COMPARISON OF PHYSICO-CHEMICAL CHARACTERISTICS OF NATURAL (LAGUNA DE BAY) AND ARTIFICIAL (DLSU-D LAKE) FRESHWATER ECOSYSTEMS

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ABSTRACT

The Lake ecosystems in the Philippines, just like other freshwater ecosystems, are subjected to continuous degradation due to environmental and anthropogenic factors. Whether it is natural or man-made, lakes served various functions which are important for the survival of man and other living organisms dependent on them. In this regard, the quality of water should be assessed in order to establish measures that would protect and improve their quality. In the present study, the natural and artificial lakes represented by De La Salle University-Dasmariñas (DLSU-D) Lake and Laguna de Bay (Laguna Lake) respectively were subjected to a 3-month water quality monitoring by comparing their physico-chemical characteristics: dissolved oxygen (DO), biological oxygen demand (BOD), pH, depth, temperature, salinity, conductivity, total nitrogen and total phosphorus. Using Kruskal Wallis Test, it demonstrated that the total nitrogen of both lakes showed a significant difference among all the water quality parameters ($p\ value < 0.05$). Based on the data, DLSU-D Lake has higher amount of total nitrogen content than Laguna de Bay and this could be attributed to various ecological factors such as the confined environment of the man-made lake. Overall, there is no significant difference found in the physico-chemical parameters of the water samples obtained from both lakes. However, high nitrogen and phosphate, low DO levels, increasing temperatures and basic pH showed that these two lakes are nutrient-rich; a clear indication that pollution is already occurring. It is therefore recommended to conduct a continuous monitoring of the lake water quality in order to preserve its ecological functions and to promote a sustainable management of freshwater ecosystem.

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