

Study on the elution of alkali elements from tea-leaves evaluated using PIXE analysis

A. Terakawa¹, K. Ishii¹, S. Matsuyama¹, T. Matsuyama¹, K. Inano¹, T. Sato¹,
Y. Saneshige¹, K. Shigihara¹, H. Hosokawa¹, A. Kajiyama¹ and K. Sera²

¹Department of Quantum Science and Energy Engineering, Tohoku University
6-6-01-2 Aoba, Aramaki, Aoba-ku, Sendai 980-8579, Japan

²Cyclotron Research Center, Iwate Medical University
348-58 Tomegamori, Takizawa, Iwate 020-0603, Japan

Abstract

The concentrations of alkali elements in Japanese green-tea leaves were studied using PIXE analysis to study the elution of radioactive cesium into green tea based on that of potassium or rubidium. We have confirmed that the concentrations of potassium and rubidium of used tea-leaf samples are lower than those of unused samples, whereas no significant differences in the concentrations of the other elements were observed between them, and that there is a similarity in the relative concentrations between potassium and rubidium. These results suggest that it is possible to investigate the elution of radioactive cesium into green tea using potassium and rubidium as substitutes of cesium.