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Concentration and loading of several pesticides in water, suspended solids and sediment during ordinary water discharge in Sugao marsh, Ibaraki Prefecture, Japan

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Abstract:

Concentrations of esprocarb, thiobencarb, dimethametryn, pretilachlor and simetryn in water, suspended solids and sediment were studied during ordinary water discharge over the course of a year in Sugao marsh, Ibaraki Prefecture, Japan. Periodic changes in pesticide concentrations in water were similar to those in suspended solids. Pesticides were mostly present as dissolved form in water. Namely, the partition ratios of total suspended solids in whole water samples were 0.37–2.5% as the median, and the ratios of pesticide loading as adsorbed form on suspended solids against total pesticide loading were 0.42–4.6%. However, the concentrations of pesticides were higher in fine suspended solids (0.5 to 1.0 μm) than coarse suspended solids (more than 1.0 μm). Fine suspended solids loaded with pesticides were estimated to be 18 to 59% of all suspended solids, indicating their important role as a carrier of pesticides. Moreover, vertical distributions of pesticides in sediment down to a depth of 15 cm were not clearly shown, probably due to the disturbance of sediment at the surface by actual water flow. © Pesticide Science Society of Japan

Keywords:

pesticide loading, suspended solids, particle size, sediment, ordinary water discharge

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