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## Evaluation of nickel and chromium in legumes consumed in Turkey

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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 concentration (Ni) can cause serious toxic effects. The interest in these elements is increasing together with reports of relationships between trace element status and oxidative diseases. Environmental pollution is the main cause of heavy metal contamination in the food chain. Of all foods, legumes most adequately meet the recommended dietary guidelines for healthful 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, nickel and chromium concentrations were determined in legumes taken from Turkish markets. Further, sulfur concentrations of the samples were also determined and the relationship between metals and sulfur were examined. The element concentrations were measured by using ICP-MS after digestion by microwave digestion system. It was found that the highest Ni concentration is 2.5 mg/kg for beans. To check the reliability, the SRM was examined for the studied elements.

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## Infrared and computational studies of weakly and strongly hydrogen bonded complexes of atmospheric interest

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We shall report the FTIR spectra of several H-bonded complexes of atmospheric and environmental interest matrix isolated in frozen rare gases at cryogenic temperatures. The substances between which the interactions are studied involve water, sulfuric acid, formic acid, ammonia, trimethyl-amine, methyl alcohol, sulfur trioxide, carbon monoxide and dioxide as well as xenon. The hydrogen bonds involved range from almost complete proton transfer to strong to weak and to very weak interactions. We examine the correlation between number and position of new bands not observed for the parent molecules and assigned to be the results of intermolecular complexation, on one hand and the induced hydroxyl stretch frequency shifts and hydrogen bond strengths and lengths, on the other. Our experimental work is accompanied by high-level computational results.

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