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Title: Studies on the sorption behavior and plant uptake of pesticides in Japanese soils

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Abstract: To estimate pesticide residue levels in succeeding crops based on those in soils, the relationship between pesticide concentrations in komatsuna (*Brassica rapa* var. *perviridis*) and the concentrations extracted sequentially from soils using water and acetone was investigated. The concentrations of many pesticides in komatsuna shoots showed higher positive correlation with water-extractable concentrations (CW) than total-extractable concentrations in soils, so that the CW was available for evaluating the phytoavailability of pesticides in the soil. As a result of examining the dissipation behavior of the CW, the dissipation of the CW was able to be predicted by considering time-dependent soil sorption, which could be estimated using the sorption coefficients (K_d) measured by a standard batch method. Furthermore, the present study showed that the properties of soil organic carbon such as black carbon content and the molecular structure of pesticides were important for estimating the K_d values more accurately.

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