

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 10 m to 200 m. 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 (2~~000~~) while *Gonyaulax* to possess single antapical plate (1~~000~~). The actual plate formula for species belonging to order Peridiniales is 4~~0~~ 2-3a, 7~~0~~ 5~~00~~ 2~~000~~ while order Gonyaulacales is 4~~0~~ 5~~0~~ 6~~00~~ 6C, 5S (sulcal plates), 6~~00~~ 1~~000~~. The width of the suture for *Peridinium* sp. varies from approximately ~1 m to 2 m while for *Gonyaulax* sp, it accounted for ~1 m to 5.5 m. 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.