Molecular and Phylogenetic Identification of Marine Microalgae Inferred by 18S rDNA Gene

ABSTRACT

Microalgae are microscopic organisms that are usually identified based on the morphological features. However traditional classification are complicated by high levels of morphological plasticity and convergence that will lead to uncertain identification especially at the species level. Therefore, molecular marker is advantageous to distinguish and correctly identify microalgae at the lowest taxonomic level based on the genetic information and phylogenetic analyses. In the present study, we have characterized five strains of microalgae that were deposited in Borneo Marine Research Institute based on 18S rDNA gene sequences. The BLAST results of microalgae sequences showed high percentage similarities that revealed the species as Chaetoceros gracilis (99.77%), Thalassiosira weissflogii (99.70%), Nannochloropsis oceanica (100%) and Isochrysis sp. (99.97%). Combination of both classical and genetic approach is vital to clearly identify microalgae at generic and species levels.