Abstract

Nitrates in Potable Water in Barbados

Kalamo Shane Farley

Monthly screening for nitrates in well water used in the Barbados water distribution system is done by the Barbados Water Authority. The actual nitrate levels in the water that reaches the consumer, is currently is not part of this testing regime, and could also serve as an indicator of the water quality.

In this study, the nitrates levels in potable water in Barbados were determined in ten sample sites. Initial water samples were collected from the taps of the households in the study areas during the wet and dry seasons. This was followed by sampling of household water in the wet season over a two-week period, at five time points during a day. Nitrate levels in the water from all household sampled were found to be below 10 ppm. The highest nitrate level of 8.762 ppm was found at the St. Elizabeth sample site. Nitrate levels in the household water were determined to be higher during the dry season, than during the wet season.

At all sites, nitrate levels did not vary significantly over the two-week period, nor at different times during a day. There was however variation between nitrate levels in household tap water and the wells that supply them, suggesting some modification of the water while in the pipes of the distribution system.

A correlation between nitrate levels and activity within the catchment areas of the wells is demonstrated. Both agricultural activity and urban land usage

within the catchments were shown to contribute significantly to the nitrate levels determined.

Variation in the nitrate levels between well water and household water shows that testing the well water alone may not give an accurate representation of the water that is reaching the households. Regular testing of household water will help to provide an even more precise assessment of the quality of water, in the case of nitrates, that is being consumed in Barbados.

Keywords: Nitrate levels; Potable water; Water quality