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Pesticide Contamination in Groundwater on Okinoerabu Island, an Intensive Agricultural District in Japan

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Abstract:

Okinoerabu Island is one of the typical agricultural districts in Southwest Islands of Japan. More than three times as much pesticides as the nationwide average are consumed on each unit area of land for floriculture and other intensive agricultures in Wadomari-town, on the northeast half of this island. The contamination with pesticides (fenitrotion, diazinon, prothiofos and captan) in 115 groundwater samples at 33 locations on this island were determined. Fifteen samples at eight locations were found to contain some of these four pesticides. This result indicates that the groundwater can be polluted by pesticides used for intensive agricultures. Among the four analysed pesticides, the amount of captan used was the greatest in Wadomari-town. However, it was found in only two groundwater samples. These are located in the northeast part of this town, where the intensive floriculture is more extensive. The contaminations with fenitrotion and diazinon were detected in the samples from various locations throughout all seasons. In addition, the ratio between the concentrations of these two pesticides in the samples from one significantly polluted point did not vary fundamentally whenever they were detected. This result suggests that these pesticides penetrate to the groundwater rather constantly and slowly in this island.

Keywords:

Floriculture, Groundwater Pollution, Intensive agriculture, Pesticide

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