

Physico-chemical parameters and trophic status of an acidic lake in Hutan Simpan Ayer Hitam, Puchong

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Abstract

Relationship between physico-chemical parameters including pH, Temperature, total dissolved solid, dissolved oxygen, light intensity, ammonia, nitrate, silica, and phosphate with microalgae diversity were studied. Water sampling was conducted biweekly for 4 months from October 2015 to February 2016 for 15 weeks in North Lake of Hutan Simpan Ayer Hitam Puchong. Physico-chemical parameters were determined at site and laboratory. Data analysis including Pearson Correlation Analysis, Principal Component Analysis, and Canonical Correspondence Analysis were carried out. Green algae, *Staurastrum* sp. and *Chlamydomonas* have a positive correlation with pH and total dissolved solid. *Cosmarium* spp. have a positive correlation with dissolved oxygen and have association with increased pH and ammonia. Diatom, *Navicula* sp. have high negative correlation with pH and have association with increased silica. Dinoflagellates, *Gymnodinium* sp. and *Gonyaulax apiculata* both have high negative correlation with pH. *Gymnodinium* sp. have association with increased phosphate and temperature. *Gonyaulax apiculata* have a positive correlation with temperature. Based on research, this lake were slightly acidic but remains oligotrophic North Lake of Hutan Simpan Ayer Hitam Puchong are acidic but oligotrophic due to pH in range of acidic condition but below the boundary of phosphate concentration from 0.01mg/L to 0.075mg/L suggested by USEPA (2002) in aquatic systems.

Keywords: Acidic lake, Hutan Simpan Ayer Hitam, physico-chemical, trophic status, CCA.

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