

## Determination of cadmium, arsenic and total hardness of drinking water in selected locations of Anuradhapura and Polonnaruwa districts

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Water is one of the most important of all natural resources known on the earth. The safety of drinking water is important for the health, but can be affected by various contaminants. Such contaminants cause serious health problems. This study was carried out to determine the levels of cadmium (Cd), arsenic (As) and total hardness of drinking water in selected areas of Anuradhapura and Polonnaruwa districts. A total of sixty drinking water samples were randomly collected from Polonnaruwa, Horowpothana, Nochchiyagama, Labunoruwa and Kebithigollewa areas. Total hardness was measured in mg CaCO<sub>3</sub>/L (ppm) by titration method while the Cd and As concentrations were determined by Atomic Absorption Spectrometry (AAS). Total hardness in the samples analysed varied between ND (not detected) to 174 ppm. The highest value of total hardness was recorded from Labunoruwa (174 ppm) while the detected highest value of average total hardness was recorded from Nochchiyagama (73.2 ppm). Cd ranged between ND and 2.62 µg/L. The highest mean Cd level was recorded from Horowpothana (0.52 µg/L). Overall, the mean Cd levels in the sampled water followed a descending order, Horowpothana > Polonnaruwa > Nochchiyagama > Labunoruwa = Kebithigollewa. Arsenic levels in water samples of study area varied from 0.00 µg/L to 5.02 µg/L. The highest mean concentration of As was observed at Polonnaruwa (2.57 µg/L). The trend of accumulations of As in water in these locations was as follows: Polonnaruwa > Horowpothana > Nochchiyagama > Labunoruwa = Kebithigollewa. The study revealed that Cd, As and total hardness of water sources in study areas did not exceed the acceptable standard levels of World Health Organization.

**Keywords:** Arsenic, Cadmium, Drinking water