25 Study on Characteristic of Cs Uptake by Mycelia of Mushroom in Short Time

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To clarify a mechanism of Cs uptake by the mycelia of mushroom (*Pluerotus ostreatus*), time courses of Cs uptake by the mycelia under various concentrations of Cs (1 mM ~ 100 mM) were investigated.

In comparison with each time course, it was recognized that Cs conc. in the mycelia at 60 min. after addition of Cs was higher with increase of Cs conc. in the media. When Cs conc. in the media was low (~ 10 mM), the rate of change of Cs conc. in the mycelia did not show large difference at each time. When Cs conc. was higher, it was decreased with time after 40 min. from addition of Cs. From this result, it was thought that the rate of change of Cs conc. in the mycelia should be examined from addition of Cs to 40 min. after addition for determination of the rate of Cs uptake of the mycelia.

26 Radioactivity Measurement of Soil at the Bottom of Ohmura Bay for Environmental Research

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Ohmura Bay, located at the center of Nagasaki Prefecture, size of 10 km X 30 km, has only entrance of 200 m width. Ohmura Bay always worried people with the doubt of its harmful environmental pollution.

We sampled the soil with a boat, with measuring the longitude, latitude, and the depth with a fish-finder including a GPS system. Soil at the bottom of the sea was sampled with a core sampler, and the soil sample was cut and divided horizontally to 10 mm thickness. The soil sample was dried and the radioactivity was measured with an ultra-thin-window germanium detector. The samples showed depth dependency of Pb-210 activity and Cs-137 activity.

Estimation of the sedimentation age seems to be available with Pb-210 radioactivity. We expect that the samples reveal the time dependency of the environmental pollution.

27 Behavior of Radiocesium and Related Stable Elements in Forest Ecosystems with Different Contamination Levels

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The long-term fate of radiocesium in forest ecosystems is difficult to predict. As the chemical behavior of radiocesium is expected to be almost identical to that of stable Cs, analyses of stable Cs and related elements should be useful to understand the long-term behavior of radiocesium and its equilibrium distribution. In this study, the concentrations of stable Cs and related elements in mushrooms, plants and soils were determined by ICP-MS or ICP-AES. Samples were collected in forests with different contamination levels in Belarus, Germany, Finland, Italy, Ireland and Japan. Data of stable elements were summarized together with those of radiocesium. Correlation between radiocesium and stable Cs, Cs-137/Cs ratio and its deviation, and factors controlling the Cs-137/Cs ratio will be discussed. The Cs-137/Cs ratio might be an useful criterion for judging the equilibrium of deposited Cs-137 in different parts of a forest ecosystem. The Cs-137/Cs ratio might be also useful to predict the long-term Cs-137 contamination of plants and mushrooms by using stable Cs concentrations.