

## Supplementary Information

# Low-Volume Electrochemical Sensor Platform for Direct Detection of Paraquat in Drinking Water

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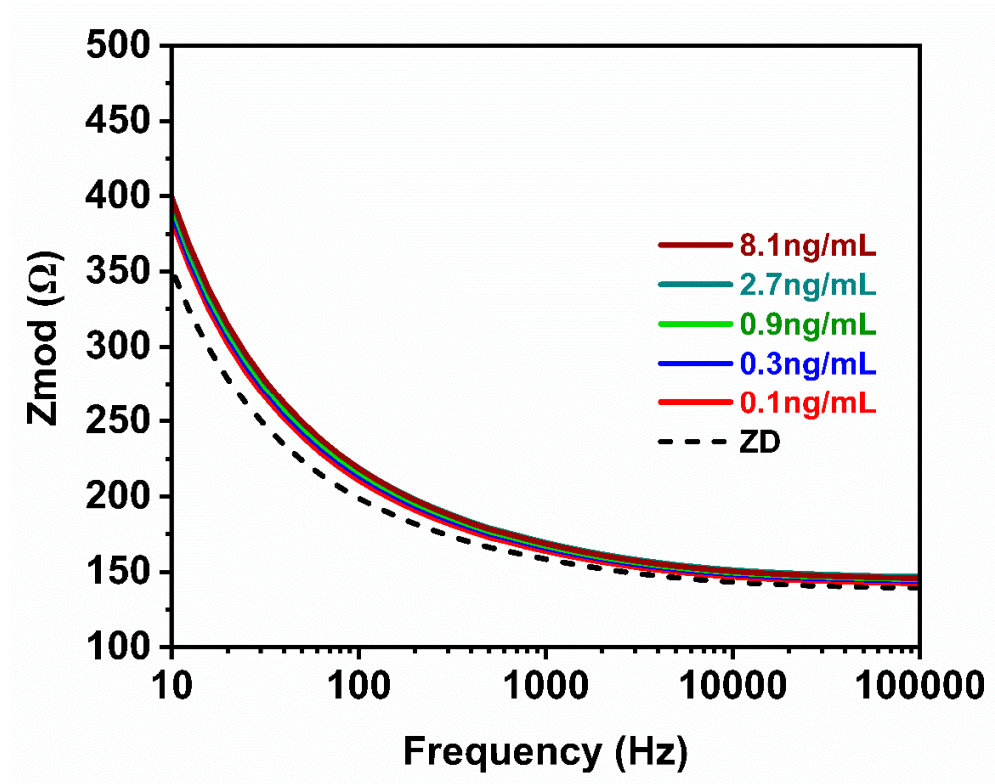


Figure S1: Characteristic bode response observed for test performed using control rGO sensor for the paraquat concentrations ZD, 0.1, 0.3, 0.9, 2.7 and 8.1 ng/mL in water sample.

Table S1: Comparison of the reported and developed electrochemical sensor for the determination of Paraquat (PQ)

Electrode modifications	Detection method	Sensor type	Calibration dose response electrolyte	Detection range	Spiked Sample tested	Detection Limit (LOD) ng/mL	Ref.
PbO-NPs/SPE	CV (faradaic )	SPE	Tris buffer	1 mM to 5 mM	Juice and milk	0.28 µg/L (~0.28 ng/mL)	[1]
rGO-Biochar	Ad-DPCSV (faradaic )	Conventional three electrode	acetate buffer	0.74 to 9.82 µmol/L	coconut water, wastewater, honey, lettuce and lemon	0.02 µmol/ L	[2]
Nf/SPGE (gel-based electrolyte platform)	DPV (faradaic )	SPGE	1 mol/ L LiClO <sub>4</sub> and PVA gel-based electrolyte	1 to 60 µmol/L	field waters, vegetable rinsed water, and tap water	0.31 µmol/ L	[3]
ALG-GA-CB/GCE	SWV (faradaic)	GCE	phosphate, Britton-Robinson, and acetate buffers	0.4 to 2.0 mg/L (~ 40-200 ng/mL)	Water samples and beverages	0.06 mg/L (~60 ng/mL)	[4]
SPCE/GO-AuNPs/P3ABA	SWV (faradaic)	SPCE	PBS (0.1 mol/L)	10 <sup>-9</sup> –10 <sup>-4</sup> mol/L	Water (tap, natural water and DI water)	0.116 µg/L (~116 ng/mL)	[5]
CoS <sub>2</sub> -GCN/GCE	SWV (faradaic)	GCE	PBS	20 to 1000 nM 1 – 13 µM	Watermelon, orange, apple, and lemon juices	4.13 nM	[6]
Nf-Gr-MWCNTs-COOH	SWV (faradaic)	GCE	PBS	0.01 µmol/ L to 15 µmol/ L	Black tea, lettuce, and corn	0.005 µmol/L	[7]
GE/AuNPs/DNA	SWV DPV (faradaic)	GE	PBS	5.0 × 10 <sup>-6</sup> to 1.0 × 10 <sup>-3</sup> M	-	1.3 × 10 <sup>-6</sup> /M 1.9 × 10 <sup>-6</sup> /M	[8]
PQ-Ab/rGO-SPCE	EIS (Non-faradaic)	SPCE	Drinking water -PBS sample	0.05-72.9 ng/mL (0.19 to 283 nM)	Water	0.05 ng/mL (~ 0.19 nM)	This work

DPV differential pulse voltammetry, GCE Glassy carbon electrode, GE gold electrode, SWV square wave voltammetry, SPCE Screen printed carbon electrode, rGO reduced graphene oxide, EIS electrochemical impedance spectroscopy

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