of pairwise dN/dS ratios calculated from alignment of mitochondrial *nad4* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



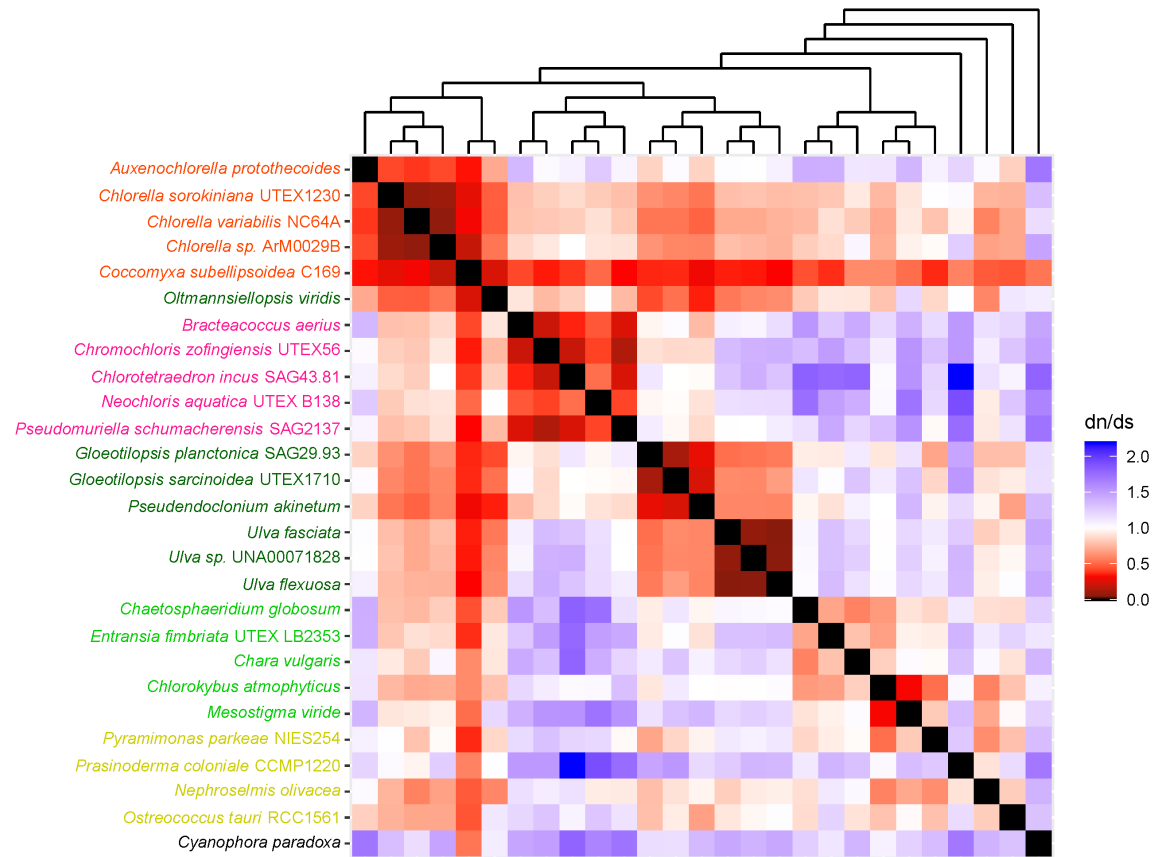
**S4 Fig. AO.** Heatmap of pairwise dN/dS ratios calculated from alignment of mitochondrial *nad5* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dN/dS ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



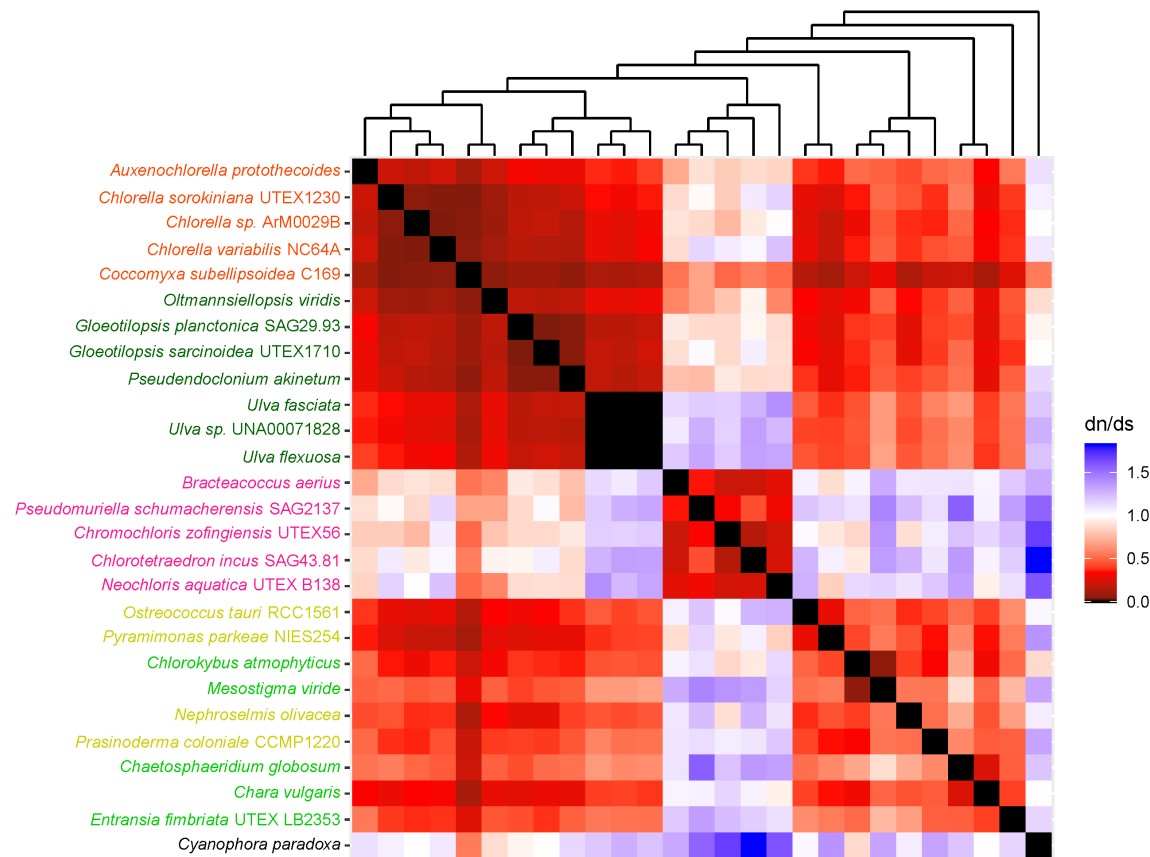
**S4 Fig. AP.** Heatmap of pairwise dN/dS ratios calculated from alignment of mitochondrial *nad6* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



