**Table 1 - Operating parameters for the voltammetric analysis (Differential Pulse Voltammetry and Adsorptive Stripping Voltammetry) of the solutions obtained from the ashes of potatoes samples.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | | | |
| Analytes | **Tecniques** | **Electrolytes** | Reagent |
| Pt | DPV/a | H2SO4 1 M | [N2H4SO4] = 1.2 mmol L-1,  [H2CO] = 0.6 mmol L-1 |
| Rh | DPSAV | HCl 0.42 M | [H2CO] = 0.02 mol L-1 |

**Table 2 - Operating parameters for the Differential Pulse Voltammetry and Adsorptive Stripping Voltammetry analysis of the solutions obtained from the potatoes samples.**

|  |  |  |
| --- | --- | --- |
| Parameter | **Pt** | Rh |
| Initial potential (mV) | -300 | -900 |
| Final potential (mV) | -1000 | -1200 |
| Current range | Automatic | Automatic |
| Potential scan rate (mV s-1) | 50 | 10 |
| Potential of deposition (mV) | - | -700 |
| Cycle n° | 1 | 1 |
| Deposition time (s) | - | 30 |
| Stirring rate (r.p.m.) | 300 | 300 |
| Size of the drop (a.u.) | 60 | 60 |
| Delay time before potential sweep (s) | 10 | 10 |
| Working electrode | Hanging mercury drop electrode | |
| Auxiliary electrode | Glassy carbon | |
| Reference electrode | Ag/AgCl/KCl (sat) | |
| Flowing gas | Nitrogen (99.998%) | |

**Table 3 - Platinum and rhodium concentrations in potatoes samples**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sample | Origin | Pt (μg/Kg) | R.S.D. %  ± | Rh (μg/Kg) | R.S.D. %  ± |
| 1 | Italy - Sicily | 16 | 2.2 | 0.015 | 5.4 |
| 2 | Italy - Sicily | 8.9 | 6.5 | 0.016 | 6.5 |
| 3 | Italy - Sicily | 56 | 2.4 | 0.0008 | 11 |
| 4 | Italy - Sicily | 6.7 | 6.1 | 0.0086 | 4.2 |
| 5 | Italy - Sicily | 65 | 1.0 | 0.0008 | 10 |
| 6 | Italy - Sicily | 109 | 0.5 | 0.0008 | 11 |
| 7 | Francia | 13 | 6.2 | 0.0008 | 20 |
| 8 | Italy - Veneto | 69 | 4.0 | 0.0008 | 12 |
| 9 | Italy - Lazio | 20 | 3.5 | 0.0008 | 9.9 |
| 10 | Italy - Marche | 12 | 5.2 | 0.0008 | 16 |
| 11 | Italy - Emilia | 12 | 4.7 | 0.0008 | 4.9 |
| 12 | Italy - Emilia | 17 | 2.3 | 0.0008 | 14 |
| 13 | Italy - Sicily | 23 | 2.4 | 0.0008 | 13 |
| 14 | Francia | 21 | 1.0 | 0.0008 | 13 |
| 15 | Italy- Umbria | 1.3 | 5.6 | 0.0008 | 5.6 |
| 16 | Belgio | 0.007 | 8.0 | 0.017 | 8.0 |
| 17 | Italy - Campania | 0.007 | 11 | 0.0008 | 21 |
| 18 | Italy - Puglia | 0.007 | 10 | 0.0008 | 25 |
| 19 | Australia | 0.007 | 12 | 0.0008 | 12 |
| 20 | Italy - Abruzzo | 0.007 | 16 | 0.0008 | 15 |
| 21 | Italy - Sicily | 0.007 | 12 | 0.0008 | 16 |
| 22 | Italy - Sicily | 0.21 | 3.2 | 0.0008 | 3.2 |
| 23 | Emilia Romagna | 0.007 | 12 | 0.0303 | 6.1 |
| 24 | Italy - Sicily | 0.007 | 13 | 0.0085 | 2.4 |
| 25 | Italy - Sicily | 0.007 | 11 | 0.0008 | 25 |
| 26 | Italy - Sicily | 0.007 | 18 | 0.0008 | 22 |
| 27 | Italy - Puglia | 0.288 | 12 | 0.0087 | 11 |
| 28 | Italy - Abruzzo | 0.233 | 15 | 0.0008 | 24 |
| 29 | Italy - Sicily | 0.326 | 15 | 0.0008 | 16 |
| 30 | Italy - Sicily | 0.007 | 10 | 0.0087 | 10 |
| 31 | Italy - Sicily | 0.007 | 17 | 0.0008 | 21 |
| 32 | Italy - Sicily | 0.007 | 14 | 0.0008 | 22 |
| 33 | Italy - Sicily | 0.007 | 15 | 0.015 | 0.88 |
| 34 | Italy - Sicily | 0.007 | 16 | 0.0008 | 24 |
| 35 | Italy - Sicily | 0.007 | 18 | 0.016 | 7.6 |
| 36 | Italy - Sicily | 0.007 | 25 | 0.016 | 7.2 |
| 37 | Italy - Campania | 0.16 | 14 | 0.0008 | 14 |
| 38 | Italy - Sicily | 23 | 1.2 | 0.0008 | 33 |

|  |  |  |  |
| --- | --- | --- | --- |
| Place | Pt (µg/Kg) | Rh (µg/Kg) | Sample |
| Stuttgart | **2.9**  **4.6** | **-**  **-** | **roadside grass (1993)**  **roadside grass (0.2 meters) (1994)** |
| Gent (Belgio) | **1.4-1.7** | **-** | **roadside grass** |
| Germania | **3.61**  **10.6**  **≤ 0.03** | **0.65**  **1.54**  **≤ 0.03** | **roadside grass (1994)**  **roadside grass (1997)**  **Area uncontaminated (1997)** |
| Sheffield | **0.07-5.4** | **-** | **Bark** |
| Bialystok (Polonia) | **8.63** | **0.65** | **roadside grass (1 meters)** |
| San Francisco | **38** | **-** | **Bark** |

**Table 4 - Platinum and rhodium concentrations in environmental matrices [29]**

**Table 5 Contamination categories based on EF values.**

|  |  |
| --- | --- |
| EF < 2 | Deficiency to minimal enrichment |
| EF 2–5 | **Moderate enrichment** |
| EF 5–20 | **Significant enrichment** |
| EF 20–40 | **Very high enrichment** |
| EF N 40 | **Extremely high enrichment** |

**Table 6- Geoaccumulation classes**

|  |  |  |
| --- | --- | --- |
| **Class** | **Index** | **Significance** |
| **0** | **< 0** | **Practically uncontaminated** |
| **1** | **0-1** | **Uncontaminated to moderately contaminated** |
| **2** | **1-2** | **Moderately contaminated** |
| **3** | **2-3** | **Moderately to heavily contaminated** |
| **4** | **3-4** | **Heavily contaminated** |
| **5** | **4-5** | **Heavily to extremely contaminated** |
| **6** | **5** | **Extremely contaminated** |
|  |  |  |