

Assessment of Nitrate and Phosphate Levels in Natural Water Bodies in Badulla District

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Water plays a significant role in human life and the environment. Due to the application of pesticides and weedicides in agricultural activities and dumping of solid wastes on open dumpsites, water resources are now in danger near urban and also rural areas of *Badulla* district. With the rainfall and widely spanned streams, it is very easy to contaminate the water resources in some areas of *the Badulla* district. The objective of this study was to identify the NO_3^- and PO_4^{3-} concentrations of selected natural water bodies in *the Badulla* district. Water samples were collected from natural water bodies located in all 13 divisional secretariat divisions including *Haldummulla, Haputhale, Bandarawela, Ella, Welimada, Uva-Paranagama, Soranathota, Hali-Ela, Lunugala, Passara, Meegahakiula, Kandaketiya*, and *Badulla* during the period from January to December 2019. Onsite measurements of temperature, pH, conductivity, and dissolved oxygen were measured using portable pH, Dissolved Oxygen (DO), and conductivity meters respectively. Laboratory analysis was conducted to determine NO_3^- and PO_4^{3-} concentrations using a UV spectrophotometer. The results were compared with the Sri Lanka Standards (SLS 614:2013) for potable water. The results revealed that NO_3^- concentrations of all water samples were lying under the SLS potable water quality standards. PO_4^{3-} concentrations of many water samples exceed the maximum permissible level of 2 mg L^{-1} for potable water. The water sample collected from “*Narangahakiula*” in *Meegahakiula* division showed the highest PO_4^{3-} concentration value of 17.6 mg L^{-1} and all the water samples collected from *Soranathota, Ella, Bandarawela, Welimada, Uva Paranagama Meegahakiula, Kandaketiya* and some other water samples collected from *Haldummulla* and *Passara* showed higher PO_4^{3-} concentration values more than the permissible level. The study indicates that the pollution potential of downstream areas where the catchment is disturbed by human activities.

Keywords: Physico-chemical parameter, PO_4^{3-} , NO_3^- , Water quality, Water pollution

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