

Assessment of physico-chemical parameters of water in Negombo lagoon during COVID-19 pandemic

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Negombo Lagoon is a shallow basin located between 79°48'57"-79°52'4"E and 7°5'56"- 7°12'29"N on the West coast of Sri Lanka. Industrial and domestic pollution sources could adversely affect on water body. The prevalence of the COVID-19 pandemic minimized fisheries activities and the pandemic may affect to the quality of lagoon water. Therefore, this study aimed to determine the changes of physico-chemical parameters of water, during COVID-19 outbreak. The study was carried out monthly from March to August 2021 in twelve randomly selected sampling locations. Water Temperature (WT), pH, salinity, Electrical Conductivity (EC), turbidity, Dissolved Oxygen (DO), Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), oil and grease, Chemical Oxygen Demand (COD) and nutrients (NH₄-N, NO₃-N, NO₂-N and PO₄⁻³-P) were determined as outlined in Standard Methods for Examination of Water and Waste Water (APHA, 2012). Data were analysed using Minitab 14 statistical software. Mean values of WT (29.50±0.85 °C), pH (7.64±1.05), salinity (23.50±1.42 ppt), DO (7.25±1.45 mg/l), BOD (20.50±2.45 mg/l), EC (32.24±3.45 mS/cm), turbidity (8.45±1.65 NTU), TDS (32.50±2.46 mg/l), TSS (10.65±0.45 mg/l), oil and grease (5.24±0.45 mg/l), NO₃-N (0.35±0.01 mg/l), NO₂-N (0.25±0.05 mg/l), PO₄⁻³-P (0.24±0.05 mg/l), NH₄-N (0.24±0.05 mg/l) and COD (325±10.54 mg/l) were within the range of the tolerance limits for coastal water standards of the Central Environmental Authority. Results of One-way ANOVA revealed that there was no significant difference (p<0.05) in measured physico-chemical parameters of lagoon water during the COVID-19 pandemic besides in BOD values. This study can be considered as a baseline for future studies on evaluating the effect of lagoon fishery in Negombo during the COVID-19 pandemic.

Keywords: COVID-19, Negombo lagoon, physico-chemical parameters

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