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Assessment of trace element composition of cereals and legumes by ICP-MS

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The determination of minerals and trace elements in foodstuffs is an important part of nutritional and toxicological analyses. Although copper, chromium, iron and zinc play an important role in human metabolism and so, they are essential micronutrients for human health, their higher intake as well as the prolonged intake of even low concentrations of toxic elements such as arsenic, chromium, cadmium, lead and nickel can cause serious toxic effects. The interest in those elements is increasing together with reports of relationships between trace element status and oxidative diseases. The importance of food safety is constantly increasing due to parallel import and export intensity among countries. Of all foods, cereals and legumes most adequately meet the recommended dietary guidelines for healthy eating because they are high in carbohydrate and dietary fiber, mostly low in fat, supply adequate protein while being a good source of vitamins and minerals. In this study, concentrations of trace elements such as arsenic, chromium, cadmium, lead and nickel in cereals and

legumes were determined by using ICP-MS. The samples were collected from Turkish markets and different regions. For sample preparation before measurement, microwave digestion system was used. It was found that the chromium and nickel concentrations are up to 3.0 mg/kg for beans taken from regions with high Ni and Cr in soils. To check the reliability, the SRM was examined for the studied elements.

Biography

Mehmet Yaman has completed his PhD at Inonu University in 1990. He has published more than 120 papers in reputed journals and has been serving as an Editorial Board Member of reputed journals. Between 2010 to 2013, he was selected as Member of Consultative Committee of the Scientific and Social Research Council of Turkey. He has an international book chapter, "Air Pollution Monitoring, Modelling, Health and Control"; "Comprehensive Comparison of Trace Metal Concentrations in Inhaled Air Samples".

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