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Original

Radioactive Cs Distribution of Paddy Field Ecosystems in Eastern Part of Nihonmatsu, Fukushima, Japan

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Summary

Radioactive elements including ^{137}Cs were analyzed in various animals such as aquatic invertebrates, insects, amphibian and reptilian collected from paddy ecosystems of eastern part of Nihonmatsu-City and from nearby towns, Fukushima, Japan in 2013. In addition, two frog species from Fuchu-City, Tokyo were also analyzed as control animals.

In the analyzed wild animals inhabiting paddy ecosystems, highest concentrations were observed in whole body of tadpoles that is a larva of frog depending on their habitat's levels. After metamorphosis of frogs, radiocesium concentrations decreased in subadult frogs due to non-eating and excretion during metamorphosis. Inter-species differences were suggested between species living in paddy throughout the year and forest species that accumulates radiocesium with high levels.

Sexual difference of radiocesium concentrations in bodies of freshwater gastropod *Cipangopaludina chinensis laeta* and crustacean *Procambarus clarkia* were observed. In case of both invertebrates, radiocesium concentrations in the male were higher than those in female.

The concentrations of radiocesium in the bodies of amphibians (frogs and newts) might be affected by habitat's levels directly. This finding suggests that bioaccumulation of radiocesium depends on limited narrow environments. Therefore, evaluations of bioconcentration and biomagnification are required to consider the species-specific ecological characteristics depending on geographical features such as local predator-prey relationships and mobility capability (range of migration) of each population of animal.

Key Words: Ecosystems of paddy field, Species-specific accumulation, Tissue distribution, Bioaccumulation