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Quantitative mapping of elements in basil leaves (Ocimum basilicum) based on cesium concentration and growth period using laser ablation ICP-MS

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ABSTRACT

Quantitative elemental mapping of metallic pollutants in sweet basil was studied by laser ablation (LA)-ICP-MS. For this, the sweet basil was cultivated in Hoagland nutrient solution spiked with 100 and 1000 ng mL^{-1} of Cs for 10 to 60 days. Then, the Cs distribution in collected leaves was determined by LA-ICP-MS using lab-synthesized standard pellets based on NIST 1573a tomato leaves. For comparison, S, Ca, and K were also simultaneously determined in this measurement with a $^{13}C^{+}$ signal from the leaves as an internal standard. The obtained calibration curves showed linear coefficient of determination (R^2) of 0.991 for K and 0.999 for Cs. The concentration of Cs measured in the basil leaves increased with growth period and pollutant