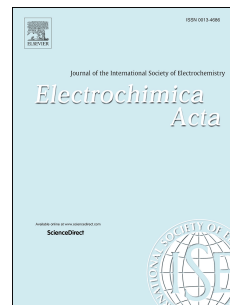


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Electrochemical sensors performance: The role of specific surface and recognition receptors footprint

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ABSTRACT

A comparison of electrochemical sensors performance is achieved using self-organized gold nanoparticles (Au NPs) modified HOPG electrode and gold (Au) thin film as electrode materials. Both electrodes surfaces were functionalized with bisphosphonate receptors (BP thiol). In addition, the performance comparison between modified electrode with and without BP receptors was achieved. To compare the sensors performance, silver and copper metal ions were used as analysts. The obtained results show a detection limit of 0.5 μM for Au NPs modified electrode sensor, whereas for Au thin film electrode sensor it is about 10 pM. These results were discussed in terms of electrode specific surface and receptors footprint.

Key words: Au nanoparticles self-assembly, Au thin film, electrochemical sensor, detection limit

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