

Influence of the coat color on the trace elemental status measured by particle induced x-ray emission (PIXE) in horse hair

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Abstract

The influence of hair color on the trace elemental status in horse's hair had been studied. A current analytical technique such as PIXE used in this study has provided reliable, rapid, easy and relatively inexpensive diagnostic methods. Twenty-eight elements (Al, Br, Ca, Cl, Co, Cu, Cr, Fe, Ga, Hg, K, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, S, Se, Si, Sr, Ti, V, Y and Zn) in mane hair were detected by the PIXE method. The gray hair contains significantly greater amounts of Cu, Ti and Zn, and lower amounts of Br, Ca, Se and Sr than those in other colored horse's hairs ($p < 0.05$). Those results measured in the horse's hair were similar to those found in human and dog hair. When interpreting a result, it should be kept in mind that hair color, especially gray hair, influences the concentrations of some elements in horse hair.