

Experimental result on non-radioactive cesium concentration during sake making process

In case radioactive cesium is contained in unpolished rice, it is assumed that the cesium concentration will be decreased by rice polishing (milling) and washing. However, there was no scientific data on transfer of radioactive cesium during sake making process. Thus, we implemented research on transfer of non-radioactive cesium (^{133}Cs) during sake making process to estimate the transfer of radioactive cesium from rice to sake.

First, we analyzed cesium concentration of rice during polishing process. When 30% of the outer layer of unpolished rice was removed by polishing, which is called 70%-polishing rate, the cesium concentration reduced to about 20% of that of the unpolished rice. Further polishing had little effect on cesium concentration.

Next, we performed a sake making test using rice with 70%-polishing rate and analyzed the cesium concentration of products. The result showed that 43% of cesium contained in the raw materials (rice and water) was transferred to sake, 23% to sake cakes, and 34% was removed during the process such as rice washing.

Assuming that radioactive cesium behaves as nonradioactive cesium, and that 2 liters of sake is produced from 1 kg of polished rice, it is estimated that 100 Bq/kg of radioactive cesium in unpolished rice will be reduced to 20 Bq/kg in 70%-polished rice, and to 5 Bq/kg in sake. The results suggest that a large fraction of radioactivity is removed by sake making process and little radioactivity remains in the final product.

Transfer of non-radioactive cesium (^{133}Cs) during sake making process

