



“Gheorghe Asachi” Technical University of Iasi, Romania



SOURCES AND OCCURRENCE OF NON-PESTICIDE PERSISTENT ORGANIC POLLUTANTS (POPs). THE CASE STUDY OF TAIWAN

Wen-Tien Tsai

*National Pingtung University of Science and Technology, Graduate Institute of Bioresources, Pingtung 912, Taiwan,
E-mail: wttsai@mail.npust.edu.tw, Phone: +886-8-7703202; Fax: +886-8-7740134*

Abstract

Non-pesticide persistent organic pollutants (POPs) under the Stockholm Convention include polychlorinated biphenyls (PCBs), polychlorinated dibenzo-*p*-dioxins and polychlorinated dibenzofurans (PCDDs/PCDFs), polybrominated diphenyl ethers (PBDEs), polybromobiphenyls (PBBs) and perfluorooctane sulfonate (PFOS), which are industrial chemicals and/or unintentional byproducts that remain in the environment, bioaccumulate in human and animal tissue through the food chain, and have adverse effects on human health and the environment. The objectives of this paper were to present the environmental properties, sources and toxicity of the non-pesticide POPs and their occurrence and environmental distribution in Taiwan. The success of significant reduction of non-pesticide POPs in Taiwan has been ascribed to the National Implementation Plan (NIP) and the regulatory infrastructure, which have been established by the joint-venture of the central competent authorities, including the Environmental Protection Administration (EPA), the Department of Health (DOH), the Council of Agriculture (COA), the Council of Labor Affairs (CLA) and the Ministry of Economic Affairs (MOEA). From the monitoring data on the non-pesticide POPs in ambient air, river water, and sediment/soil, and their emission inventories from major sources, the potential risk exposed to these chemicals showed a declining trend over the past decade. The significant progress in reducing the emissions of PCDDs/PCDFs from the stationary sources was also analyzed as a case study in the paper.

Key words: control strategy, dioxins, environmental distribution, persistent organic pollutants (POPs), regulatory system

Received: July, 2010; Revised final: June, 2012; Accepted: July, 2012
