CORRELATION OF THE RELATIVE ABUNDANCE OF MACROBENTHOS
WITH THE PHYSICO-CHEMICAL PARAMETERS OF THE LAKES OF
THE ORCHARD GOLF AND COUNTRY CLUB,
DASMARIÑAS, CAVITE

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ABSTRACT

This study is conducted to determine the water quality of three lakes in The Orchard Golf and Country Club. Each lake was divided into three sampling stations: A, B, and C. Three samples were taken at each station using an improvised Surber-sampler, Ekman bottom-grabber and bottom water-sampler. Sampling was done every other week during the months of June and July for a total of three sampling days. Each sampling day includes collection, identification of macrobenthos species in each lake, and measurement of the physico-chemical parameters: light penetration, temperature, pH, nitrates, phosphates, dissolved oxygen (DO) and biological oxygen demand (BOD). Each of the physico-chemical parameters was correlated with the relative abundance of each species of macrobenthos. Analysis of Variance-Single Factor and Tukey-Kramer method were also performed to determine if there were significant differences in the physico-chemical parameters of the three lakes. It is shown that there are no significant differences in light penetration and temperature. Nitrate and phosphate have no significant difference in Lake 2 and Lake 3.

A total of 1750 live macrobenthos were collected and identified under the Class Bivalvia and Gastropoda of the Phylum Mollusca. Four (4) macrobenthos were found in Lake 1, six-hundred four (604) in Lake 2 and one thousand one hundred forty two (1142) in Lake 3. A total of seven species were identified: *C. arata, Cyclotus sp,. Faunus ater, Helicostyla sp., M. tuberculata, Parreysia sp.,* and *P. ampullacea. M. tuberculata* have the highest relative abundance meanwhile *Cyclotus sp.* and *Parreysia sp.*.have the lowest.

The pearson r-values show a consistent negative correlation of species with DO and negative correlation of species with pH in Lake 2. Several species show no correlations. In Lake 1, *Cyclotus sp. and Helicostyla sp.* have no correlation with nitrate. In Lake2, *C. arata* have no correlation with light penetration, temperature, phosphate, DO and BOD, *F. ater* have no correlation with temperature and BOD, and *P. ampullacea* shows no correlation with pH and BOD. In Lake 3, *Helicostyla sp.* shows no correlation with nitrate and phosphate, while *P. ampullacea* shows no correlation with light penetration, DO, and BOD.

Only four species show significant associations with the physico-chemical parameters at 0.05 level. These are *F. ater, M. tuberculata, Parreysia sp.,* and *P. ampullacea.*

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