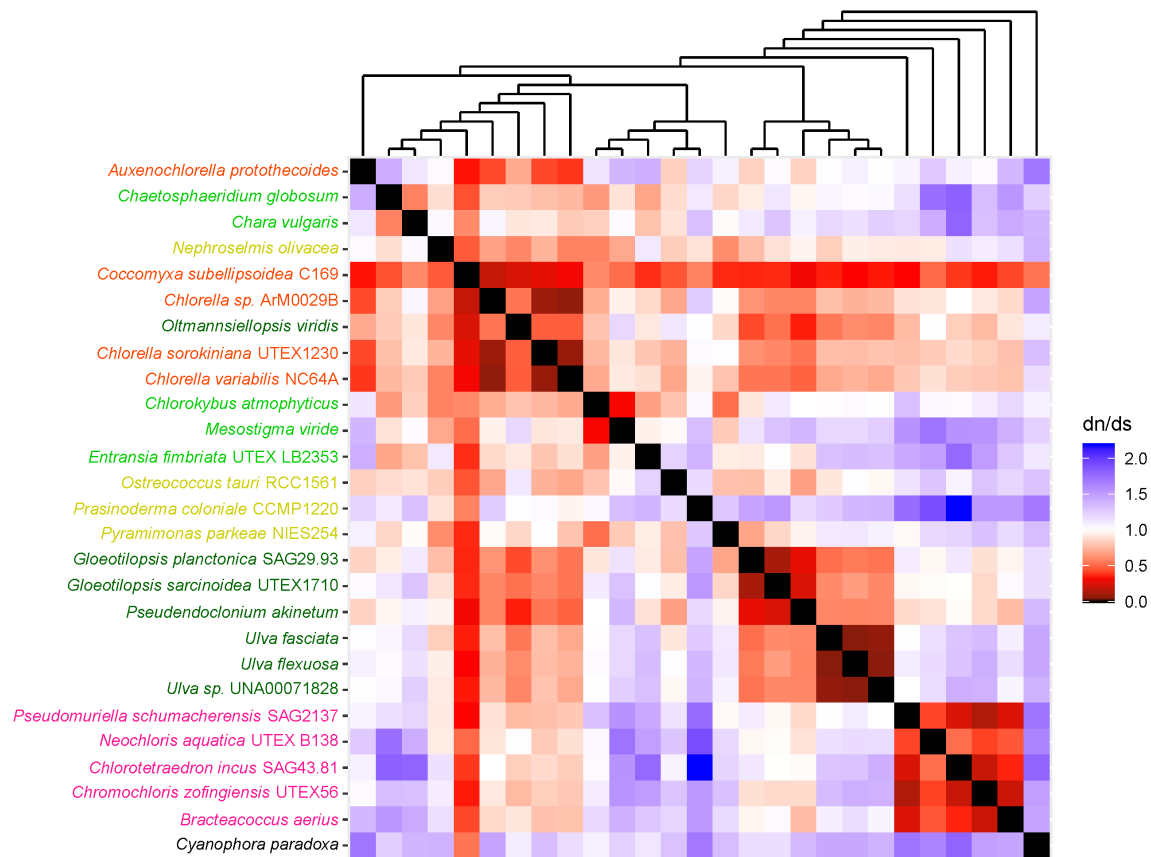
**S4 Fig. AQ.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *atpE* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dN/dS ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



