Table 1. Charge transfer resistance values for the proportions of proposed inks

|  |  |  |
| --- | --- | --- |
| The proportion of GP:SHL  (% w/w) | Charge transfer resistance  (KΩ) | Chi-square  χ2 |
| 40:60 | 0.79 | 0.00262 |
| 50:50 | 0.40 | 0.00267 |
| 60:40 | 0.06 | 0.00012 |
| 70:30 | 0.26 | 0.00384 |

Table 2. Electroactive area values for the SHL-GP/WP sensors with different proportions of GP and SHL.

|  |  |
| --- | --- |
| Proportion of GP:SHL (% w/w) | Electroactive area (cm2) |
| 40:60 | 0.16 |
| 50:50 | 0.29 |
| 60:40 | 0.58 |
| 70:30 | 0.77 |

Table 3. Determination of SMX through additions to water and milk samples

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample** | **Spiked (mmol L-1)** | **Found (mmol L-1)** | **Recovery (%)** |
|  |
| **Well water** | 10 | 11 ± 1 | 110 ± 1 |  |
| 70 | 64 ± 1 | 91 ± 1 |  |
| **Tap water** | 10 | 10 ± 1 | 100 ± 1 |  |
| 70 | 65 ± 4 | 93 ± 5 |  |
| **Milk** | 30 | 31 ± 4 | 103 ± 13 |  |
| 70 | 70 ± 4 | 100 ± 6 |  |

Table 4. Comparison between the analytical performances for SMX in screen printed and other carbon-based electrodes proposed in the literature

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Electrode** | **Linear Range (mmol L-1)** | **LOD (mmol L-1)** | **Technique** | **Reference** |
| **Paper-based rGNR** | 1.0-10.0 | 0.09 | DPV | [60] |
| **AArGO-modified electrode** | 0.5-50.0 | 0.04 | DPV | [61] |
|  |
| **MWCNT/PBnc/SPE** | 1.0-10.0 | 0.04 | DPV | [62] |  |
|  |
| **MWCNT-SbNP** | 0.1-0.70 | 0.02 | DPV | [63] |  |
|  |
| **SHL-GP/WP** | 5.0-100 | 0.40 | DPV | **This work** |  |
|  |

**Paper-based rGNR:** paper-based fully printed electrochemical sensor with reduced graphene nanoribbons; **AArGO-modified electrode:** ascorbic acid reduced graphene oxide-modified electrode; **MWCNT/PBnc/SPE:** multiwalled nanotubes decorated with Prussian blue nanocubes modified screen-printed electrode; **MWCNT-SbNP:** Carbon nanotubes modified with antimony nanoparticles in a paraffin composite electrode.