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Type: **Invited Lecture**

## **INVITED LECTURE - Japanese Green Tea: radioactivity measurements, radiochemical extraction yield determination and some radioprotection considerations.**

*Friday, 21 September 2012 11:40 (20 minutes)*

The aim of this study, performed on a sample of 2011 (year of the nuclear accident of Fukushima) green tea from the Japanese Prefecture of Shizuoka, was to measure by gamma spectroscopy the natural and artificial radioactivity and the dishomogeneity index of the sample, but also a more in depth investigation of the ratio of the two radionuclides of Cesium and the relative transfer mechanisms of radioactivity to humans under normal conditions of use of the product. To do so we reproduced in laboratory the common domestic preparation of the tea beverage doing 4 different extractions and determining the relative yields of extraction for radiocaesium and natural Potassium from the leaves of tea into the beverage. As a consequence we present analytical data to better assess the total radioactivity effectively ingested by consumers of this product and add some considerations on the food safety limits.

Then we added some basic radioprotection considerations to show some common misconceptions in the evaluation of the compliance of this kind of matrices to the food safety limits set by the Japanese law in respect to the FAO's "Codex Alimentarius" recommendations. Starting from the effectively ingested radioactivity we also show the rough committed relative dose for two categories of public: adult and infants. Seeing the good results of this work, now our aim is to investigate further and more widely both the concentration of radioactive Cesium and the extraction yields in Japanese tea samples, including other prefectures of origin and possibly other types of tea. The goal is to confirm the values of the calculated extraction yields of this batch. It's also important to assess the extraction yields starting from the first year after the one of the nuclear accident because the first year is still affected by both fallout and root uptake of Cesium in vegetables while starting from 2012 only the root uptake pathway will be important.

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