博士学位論文内容の要旨

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【論文の内容の要旨】

Due to the impact of the Tsunami caused by the Great East Japan Great Earthquake that reached the magnitude of 9.0 which occurred on March 11, 2011, ^{134}Csand ^{137}Cswerediffused in the environmentby Fukushima Daiichi power plant accident. Cesium is known to have properties similar to potassium.Cesium is selectively absorbed into plants by misidentifying cesium as potassium which is a cognate element.Radioactive cesium scattered by the accident is absorbed through plant roots by being redistributed after deposition in soil.Iconducted a unique survey similar to that of the Ministry of Agriculture, Forestry and Fisheries in the Cryptomeria forest in Ome City, Tokyo, and analyzed the radioactivity concentration of cesium contained in cedar pollen.We carried out this survey from December 2011 to December2017for about seven years and examined the change in cesium radioactivity concentration in cedar pollen in Ome city.

The total value of ^{134}Cs and 137 Cs decreased from the average 140.3Bq kg^{-1}in December 2011. Radioactive cesium concentration in cedar pollen in Ome City decreased to 47% on average to 66.6 Bq kg^{-1}inDecember 2012 compared to December 2011.In January 2014, the average was 26.1Bq kg^{-1}and it was 19%. In

December 2014, the average value was 7.2 Bq kg^{-1}, which was 5%, and in October 2015 it was 1%, an average of 1.9 Bq kg^{-1}.After 2016, the measured value isless than 0.0 Bq $kg^{-1}$and it seems to have reached the plateau.There is a difference between the dynamics of radioactive cesium derived from the Chernobyl nuclear accident that has been published so far and the dynamics in Japan. It is thought to be due to climate and terrain peculiar to Japan. In terms of accidents in Fukushima, it can be considered that direct soil was not contaminated as a result of vegetation of cedarforest, which worked in a good directionfrom the viewpoint of decontamination work.