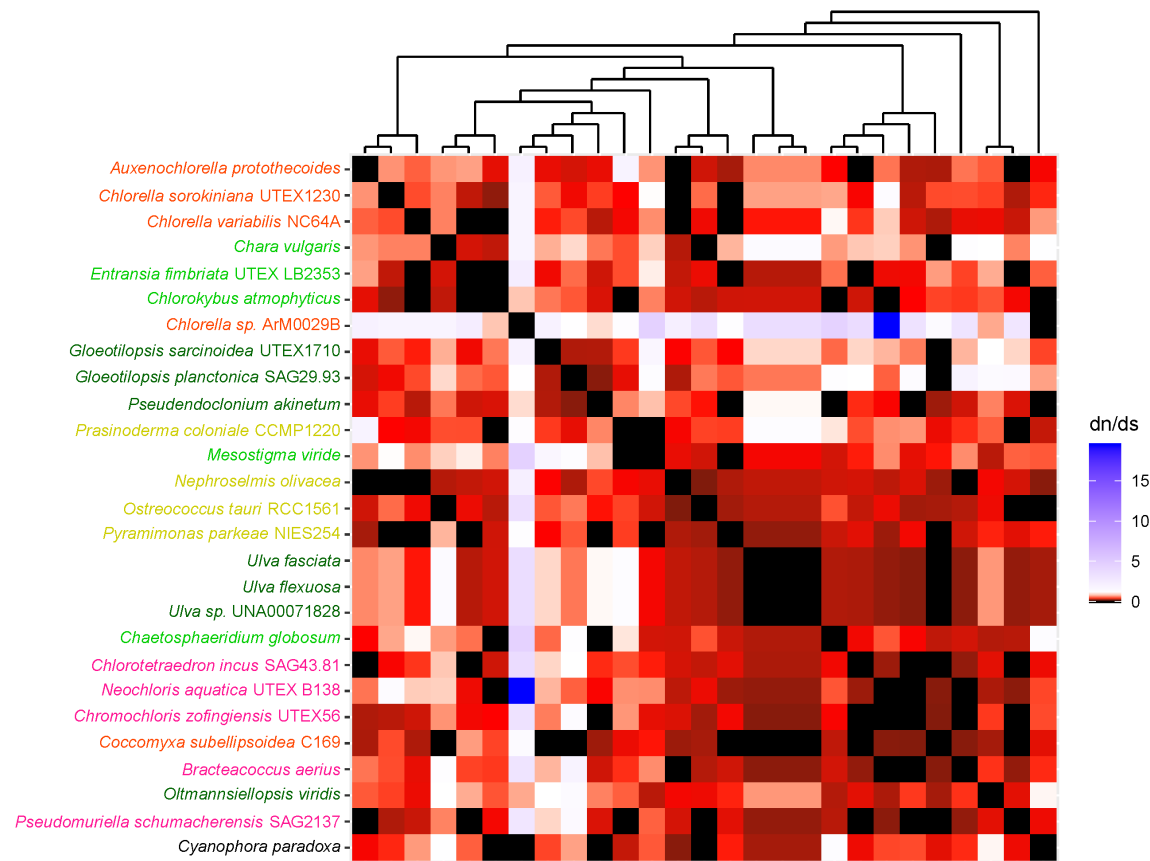
**S4 Fig. AR. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *atpF* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dN/dS ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



**S4 Fig. AS.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *clpP* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.

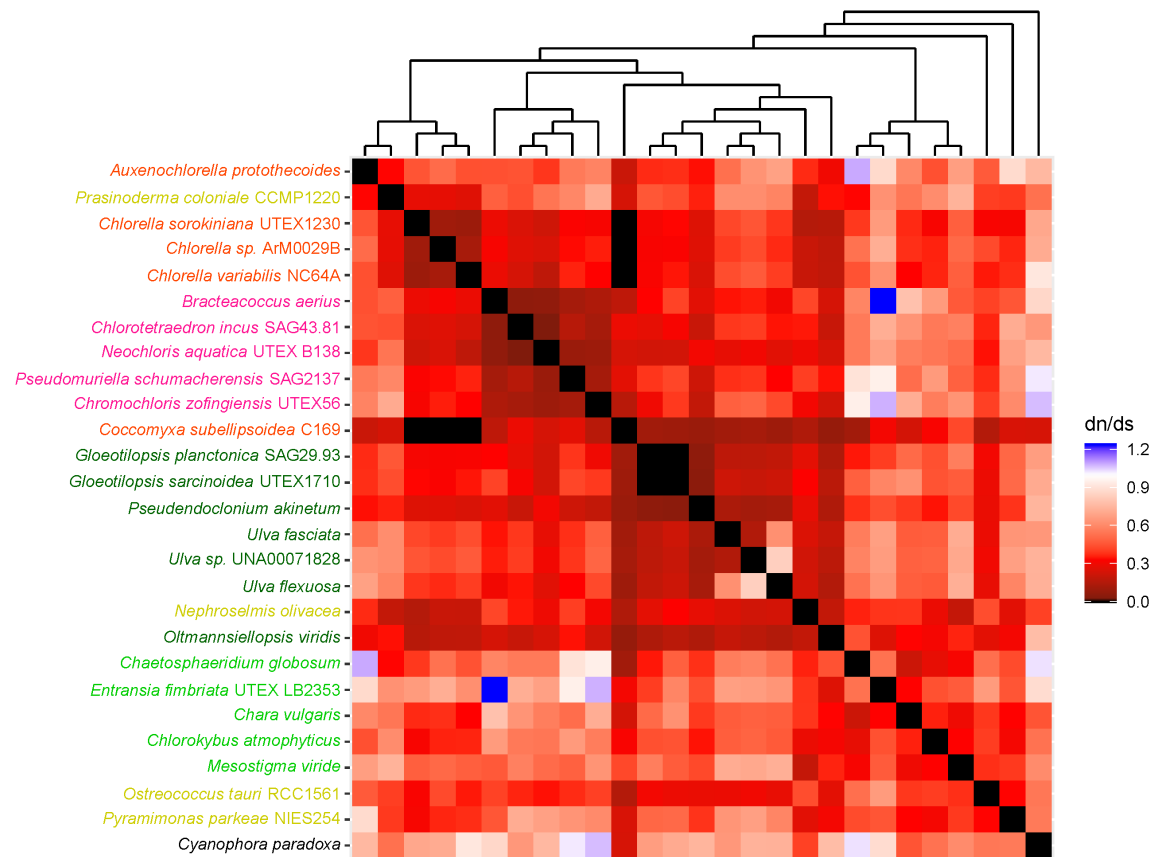


**S4 Fig. AT.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbF* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dN/dS ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.

