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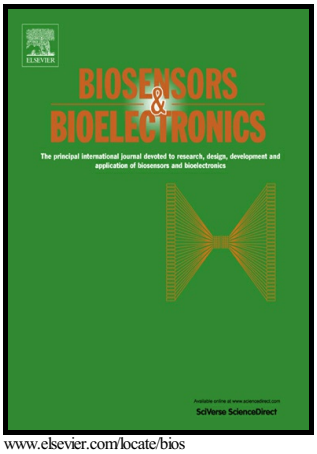

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PII: S0956-5663(18)30252-5
DOI: https://doi.org/10.1016/j.bios.2018.03.064
Reference: BIOS10390

To appear in: *Biosensors and Bioelectronic*

Received date: 11 December 2017
Revised date: 17 March 2018
Accepted date: 28 March 2018

Cite this article as: Lei Zhang and Jing Zhang, Multiporous molybdenum carbide nanosphere as a new charming electrode material for highly sensitive simultaneous detection of guanine and adenine, *Biosensors and Bioelectronic,* https://doi.org/10.1016/j.bios.2018.03.064

Multiporous molybdenum carbide nanosphere as a new charming electrode material for highly sensitive simultaneous detection of guanine and adenine

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Abstract:By introduction of Mo metal species (molybdenum-based polyoxometalates) into the Cu-MOF as co-precursor, molybdenum carbide nanosphere (MoxC@C) was prepared via a simple calcining routine and a further etching the metallic Cu proc ess. The obtained Mo_xC@C showed a unique structure where well-dispersed Mo_xC nanoparticles (NPs) were encapsulated in porous carbon matrix. As-fabricated novel 3D porous architecture Mo_xC@C nanosphere exhibited a potent and persistent electro-oxidation behavior followed by well-separated oxidation peaks (peak to peak voltage is about 350 mV) toward adenine (A) and guanine (G) by differential pulse voltammetry (DPV). This excellent electrochemical performance can be attributed to the unique structure and composition of 3D Mo_xC@C. Furthermore, 3D Mo_xC@C also revealed high selectivity and sensitivity, good reproducibility, excellent stability and anti-interference ability**.** The calibration curves for quantitive analysis of G and A were obtained: 0.03–122 μM, and 0.02 μM–122 μM, respectively, the detection limits

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