Sequential voltammetric determination of platinum group metals (PGMs) and lead as vehicle emission pollutants in vegetable, possible environmental bio-monitors.

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The present work, regarding the determination of Pt(II), Rh(III) by square wave adsorption stripping voltammetry (SWAdSV), Pd(II) by square wave voltammetry (SWV) and Pb(II) by square wave anodic stripping voltammetry (SWASV) in commercial vegetables is an interesting example of the possibility to simultaneously, or better sequentially determine each single element in real samples.

The critical comparison between peak area and peak current highlights that lower limits of detection are obtained if peak area is employed as instrumental datum.

0.6 mmol/L formaldehyde + 1.2 mmol/L hydrazine (formazone complex) in 0.2 mol/L HCl and ammonia-ammonium chloride buffer pH 9.5 were employed as the supporting electrolytes.

The analytical procedure was verified by the analysis of the standard reference materials: Tomato Leaves NIST-SRM 1573a and Olive Leaves BCR-CRM 062.

Precision and accuracy, expressed as relative standard deviation and relative error, respectively, were generally lower than 6 % in all cases.

Once set up on the standard reference materials, the analytical procedure was transferred and applied to commercial vegetables sampled in proximity to superhighway and in the Po river mouth area.

A critical comparison with spectroscopic measurements is also discussed.