IDENTIFICATION OF CKDu EMERGING AREAS IN BADULLA DISTRICT AND ANALYZE WATER QUALITY PARAMETERS

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Predominant prevalence and significant increase in the number of patients with Chronic Kidney Disease of unknown etiology (CKDu) has been recorded from the communities other than North Central Province. Uva Province is one of the risk areas among them. Present study was conducted to identify CKDu prevailing areas in Badulla district and analyze the quality of water resources of particular potential areas. CKDu prevailing areas in Badulla district was identified through the available data at district secretariat office, divisional secretariat (DS) offices and gramasewa offices. Water samples were collected from wells that were used to drink by CKDu affected households for five to ten years of time and from reservoirs in the area. A set of water samples from Mahiyangana DS (wells n = 17 and reservoirs n = 3), Rideemaliyadda DS (wells n = 5, and reservoirs n = 4), and Kandaketiya DS (n = 5) were collected from January to March in 2019. They were analyzed for basic water quality parameters such as pH, electric conductivity (EC), alkalinity and dissolved oxygen (DO). Sampling sites were recorded using a Global Positioning System (GPS) navigation device and developed a Geographic Information System (GIS) spatial map of the distribution of the CKDu habitats within Badulla district using QGIS 3.8 software. Mahiyanganaya and Rideemaliyadda DS were identified as CKDu prevailing areas in Badulla district and Kandaketiya DS identified as the recently CKDu emerged area. pH and EC of both wells and reservoirs samples in three potential areas were within the permissible limits defined by Sri Lanka Standards for potable water – SLS 614: 2013. However, pH of the well water site 16 and reservoir site 3 in Mahiyangana DS were very close to exceed the maximum desirable pH limit. Alkalinity of well water samples were within the permissible limits where the range lies between 30 mg L^{-1} - 125 mg L^{-1}, 20 mg L^{-1} - 85 mg L^{-1} and 20 mg L^{-1} - 55 mg L^{-1} in Mahiyangana, Rideemaliyadda and Kandaketiya DS respectively. Further, DO level in all three DS were within the safe levels for drinking with regard to SLS standards.

Keywords: *CKDu, Badulla district, Prevalence, Water quality, GIS map*