SELENIUM SPECIATION IN ENRICHED VEGETABLES

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Selenium is an important element from environmental and biological point of view being essential in very narrow concentration range, while outside this range deficiency or toxicity occurs. In the world, deficiency of selenium in diet is more common than its abundance and nutritional supplements have been recommended to increase daily Se intake. The ability of several plants to accumulate and transform inorganic forms of selenium into bioactive organic compounds has important implications for human nutrition and health. Se-enriched Allium group vegetables such as garlic, onion, broccoli and ramps have been mainly the subject of several studies in recent years. Apart from the total Se uptake, enrichment treatments normally undergo certain metabolic changes that determine the final product as well as its translocation and accumulation in different plant tissues. For this reason it is important to find which form of selenium should be used for supplementation to obtain high content of this element in the final plant. Moreover, its distribution in different parts of plants as well as characterization and quantification of individual species becomes an issue.

This lecture gives a brief, critical overview of the studies carried out to characterize selenium species produced by different enriched vegetables. The use of different extraction and clean-up methodologies will be discussed in conjunction with different selenium enrichment procedures.