

Electrochemical biosensor composed of MoS₂-graphene oxide with myoglobin for nitric oxide detection

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In this work, the electrochemical biosensor composed of surface modified molybdenum disulfide (MoS₂) with amine group, graphene oxide (GO) and myoglobin (Mb) is prepared for nitric oxide (NO) detection. To fabricate MoS₂ and GO hybrid material (MoS₂-GO), the surface modified MoS₂ with amine group is prepared to encapsulate with GO by electrostatic bond. Mb is introduced to prepare the electrode for detection of NO by iron ion in its part. Hybridization of MoS₂ and GO induces the efficient electron transfer at the surface of electrode and extension of surface for immobilization of Mb on the electrode. The fabricated biosensor provides electrochemical signal enhancement and stability compared to the result of biosensor prepared without MoS₂-GO. This proposed hybrid material can be utilized as the platform to develop biosensor with enhancement of electrochemical property and stability. Acknowledgments: This research was supported by National Research Foundation of Korea (NRF) (2013K1A4A3055268 and 2016R1A6A1A03012845).

References

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