

Change in the elution behavior of dissolved radiocesium and physical property in the decay degree of litter of deciduous broad-leaved trees

*Yoshito Sasaki¹, Tadafumi Niizato¹, Satomi Ito¹, Takayoshi Watanabe¹

1. Japan Atomic Energy Agency

Approximately 70% of radiocesium released to land area by the Fukushima Daiichi Nuclear Power Station of Tokyo Electric Power Company Holdings accident was deposited in the forest and would remain in the forest. Dissolved radiocesium would be easy to be incorporated into organisms. There are many unknown parts regarding the elution mechanism of the elution of dissolved radiocesium from organic matter such as litter, which would be a potential source of dissolved radiocesium. Here we report the results of the study on the difference in transfer behavior of dissolved radiocesium at the different degree of decomposition of organic matter of deciduous broad-leaved tree leaves. After making organic matter with different degree of decomposition (litter, leaf mold, humus) using litter collected in deciduous broad-leaved forest in Fukushima prefecture, elution rates of dissolved radiocesium eluted from these organic matters were compared. The highest elution rate was litter in organic matters with different degrees of decomposition. The elution rate of leaf mold and humus was about 1/10 of that of litter. Also, a correlation was observed between the elution rate and the cation exchange capacity. These results suggested that elution rate of dissolved radiocesium from organic matter in forest floor changed, due to changes in physical properties of organic matter accompanying the decomposition.

Keywords: radiocesium, deciduous broad-leaved tree, litter layer, Fukushima Dai-ichi Nuclear Power Plant accident