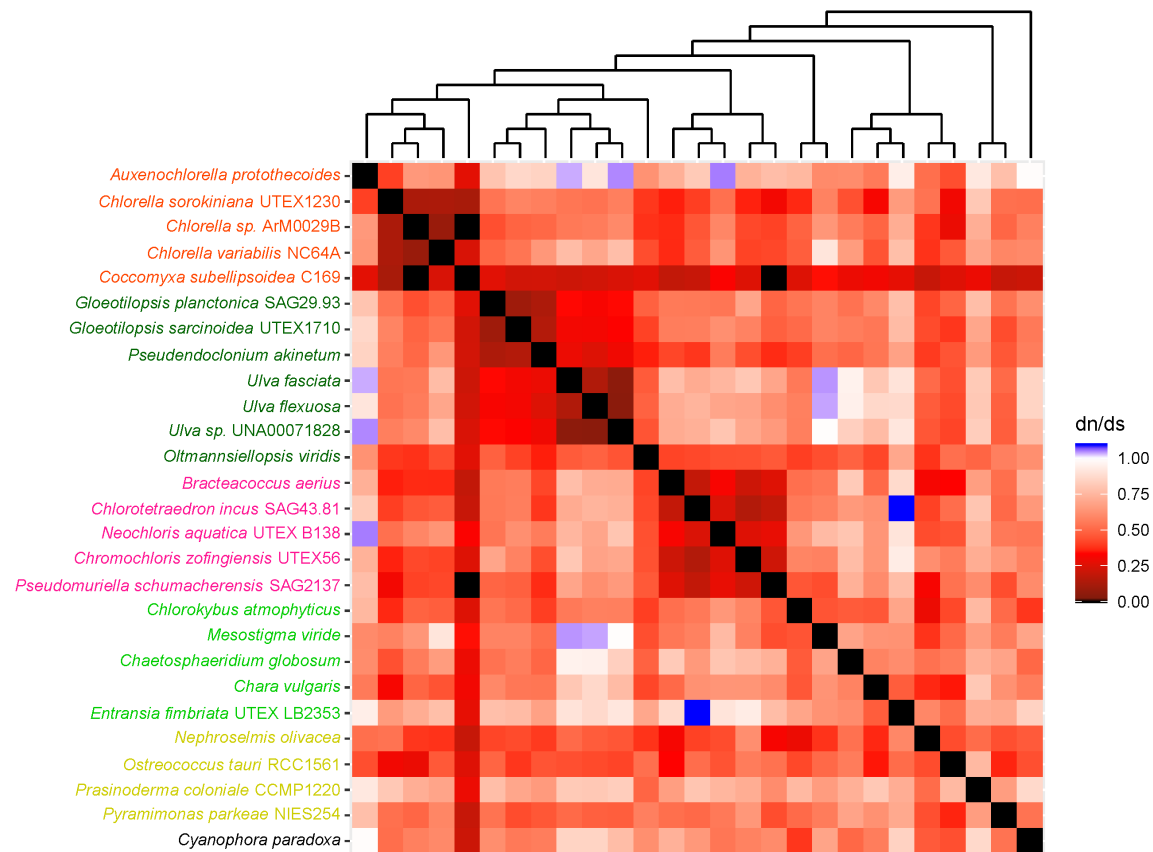


**S4 Fig. AU. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbJ* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**

