

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

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### Abstract

Oral lichen planus is difficult to treat in some cases, because its cause has not been clarified. Previously proposed causes of this disease include metal allergy, hepatitis virus infection, endocrine abnormality, and psychological stress. Among these proposed causes, metal allergy is considered the most likely. Therefore, with the objective of identifying causative metals, we investigated elements present in the mucous membranes of 44 patients with oral lichen planus (OLP group) using direct PIXE analysis. Data for the oral mucosa of 100 healthy individuals accumulated at our department (healthy group) were used as controls. Mucous membranes affected by oral lichen planus were liquefied using the nitrate ashing method, and the elements present therein were analyzed using PIXE analysis at Iwate Medical University Cyclotron Center. Detection rates for the following elements were significantly higher in the healthy group than in the OLP group: Si, V, Co, Mn, Sn, As, Al, Hg, and Pb. On the other hand, detection rates for Au and Y were significantly higher in the OLP group than in the healthy group. As for levels of each element, levels of Cu, Ni, and Rb were significantly higher in the healthy group than in the OLP group, while levels of Si, Mn, Br, Al, Ti, Ga, Sr, Ag and Y were significantly higher in the OLP group than the healthy group.