New records for freshwater dinoflagellates: Peridinium sp. and Gonyaulax sp. discovered in North Lake of Hutan Simpan Ayer Hitam, Puchong

ABSTRACT

In Malaysia, there are very less emphasis given on freshwater dinoflagellates, hence less information are available for freshwater species which also plays a part in ecological functions. This study focused on the diversity and abundance of dinoflagellate species found at the oligotrophic lake of North Lake of Hutan Simpan Ayer Hitam, Puchong. Dinoflagellates are flagellated protist that could be photosynthetic and heterotrophic in both freshwater and marine waters. They are the crucial primary producer being second only to the diatoms among the micro-phytoplankton in the 10μm to 200μm. This research focused on the morphological and taxonomic studies of those dinoflagellates discovered through microscopical identification using scanning electron microscope up to 3500 X magnification. This study revealed out the existence of different species dinoflagellates believed to belong to two different genus of Peridinium (order Peridiniales) and Gonyaulax (order Gonyaulacales). Three species of Peridinium and 2 species of Gonyaulax were identified. Morphological and taxonomic identification were done using their thecal plate counts and different suture width and pattern. Peridinium has a distinctive characteristics of having 2 antapical plates (2000) while Gonyaulax to possess single antapical plate (1000). The actual plate formula for species belonging to order Peridiniales is 40 2-3a, 70 500 2000 while order Gonyaulacales is 40 500 6006C, 5S (sulcal plates), 6001000. The width of the suture for Peridinium sp. varies from approximately ~1μm to 2μm while for Gonyaulax sp, it accounted for ~1 μm to 5.5 μm. As a conclusion, the study on Dinoflagellates belonging to the phylum of Dinophyceae from the North Lake of Hutan Simpan Ayer Hitam brought a new information on the diversity of dinoflagellates thriving in this lake which could be utilized as a reference if there were freshwater algal blooms occurring in Malaysia in order to trace the organism causing it.

Keyword: Freshwater dinoflagellates; Scanning electron microscope (SEM); Taxonomy; Peridinium sp.; Gonyaulax sp.