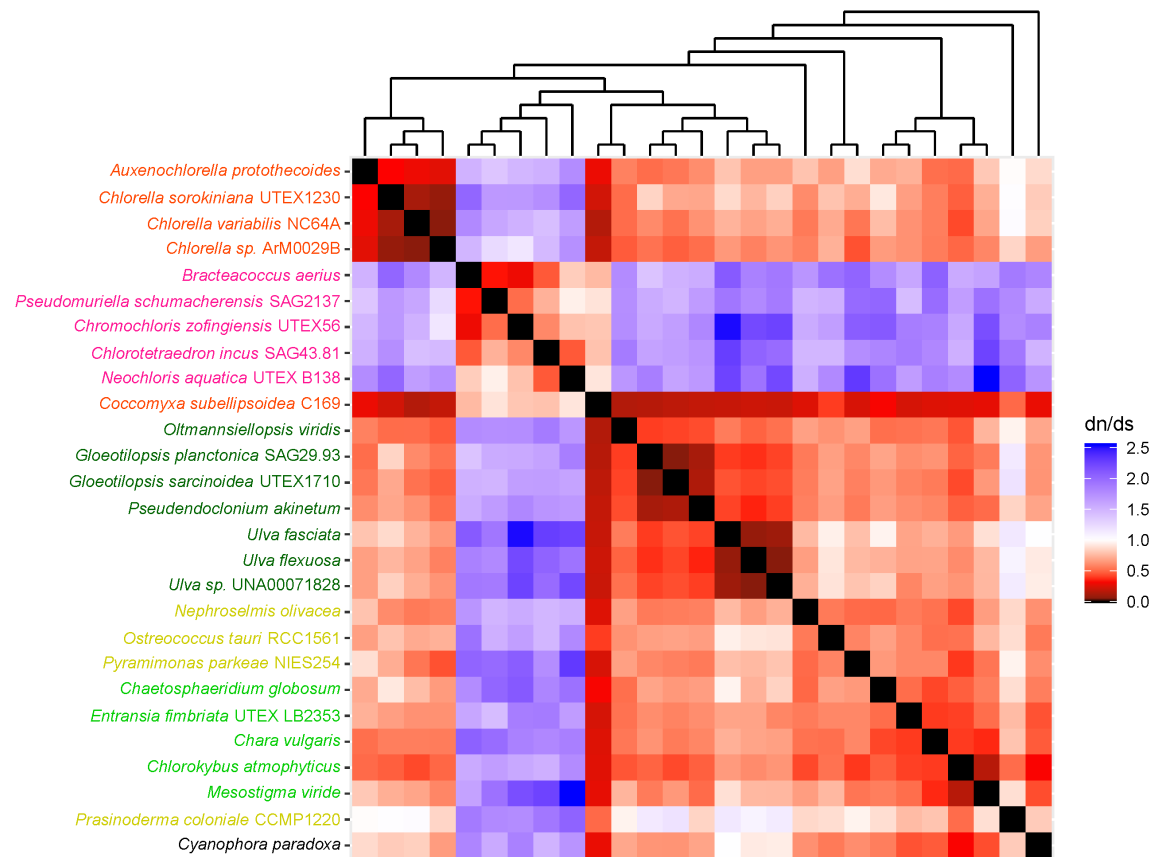




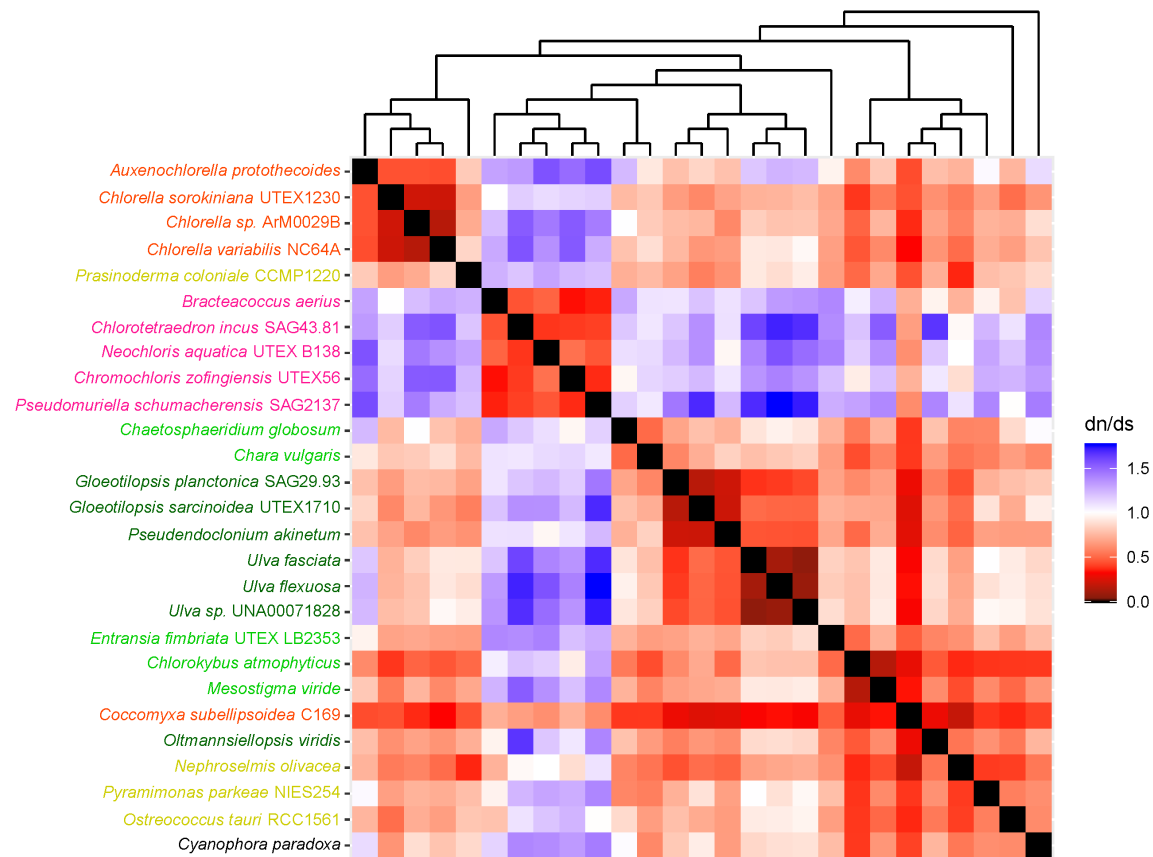
**S4 Fig. AV.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *psbZ* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



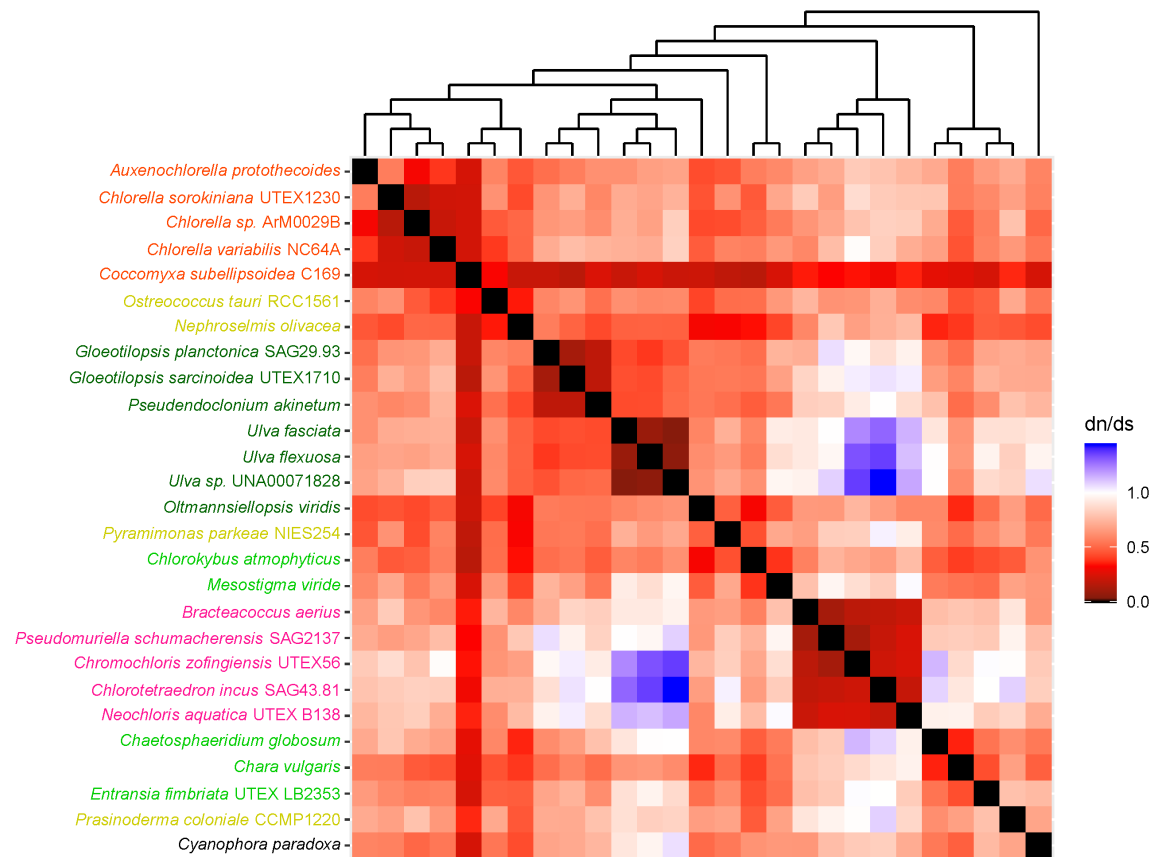
**S4 Fig. AW. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rpl20* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**



