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## Electrochemical portable biosensor of graphene derivatives to detection Sars Cov-2 swab samples

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Graphene-based materials present a high surface area and can present several structural defects or heteroatoms depending on the fabrication method. Such properties facilitate the graphene interaction with biomolecules leading to high electrochemical activity. In this context, we synthesize a high-quality dispersed reduced graphene oxide using Lysozyme as a dispersant (Ly-RGO) with several concentrations of hydrazine. In this study, we have investigated the graphite oxidation-reduction fabrication process using X-ray Photoelectron Spectroscopy, X-ray Diffraction, and Raman Spectroscopy. We have used the Ly-RGO to fabricate an electrode on an electrochemical cell in which voltammograms show significant transduction of electrical signals. Finally, cyclic voltammetry and chronoamperometry measurements were performed with human saliva and SARS-CoV-2 RNA samples, to calibrate our biosensors. The results indicate that Ly-RGO has great potential in biosensor devices.

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