Physicochemical Properties of Ayeyarwaddy River Water from the Selected Areas in Pyay Township, Bago Region

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Abstract

Ayeyarwaddy river water used for households, irrigation, processing in industries in the townships along the river banks. In this research, Ayeyarwaddy river water samples from Sinsu quarter and Nawin quarter, Pyay Township, Bago Region were collected in January and March, 2020 for the determination of physicochemical parameters. The physicochemical parameters of all water samples such as temperature, pH, dissolved oxygen, total dissolved solids, total suspended solids, total alkalinity, total hardness, chlorinity and salinity were determined by the AOAC method, EDTA titration method and Mohr's titration methods. Mineral contents and trace metals contents of river water samples were also determined by the EDXRF and AAS method. The obtained results were compared according to the WHO standard. The physico-chemical parameters like temperature and pH recorded were in a range of 22 - 28 °C and 6.6 - 6.9, respectively. Besides, total dissolved solids (TDS), total suspended solids (TSS), total alkalinity, total hardness, salinity and dissolved oxygen of river water samples recorded were in the ranges of 0.6 - 5.1 ppm, 0.06 - 0.2 ppm, 170 - 210 ppm, 35 - 61 ppm and 0.0428- 0.0556 ppt and 6.2 - 6.87 ppm respectively. The EDXRF analysis, Ca, Fe, Ho, Cu, S, Mn and Co were detected in river water samples. Ca, Cu, Mn and Co contents in Nawin quarter water sample was lower than those in Sinsu quarter river water sample. The quantitative determinations of some minerals such as Pb, Cd, Ca, As, Mn, Cu and Fe were determined by using the AAS method. The Ca content in Sinsu quarter water sample is higher than that in Nawin guarter. The minerals such as Pb, Cd, As, Mn contents were found 0.00001 ppm both sampling sites in two-time duration of analysis and all determined values were within the range of WHO standard. Fe element was not found in both sites.

Keywords: Ayeyarwaddy river water, water quality, physicochemical parameters

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