**Table 1 -** Analytical performance of the biosensor GNP/PB/Gox for glucose determination compared with the literature.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Electrode** | **Technique** | **Linear range (μmol L−1)** | **LOD (μmol L−1)** | **Ref** |
| GOx/Chit/IL/PB/Pt | amperometry | 10.0 to 4200.0 | 5.0 | [53] |
| GOx/PB nanocubes | CV | 10.0 to 1300.0 | 10.0 | [54] |
| GOx/PPy/Al2O3/Pt | amperometry | 500.0 to 1 ×104 | 30.0 | [55] |
| rGO–GOx/PGE | amperometry | 10.0 to 1000.0 | 5.8 | [56] |
| GOx-DHP/Gr-AV | CV | 1.0 to 10.0 | 0.21 | [6] |
| Fe3O4@PNE-GOx | CV | 200.0 to 2.4×104 | 6.1 | [57] |
| GCE/Chi-Py/Au/GOx | amperometry | 1000 to 2.0×104 | 68.0 | [58] |
| CPE/GOx-SiO2/Lig/Fc | amperometry | 500.0 to 9000.0 | 145.0 | [59] |
| GNP/PB/GOx | amperometry | 50.0 to 500.0 | 9.2 | **This work** |

**Notes:** GOx/Chit/IL/PB/Pt:Pt electrode modified with PB, ionic liquid ([bmim]BF4), chitosan and GOx; GOx/PB nanocubes: screen-printed electrode modified with nanocubic prussian blue crystals and glucose oxidase; GOx/PPy/Al2O3/Pt: biosensor based on polypyrrole (PPy) nanotube array deposited on a Pt plated nano-porous alumina substrate, modified with glucose oxidase; rGO–GOx/PGE: pencil graphite electrode modified with electrochemically reduced graphene oxide–glucose oxidase biocomposite; GOx-DHP/Gr-AV: conductive ink based on graphite and automotive varnish, modified with dihexadecyl phosphate and glucose oxidase; Fe3O4@PNE-GOx: nanoplatform based on polynorepinephrine grafted on magnetite nanoparticles with glucose oxidase; GCE/Chi-Py/Au/GOx: biosensor based on in-situ polypyrrole cross-linked chitosan/glucose oxidase/gold bionanocomposite film; CPE/GOx-SiO2/Lig/Fc: carbon paste electrode based on functional glucose oxidase/silica-lignin system with ferrocene redox mediator.

**Table S1.** Percentual composition of each element found in the EDS analysis.

| **Element** | **Atomic %** | **Weight %** |
| --- | --- | --- |
| C | 40.1 | 24.1 |
| N | 24.3 | 17.1 |
| O | 20.4 | 16.4 |
| Fe | 15.2 | 42.4 |

**Table S2.** Analytical performance of the GNP/PB for UA determination compared with the literature.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Electrode** | **Technique** | **Linear range (μmol L−1)** | **LOD (μmol L−1)** | **Ref.** |
| ITO-rGO-AuNPs | LSV | 10.0 to 500 | 3.6 | [1] |
| MCPE | CV | 10.0 to 70 | 5.1 | [2] |
| COF-NH2-MWCNT/Au/GCE | DPV | 0.3 to 200 | 0.29 | [3] |
| GCE/rGO/PtNPs | DPV | 10.0 to 100 | 0.45 | [4] |
| ERGO/GCE | DPV | 0.5 to 60 | 0.5 | [5] |
| Boron-doped diamond electrode | SWV | 8.0 to 1000 | 7.7 | [6] |
| GNP/PB | DPV | 5.0 to 150 | 0.70 | This work |

**Notes:** ITO-rGO-AuNPs: indium tin oxide-based electrodes modified with both reduced graphene oxide and gold nanoparticles; MCPE: 2-Hydroxybenzimidazole modified carbon paste electrode; COF-NH2-MWCNT/Au/GCE: glassy carbon electrode modified with covalent organic frameworks, aminofunctionalized carbon nanotubes and gold nanoparticles; GCE/rGO/PtNPs: Pt/reduced graphene oxide modified glassy carbon electrode; GCE/rGO: electrochemically reduced graphene oxide modified glassy carbon electrode.

**Table S3**. Recovery values (n = 3) for uric acid additions to synthetic sweat samples.

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample** | **Spiked (mol L)** | **Found (mol L)** | **Recovery (%)** |
|  |
| **Synthetic sweat** | 5.0 | 5.51 ± 0.37 | 110.54 ± 5.18 |  |
| 20.0 | 20.46 ± 0.94 | 102.31 ± 3.44 |  |
| 40.0 | 44.67 ± 3.26 | 111.67 ± 5.85 |  |
|  | 59.0 | 66.68 ± 1.35 | 113.02 ± 1.77 |  |

**Table S4.** Analytical performance of the GNP/PB for H2O2 determination compared with the literature.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Electrode** | **Technique** | **Linear range (μmol L−1)** | **LOD (μmol L−1)** | **Ref.** |
| Fe3O4-Fe2O3 | Amperometry | 200.0 to 1800.0 | 200.0 | [7] |
| Poli (GMA-co-VFc) | Amperometry | 2000.0 to 3.0×104 | 2.6 | [8] |
| PAn/MWCNTCOOH | Amperometry | 86.0 to 1.0×104 | 86.0 | [9] |
| CoOOH | Amperometry | 0.0 to 1800.0 | 20.0 | [10] |
| Nafion/HRP–GNSs–TiO2/GCE | Amperometry | 41.0 to 630.0 | 5.9 | [11] |
| CuO/g-C3N4 | CV | 0.5 to 50.0 | 0.31 | [12] |
| GNP/PB | Amperometry | 100.0 to 800.0 | 31.6 | This work |

**Notes:** Fe3O4–Fe2O3: magnetite – hematite, Poli (GMA-co-VFc): poly(glycidyl methacrylate-co-vinylferrocene), PAn/MWCNTCOOH: polyaniline/carboxy-functionalized multiwalled carbon nanotube, CoOOH: Cobalt oxyhydroxide, Nafion/HRP–GNSs–TiO2/GCE: horseradish peroxidase – gold nano-seeds – titanium oxide / glassy carbon electrode, CuO/g-C3N4: copper oxide/Graphitic carbon nitride.

**Table S5**. Recovery values (n = 3) for glucose additions to synthetic sweat samples.

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample** | **Spiked (mol L)** | **Found (mol L)** | **Recovery (%)** |
|  |
| **Synthetic sweat** | 50.0 | 47.28 ± 2.92 | 94.56 ± 3.91 |  |
| 150.0 | 137.38 ± 3.02 | 91.59 ± 1.55 |  |
| 400.0 | 402.37 ± 2.41 | 100.59 ± 0.46 |  |