**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** |
|  |  |  |