Electrochemical Research—Connects TITech (Japan) and BUET (Bangladesh) to Develop a Strong Academic Friendship

Al-Nakib Chowdhury (Bangladesh University of Engineering and Technology)

About author:

Dr. Al-Nakib Chowdhury, Professor of Chemistry at Bangladesh University of Engineering and Technology (BUET), Bangladesh, was born in 1961. Prof. Chowdhury did his Ph.D. from Hiroshima University of Japan in 1996; he was post-doctoral fellow at Tokyo Institute of Technology (TITech), Japan; all together as of now, Prof. Chowdhury visited Japan five times through the awards from MEXT, JSPS and JASSO. His research interests are associated mainly with Materials, Environment and Applied Electrochemistry.

Friendship through Electrochemistry! Yes, it is!! The existing academic and research activities of TITech and BUET made a strong bondage of friendship between the two peace-loving countries, Japan and Bangladesh. During 90’s, when I was planning for higher study in abroad, Japan then came to my mind as one of the lovely place to go for Ph.D. Accordingly, I came to Hiroshima University in 1992 for my Ph.D and that turned on my first research experience in Electrochemistry. After completion of Ph.D, I returned Home and join my work at BUET but keeping constant touch with my Japanese counterparts. This is how, the initiation of our friendship seeded.

In 1999, when I was visiting TITech, particularly the three pioneers of Electrochemistry of Japan, Prof T. Nonaka, Prof T. Fuchigami and Prof T. Ohsaka extended their generous efforts to connect TITech and BUET for a platform to conduct collaborative research on Electrochemistry between the two institutions. Through this friendship platform, as of now, I and two of my colleagues have visited TITech several times. Prof T. Ohsaka with two other professors of TITech visited BUET two times. Meanwhile, my TITech counterparts have started to accept my students from Bangladesh for their post-graduate studies at TITech. As high as eleven students have already been accepted by Prof Ohsaka and

![Fig. 1](image1.png) Photograph of Prof. Al-Nakib Chowdhury (sitting 3rd from the left) with other Professors of TITech and some Bangladeshi students currently pursuing post-graduate and post-doctoral studies at TITech.

![Fig. 2](image2.png) Simultaneous electrochemical (LSV) detection of As⁺⁺, Cu⁺⁺ and Hg⁺⁺ contained in water by GC/e-nAu/c-nAu (pH = 3.05) nanoelectrode.
one student by Prof. K. Okada for pursuing their Ph.D at TITech. Most importantly, Prof. Ohsaka started dealing with a project on Arsenic (As) contaminated water which remains as the most environmental risk in Bangladesh. During my visits at TITech, I was fortunate to be involved in As research and carried work on the fabrication of nanoparticle based As sensor. The sensor we developed at TITech can perform electrochemical detection of As even at its very low concentrations (ppb level) in water. Moreover, not only As, the sensor can detect other water contaminates like copper (Cu) and mercury (Hg). A typical electrochemical response of the sensor for As, Cu and Hg is presented in Fig. 2. It is indeed worthwhile to be noted that the electrochemical technique for detection of water contaminates appears to be more powerful, simple and cost effective over the other methods of detection so far reported. Developing country like Bangladesh must be highly benefited with such a simple, cost effective As detection technology. I personally thank Prof. Ohsaka for pursuing research on As which would certainly bring a great benefit to the people of Bangladesh.

Above all, in addition to Prof. Fuchigami’s kindest and very effective contribution in developing TITech-BUET friendship, I express also a great thanks to him for inviting me to write this report in the very prestigious “Electrochemistry” journal.