

Trace elements in food materials and hair of village people in Craimbit village, Papua New Guinea

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Abstract

In Southeast Asia and Oceania, many kinds of natural resources, such as small animals and wild plants, have been used as food materials by local peoples. We aimed to understand the relationship between uptake of natural bioresource and health of local people. This research focused on the contents of trace elements in foods taken from natural environments and in hair of villagers, who depend on the natural bioresources. In Craimbit village, located in the watershed of the Sepik River, Papua New Guinea, characterized as peat and the food culture of sago palm, we conducted health check for female villagers and sampling of food materials, soils and waters. Hair samples were collected from the same specimen as the health check on three months after the former survey. We analyzed trace elements in hair by PIXE, and in foods and environmental samples by ICP-MS. As the results, we found that higher contents of Fe, Hg, Mn and Cr and lower contents of Mg, Si, P, Zn, Cu, Br and Ni in hair samples comparing with the average data of Japanese. The high Fe concentration in drinking water would explain the high content in hair. The high Hg contents in hair could be derived from the fishes polluted with Hg. It is considered that the peat environments result in the lower contents of Mg and Si in hair through the natural food materials.