Analysis of the trace elements in paddy water, irrigation water and rice plants of mountainous region in Fukushima-city

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Abstract

PIXE analytical technique was applied to determine concentration of trace elements in paddy water, irrigation water (pond water and spring water) and leaves of rice plants, collected from May, 2014 to October, in mountainous region in Fukushima-city.

Concentration of 19 elements in total, such as Na, Mg, Al, Si, P, S, Cl, K, Ca, Ti, V, Cr, Mn, Fe, Cu, Zn, Ba, Br, Sr, were satisfactory determined. As a result, elements related to growth of leaves were identified. It was also recognized that the concentrations of trace elements in each stem are considerably different even if the rice plants growing from a group of roots at the same position in a rice field. This fact will show the possibility to affect the quantitative evaluation of absorption for radioactive cesium from the soil or water to rice plants.