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Determination of trace element concentrations in ancient rices (red and black rices) and a present-day rice (Koshihikari): Relationship among the trace element concentrations, species, harvest site and rice parts.

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Abstract:

Trace elements in ancient rices and a present-day rice were determined by ICP-MS and neutron activation analysis (NAA). The relationship among the element concentrations, species of rices, individual parts with different degrees of polishing and the harvest site were examined. In general, element contents in the rices were in the following order: Mn > Zn > Fe > Al. The trace metals Mo, Cu, and Co were also found in the redrice from the Toyama Prefecture, while Mo, Cu, and Cr were included in the black rices from Hiraka-gun and Nakashinkawa-gun of Akita Prefecture, as well as in the present-day rice from the Niigata Prefecture. Higher amounts of the elements were observed in the rice bran as compare to other parts of the rice, and white rice contained less of the elements than the other rices. These results will be beneficial in the development of trace element supplementation regimens.

Key words: ancient rice, Present-day rice, trace element, ICP-MS, neutron activation analysis (NAA)



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