

Program for Advancing Strategic International Networks to Accelerate the Circulation of Talented Researchers  
Japan-ASEAN Collaboration Research Program on Innovative Humanosphere in Southeast Asia:  
In search of Wisdom toward Compatibility Growth and Community in the World

Report

Period of inviting: Jan 09 – Feb 7, 2015

Place of accepted: Graduate School of Global for Environmental Studies.

Kyoto University

Name: Dinh Quang Hung

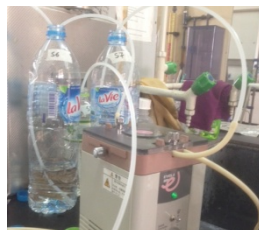
Institute/University: School of Environmental Science and Technology.

Hanoi University of Science and Technology

Water contamination by persistent organic pollutants (POPs) such as perfluorinated compounds (PFCs) is a major emerging issue. PFCs have been found in water environment, treated wastewater in many countries in the world. With the trend of moving industries from the developed countries to the developing countries, Viet Nam might be facing with the water pollution issues related to PFCs. Therefore, this research focused on investigating the occurrence of 12 PFCs in treated industrial wastewater industrial WWTPs in Hanoi, Vietnam. This research was the first study on the PFCs in treated industrial wastewater in Hanoi.

A field survey was carried out in Hanoi, from December 18 to 24, 2014. Treated wastewaters of six industrial parks (IPs) and ten factories (Fs) were collected. A solid phase extraction (SPE) and HPLC-ESI-MS/MS were used for PFCs analysis. Samples were filtered by GF/B glass fiber filters and then passed through the PresepC-Agri connected with Oasis<sup>®</sup>HLB cartridge. These two steps were conducted in Hanoi. The loaded cartridges were then brought to Japan for further treatment and analysis.

The analyzed results showed that, PFCs were detected in all treated wastewater samples. Total PFCs concentrations were 1.86 - 1,289.97 ng/L for IPs and 0.36 - 129.13 ng/L for Fs. Perfluoroalkyl sulfonate (PFAS) was dominant in treated wastewater with the total concentration of 1155.5 ng/L (77.5%). Perfluorooctane sulfonate (PFOS) was founded as the highest concentration (725.13 ng/L) among the analyzed PFCs, following by perfluorobutane-sulfonic acid (PFBS, 429.05 ng/L). PFCs founded in treated wastewater in Hanoi suggested the necessary of the continuing researches on the occurrence of PFCs in industrial wastewater as well as in domestic wastewater and water environment.



Sampling in industrial parks and factories in Hanoi

Loading samples in Hanoi

Eluting samples in Kyoto