

Concentrations of trace elements in hair and dietary culture in a village of
Limpopo province in Republic of South Africa
- Comparison with the results of Lao and Papua New Guinea -

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Abstract

Dietary activities of local people who eat indigenous foods have played a part of material cycle in natural ecosystems. Especially, indigenous foods taken in their subsistence include various nutritional elements, which should originate from the local parent materials. We aimed to evaluate how much the dietary culture contributes to the healthy and environmental adaptation of local people.

We analyzed the concentrations of trace elements in hair collected from the local people living as traditional style in Limpopo province of Republic of South Africa, which is a typical savannah country. We also conducted the survey on the natural foods (plants, animals, insect) and their growing environment.

As the results of hair analysis, we found that the concentration of lead (Pb) was high. To understand the reason, the results were compared with the results of previous researches in Laos and Papua New Guinea. The comparison among three countries showed that the hair from South Africa contained Fe, Mg Si, and Al at higher concentrations than the other countries. The concentration of Pb in South Africa was also significantly higher than that in the other countries. These results suggested that the custom of eating edible clay by young ladies, especially by pregnant ladies, might cause the high Pb concentration in hair. If the ladies in South Africa eat edible clay to assist Fe intake, the custom may result in the increase of risk of toxic metals.