

# **Determination of Trace Elements in Liver, Serum and Plasma of Mice by PIXE and Instrumental Neutron Activation Analyses (V)**

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## **Abstract**

Effects of slight zinc deficiency on concentrations of trace elements in various organs and tissues of mice were investigated. Eight-week old male mice of ICR strain were divided into four groups, and fed with diet containing different concentration of zinc, <1, 3, 7, and 30  $\mu\text{g/g}$ , respectively, for one, three or six weeks. Concentrations of twelve elements in liver, kidney, pancreas, testis, and bone were determined by instrumental neutron activation analysis. Zinc concentration in plasma was also determined by PIXE analytical technique. Zinc concentrations in bone and pancreas were decreased with a decrease of zinc content in diets after one week treatment. However, after that, Zn concentrations in pancreas of mice fed with 3  $\mu\text{g Zn/g}$  diet and 7  $\mu\text{g Zn/g}$  diet were increased. Contrary to the zinc concentration, cobalt concentrations were increased in the reverse order. After six weeks of treatment, Se concentrations in liver and pancreas were decreased according the decrease of Zn concentration in diets. It is concluded that not only serious but slight zinc deficiency effects on the metabolism of trace elements in organs and tissues, although no apparent symptoms due to zinc deficiency were recognized.