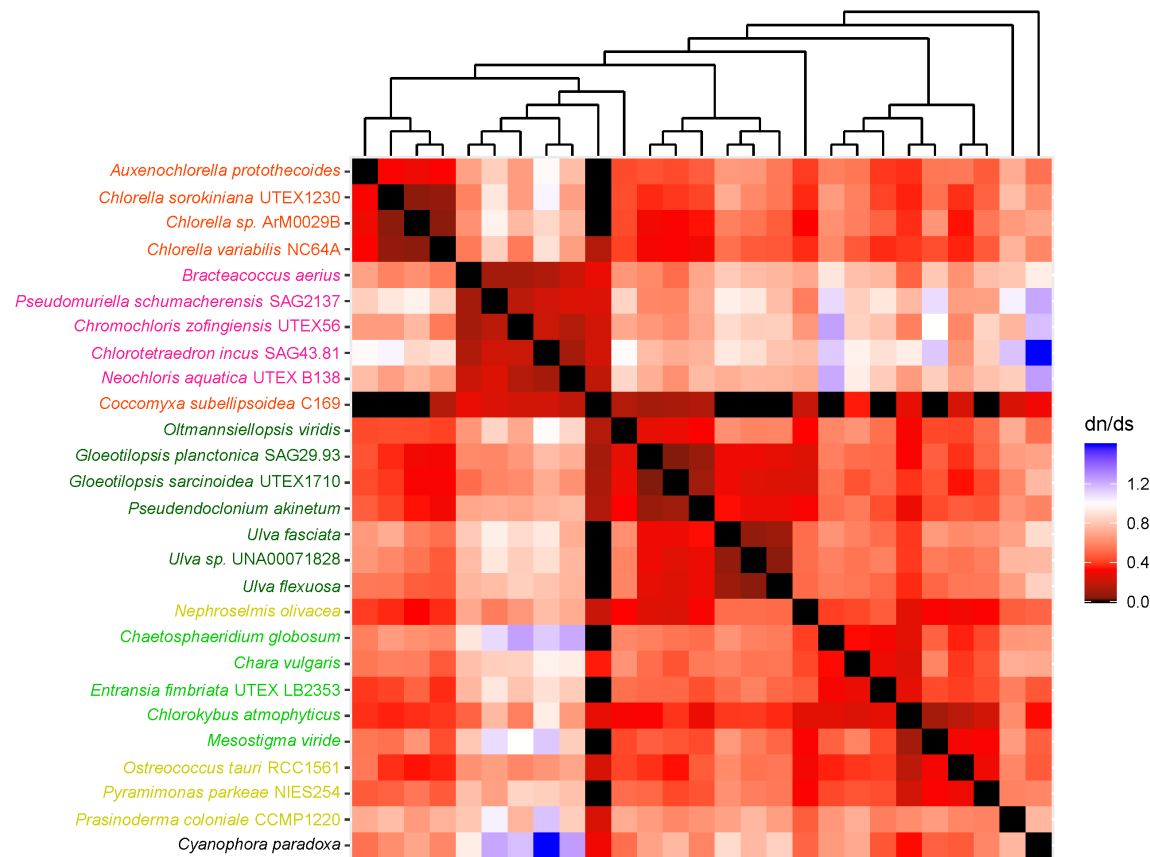
**S4 Fig. AX. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rps2* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor).** The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



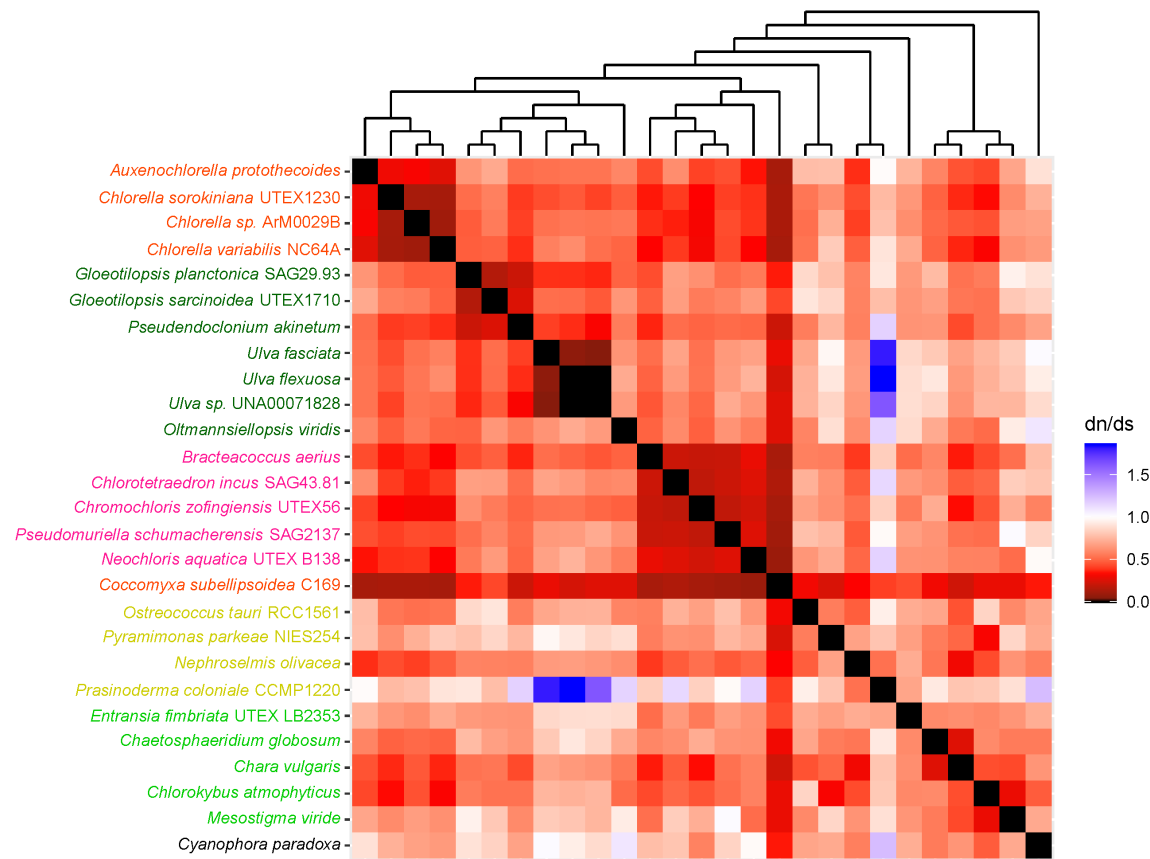
**S4 Fig. AY.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rps3* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



