

## Characteristic of dissolved radiocesium leaching from a forest litter observed from litterbag experiment

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Dissolved radiocesium discharge from a forest catchment in upstream of Ota River in Fukushima, Japan have been reported that the dissolved fraction represents approximately 30% of the total <sup>137</sup>Cs discharge through river [1]. It is considered that main source of dissolved <sup>137</sup>Cs in river water in forest may be leaching from a forest litter [2].

We investigated characteristic of dissolved <sup>137</sup>Cs leaching from litters collected at a coniferous needle (Japanese cedar) and a deciduous broadleaf forests using litterbags (40 cm x 50 cm, 5 mm mesh size) at upstream area of Ota River in Fukushima. Each leaf type of litters was collected into 24 litterbags, respectively, and installed each forest floor at a river side in June, 2017. Triplicate samples were collected at each forest floor and readily transported to laboratory in August (Summer) and December (Winter), 2017. Samples were put in containers and soaked in distilled water at room temperature without mixing. Weight ratio of a wet litter sample to distilled water is 1:10. We took leaching water samples from the containers at 20 min., 2 hours, 24 hours after soaking litter samples in the water. These samples were analysed about <sup>137</sup>Cs activity (Bq/L), dissolved organic carbon (DOC) concentration, and major ions concentration. Total amount of <sup>137</sup>Cs (Bq) in litter was also analysed.

The main results are that the deciduous broadleaf litter showed much higher leaching ratio of <sup>137</sup>Cs (Summer:  $8.3 \pm 2.6\%$ , Winter:  $6.8 \pm 0.9\%$ ) than that of the coniferous needle litter (Summer:  $1.8 \pm 0.2\%$ , Winter:  $1.2 \pm 0.4\%$ ) after soaking during 24 hours. Furthermore dissolved <sup>137</sup>Cs leaching from the litter sampled in summer season was higher than those of sampled in winter season. Dissolved <sup>137</sup>Cs concentration were sharply increased during 20 min. after soaking. DOC, K and Ca concentrations were correlated with the dissolved <sup>137</sup>Cs concentration in leaching water.

Further investigations are needed for hydrologic connectivity between riparian zones and river water about dissolved <sup>137</sup>Cs.

[1] Tsuji *et al.* (2016) *J. Geophys. Res. Biogeosci.* **121**, 2588-2599. [2] Sakuma *et al.* (2018) *J. Environ. Radioact.* **184-185**, 53-62.