Kinetic differences of legacy organochlorine pesticides and polychlorinated biphenyls in Vietnamese human breast milk

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Abstract: The present study investigated the current contamination status and evaluated several kinetic-related features of organochlorine pesticides (OCPs) and PCBs in human breast milk collected from northern Vietnam. The variation in the levels of these contaminants was found to be strongly associated with total lactation time and dietary habits. OCPs exhibited the characteristics of steadily declining compounds: the overall levels of DDTs and HCHs in the population decreased with a half-time of only 5 years and it can be suggested that OCPs depurated relatively fast with breastfeeding (5% per month). PCBs were slower in both regards, with a temporal decrease half-time of 12 years and a suggested depuration rate via breastfeeding of 2.5% per month, indicating that the exposure level was still high relative to the human body burden. It was found that the PCB exposure levels of infant from breastfeeding exceeded the reference dose, and this situation may continue for the next two or three decades. Knowledge of these kinetic-related characteristics not only is useful for risk assessment and prediction of future trends of legacy contaminants but also may provide insight regarding similar kinetic processes of emerging persistent pollutants. © 2010 Elsevier Ltd.
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