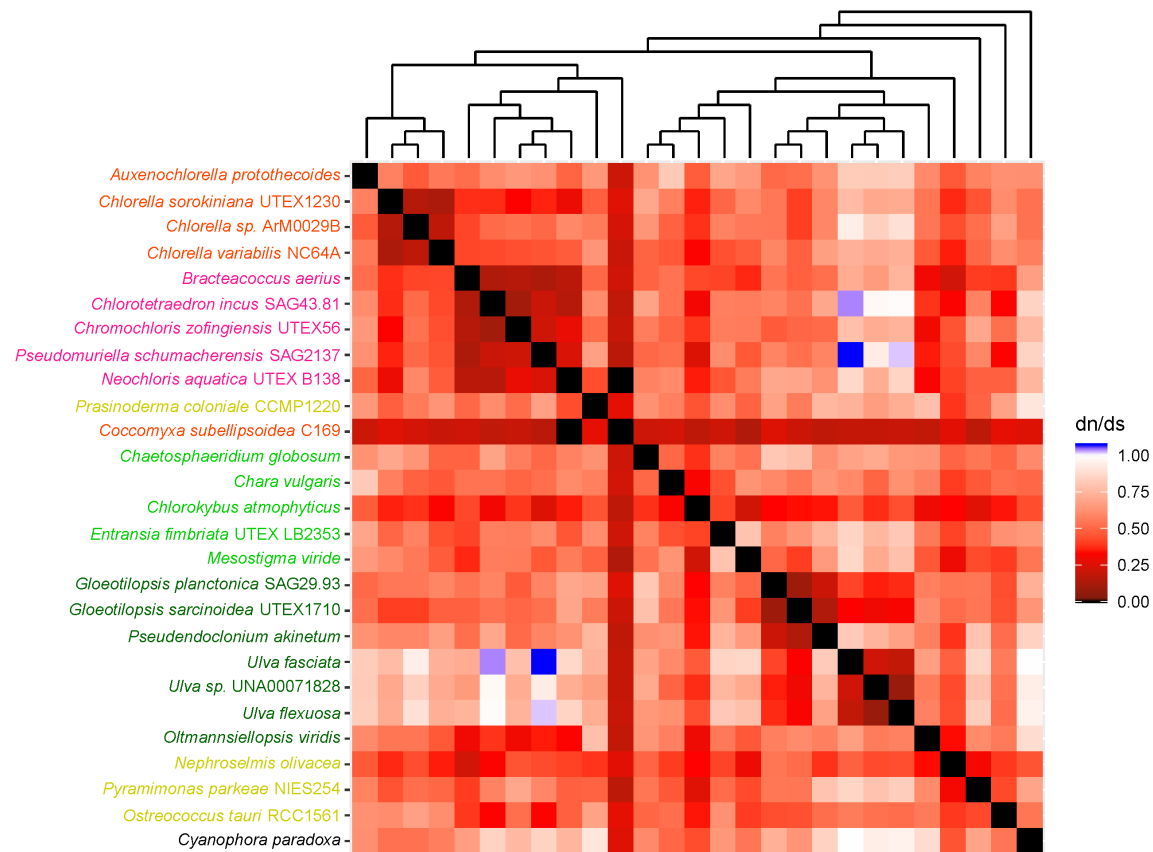
**S4 Fig. AZ.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rps4* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



**S4 Fig. BA. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rps7* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**

