

PIXE analyses of marine products containing a large quantity of toxic elements

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Abstract

In recent years, the contamination of marine products with heavy toxic elements has become a problem in Japan, as the Japanese coastal sea water is confirmed to be highly contaminated with heavy elements. In this study, parts of scallops and ascidians, which are the main foods of the people living in the Sanriku District, including hijiki and the fatty meal of whale, were analyzed. We also analyzed some parts that are not commonly eaten in general but are often consumed by some local populations, such as the mantle, mid-gut gland, ovary and spermary of scallops, and the internal organs and pharyngeal basket of ascidians. Dangerous quantities were detected for mercury in fatty meal of whale and for arsenic in hijiki, the mid-gut gland and mantle of scallops and the internal organs and pharyngeal basket of ascidians. In addition, concentrations of cadmium in the mid-gut gland and mantle of scallops as well as in the internal organs and pharyngeal basket of ascidians also showed high values. These results suggested that, even in the daily diet, it is possible to consume arsenic and cadmium in greater-than-tolerable quantities.