

Author's Accepted Manuscript

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www.elsevier.com/locate/talanta

PII: S0039-9140(16)30981-X
DOI: <http://dx.doi.org/10.1016/j.talanta.2016.12.040>
Reference: TAL17130

To appear in: *Talanta*

Received date: 28 October 2016
Revised date: 17 December 2016
Accepted date: 19 December 2016

Cite this article as: Maísa Azevedo Beluomini, José L. da Silva, Graziela Cristina Sedenho and Nelson Ramos Stradiotto, D-mannitol sensor based on molecularly imprinted polymer on electrode modified with reduced graphene oxide decorated with gold nanoparticles, *Talanta*, <http://dx.doi.org/10.1016/j.talanta.2016.12.040>

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D-mannitol sensor based on molecularly imprinted polymer on electrode modified with reduced graphene oxide decorated with gold nanoparticles

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ABSTRACT

An electrochemical sensor for D-mannitol based on molecularly imprinted polymer on electrode modified with reduced graphene oxide decorated with gold nanoparticles was developed in this present work. The sensor was constructed for the first time via the electropolymerization of o-phenylenediamine (o-PD) over a surface containing reduced graphene oxide (RGO) and gold nanoparticles (AuNP) in the presence of D-mannitol molecules. The surface modification with AuNP/RGO-GCE facilitated the charge transfer processes of $[\text{Fe}(\text{CN})_6]^{3-/4-}$, which was used as an electrochemical probe. It also contributed meaningfully towards the increase in the surface/volume ratio, creating more locations for imprinting, and providing greater

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