

# Pesticide residues in soils, sediments, and vegetables in the Red River Delta, northern Vietnam

Nishina T., Kien C.N., Noi N.V., Ngoc H.M., Kim C.-S., Tanaka S., Iwasaki K.

Faculty of Agriculture, Kochi University, B200, Monobe, Nankoku, 783-8502, Japan; United Graduate School of Agricultural Sciences, Ehime University, Ehime, 790-8566, Japan; Faculty of Chemistry, Hanoi University of Science, Hanoi, Viet Nam; Graduate School of Kuroshio Science, Kochi University, Kochi, 783-8502, Japan

**Abstract:** This study assessed pesticide residues in soils, sediments, and vegetables in the Xuan Khe and Hop Ly communes located along the Chau Giang River in the Red River Delta, northern Vietnam. Samples were collected from agricultural areas within and outside of embankments built to prevent flooding. In Xuan Khe, the soils outside of the embankment were more clayey with higher organic matter contents compared with the inside, due to selective deposition during river flooding. Many of the soils contained significant amounts of pesticides including dichlorodiphenyltrichloroethane (DDT), dicofol, isoprothiolane, and metalaxyl although their levels were below the maximum allowable concentration set by the Vietnamese government. The spectrum of DDT derivatives found suggested that the source of DDTs was not contaminated dicofol. Soils in Hop Ly resembled soils in Xuan Khe but were relatively sandy; one field showed appreciable contents of DDT derivatives. The ratios of (p, p'-dichlorodiphenyldichloroethylene + p, p'-dichlorodiphenyldichloroethane)/DDT in the surface and subsurface soils in Hop Ly were 0.34 and 0.57, suggesting that the DDTs originated from recent application. Pesticide residues in soils were not likely to translocate into vegetable crops, except for metalaxyl. High concentrations of cypermethrins in kohlrabi leaves could be ascribed to foliar deposition. © 2009 Springer Science+Business Media B.V.

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Correspondence Address: Iwasaki, K.; Faculty of Agriculture, Kochi University, B200, Monobe, Nankoku, 783-8502, Kochi, Japan; email: [kozo@kochi-u.ac.jp](mailto:kozo@kochi-u.ac.jp)

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Authors with affiliations:

1. Nishina, T., Faculty of Agriculture, Kochi University, B200, Monobe, Nankoku, 783-8502, Japan
2. Kien, C.N., United Graduate School of Agricultural Sciences, Ehime University, Ehime, 790-8566, Japan
3. Noi, N.V., Faculty of Chemistry, Hanoi University of Science, Hanoi, Viet Nam
4. Ngoc, H.M., Faculty of Chemistry, Hanoi University of Science, Hanoi, Viet Nam
5. Kim, C.-S., Faculty of Agriculture, Kochi University, B200, Monobe, Nankoku, 783-8502, Japan
6. Tanaka, S., Graduate School of Kuroshio Science, Kochi University, Kochi, 783-8502, Japan
7. Iwasaki, K., Faculty of Agriculture, Kochi University, B200, Monobe, Nankoku, 783-8502, Japan