

Investigative studies on water contamination in Bangladesh – Primary treatment of water samples at the sampling site –

K. Sera¹, MD. Shafiqul Islam², T. Takatsuji², T. Nakamura²,
S. Goto³, C. Takahashi³ and Y. Saitoh³

¹Cyclotron Research Center, Iwate Medical University
348-58 Tomegamori, Takizawa, Iwate 020-0173, Japan

²Faculty of Environmental Studies, Nagasaki University
1-14 Bunkyocho, Nagasaki 852-8521, Japan

³Nishina Memorial Cyclotron Center, Japan Radioisotope Association
348-58 Tomegamori, Takizawa, Iwate 020-0173, Japan

Abstract

Arsenic concentration in 13 well waters, 9 pond waters, 10 agricultural waters and a coconut juice taken in Comilla district, Bangladesh, where the problem of arsenic pollution is the most severe, was investigated. High-level arsenic is detected even in the well water which has been kept drinking by the people. Relatively high arsenic concentration was detected for some pond and farm waters even though the sampling was performed just after the rainy season and the waters were expected to be highly diluted. Clear relationship was observed in elemental compositions between the pond water and the coconut juice collected at the edge of the water. These results are expected to become the basic information for evaluating the risk of individual food such as cultured fishes, shrimps and farm products, and for controlling total intakes of arsenic. In order to solve the problem of transportation of water samples internationally, a simple method of target preparation performed at the sampling site was established and its validity was confirmed. All targets were prepared at the sampling sites in this study on the basis of this method.

Keywords : PIXE, Arsenic, Poisoning, Contamination, Well water, Pond water, Bangladesh, Keratosis, Leucomelanosis