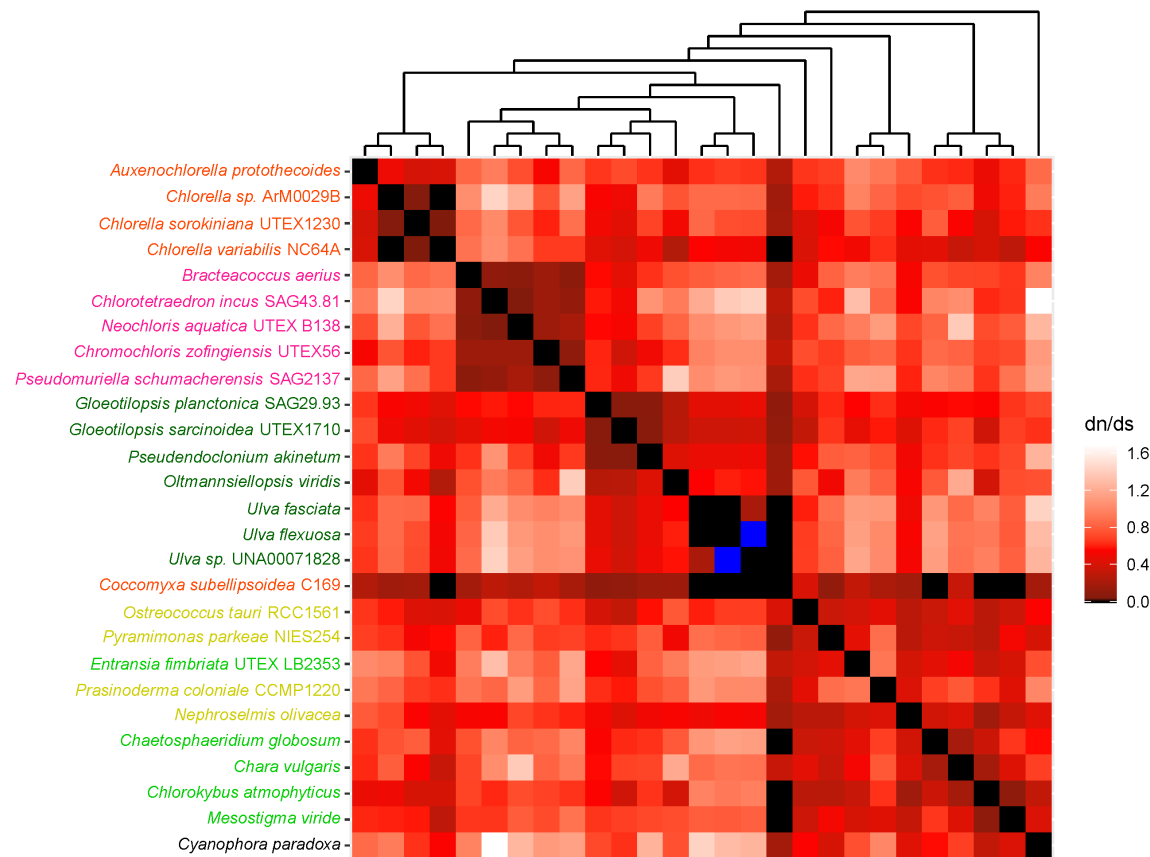


**S4 Fig. BC. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rps8* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**

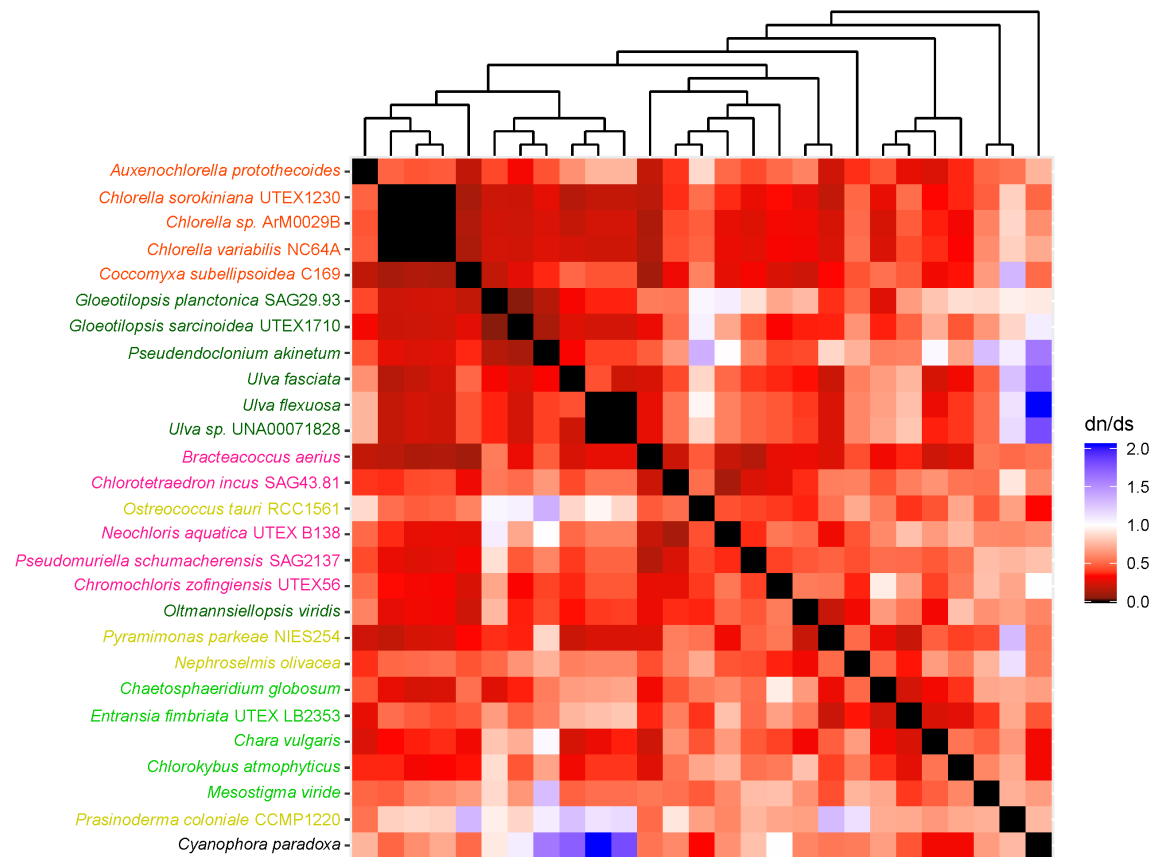


**S4 Fig. BD. Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rps14* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.**





**S4 Fig. BE.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *rps18* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.



**S4 Fig. BF.** Heatmap of pairwise dN/dS ratios calculated from alignment of plastid *ycf12* of algal taxa in Table 1 by MEGA7.0 using modified Nei-Gojobori method (Jukes-Cantor). The scale bar showed the color corresponded to dn/ds ratios. The cladogram above the heatmap corresponded to its single-gene phylogenetic tree.