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Review

Comparison of Radiocesium Behaviors in Agricultural Environment after Fukushima Dai-ichi Nuclear Power Plant Accident and Chernobyl Accident

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● **Summary** ● Chernobyl Nuclear Power Plant (CNPP) accident and Fukushima Dai-ichi Nuclear Power Plant (FDNPP) accident were the only two Level-7-nuclear accidents in history, a large amount of radionuclide was released and sedimented into environment from both two accidents. To enhance the understanding of the radioecology in agriculture, the behavior of radiocesium in agricultural environment and the environmental impact was compared between CNPP and FDNPP accidents in this paper. The total amount of radionuclide released from CNPP accident was about 10 times larger than that released from FDNPP accident, and the properties of each type of radionuclide were also different. Thus, the radiocesium content in farmland was much larger in Chernobyl zone than that in Japan. The size of radiocesium particles that fallen out from CNPP and FDNPP were similar, while the chemical properties were different. Tillage was used to reduce the radiocesium content in crops placing the higher contaminated surface soil into deeper layers in both two polluted area, and it can significantly reduce the radiocesium content in agricultural products. However, cover crop had no significant influence on the radiocesium content in main crop. Based on the data after two nuclear power plant accidents, the mathematical model of the behavior of radiocesium in agricultural environment should be paid attention, which can help to the development and improvement of decontamination technology.

Key Words: radiocesium, agro-ecosystem, soil, crop

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