

## PIXE analysis of microelement included in oral lichen planus affection mucosa

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### Abstract

The purpose of our research is to identify causative metals by using Particle Induced X-ray Emission (PIXE) to directly analyze trace elements in the oral mucosal tissue affected by oral lichen planus (OLP). Subjects were 44 patients with OLP, and the patients are 16 males and 28 females, with a mean age of 62.9. The control is elemental analysis by PIXE of 100 cases of the oral mucosa of healthy persons.

Seventeen essential elements—Si, Cu, V, Cr, Mn, Fe, Co, Ni, Zn, Se, Mo, Sn, Ge, As, Br, Rb, and Pd—were detected. Twelve contaminating elements were also detected—Al, Ti, Ga, Sr, Zr, Nb, Ag, Sb, Au, Hg, Pb, and Y. These findings were similar to those of mucosal tissue from healthy individuals. Comparison of detection rates and abundance showed that the mucosal tissue of the OLP group tended to have lower detection rates but higher abundance of contaminating elements that should not exist in the body than the mucosal tissue of healthy individuals.

It is possible that contaminating elements accumulate in the mucosal tissue and are excreted along with shedding of the mucosal epithelium.