

Examination on possibility of forensic discrimination of rice grains harvested in Japan by PIXE

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Abstract

Forensic chemistry is an application of chemistry to contribute solving crimes and incidents, and plays an important role on linking a criminal, a victim and a scene of crime each other. Any materials in our environment have the potential to be trace evidence including rice grains. PIXE analysis was carried out on 24 brown rice samples to examine its power of discrimination and regional estimation. Powdered sample was ashed in nitric acid and indium was added as internal standard. The solution was placed and dried on sample holder for analysis. As the results, calcium and manganese were detected from all of the samples, and they indicated weak regional characteristics. Concentrations of these elements have a potential to be indicators for forensic discrimination. Statistical analysis will contribute to utilize analytical result of rice by PIXE more effectively.