Electronic Supplementary Material (ESI) for RSC Advances.

Highly Efficient Metal Oxide Incorporated Metal Organic Framework [Nd_2O_3-MIL(Fe)-88A] for Electrochemical Detection of Dichlorvos

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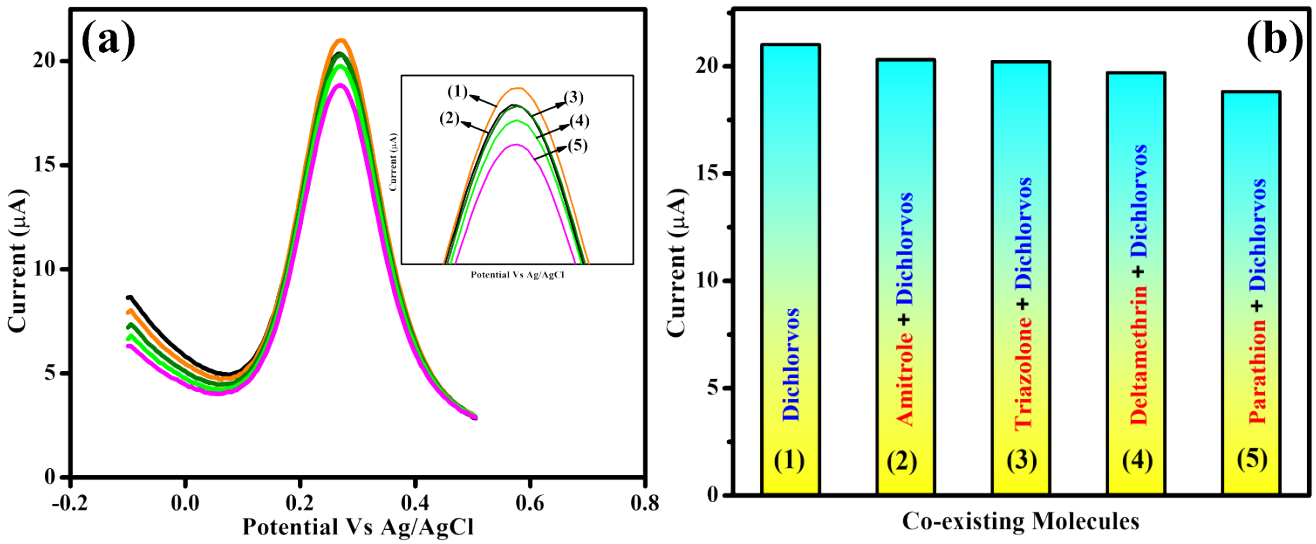

Figure S1. (a) DPV and (b) Current response of (1) dichlorvos in the presence of different Co-existing molecules (2) amitrole (chemical herbicide), (3) triazolone (triazole fungicide), (4) deltamethrin (pyrethroid), and (5) parathion.

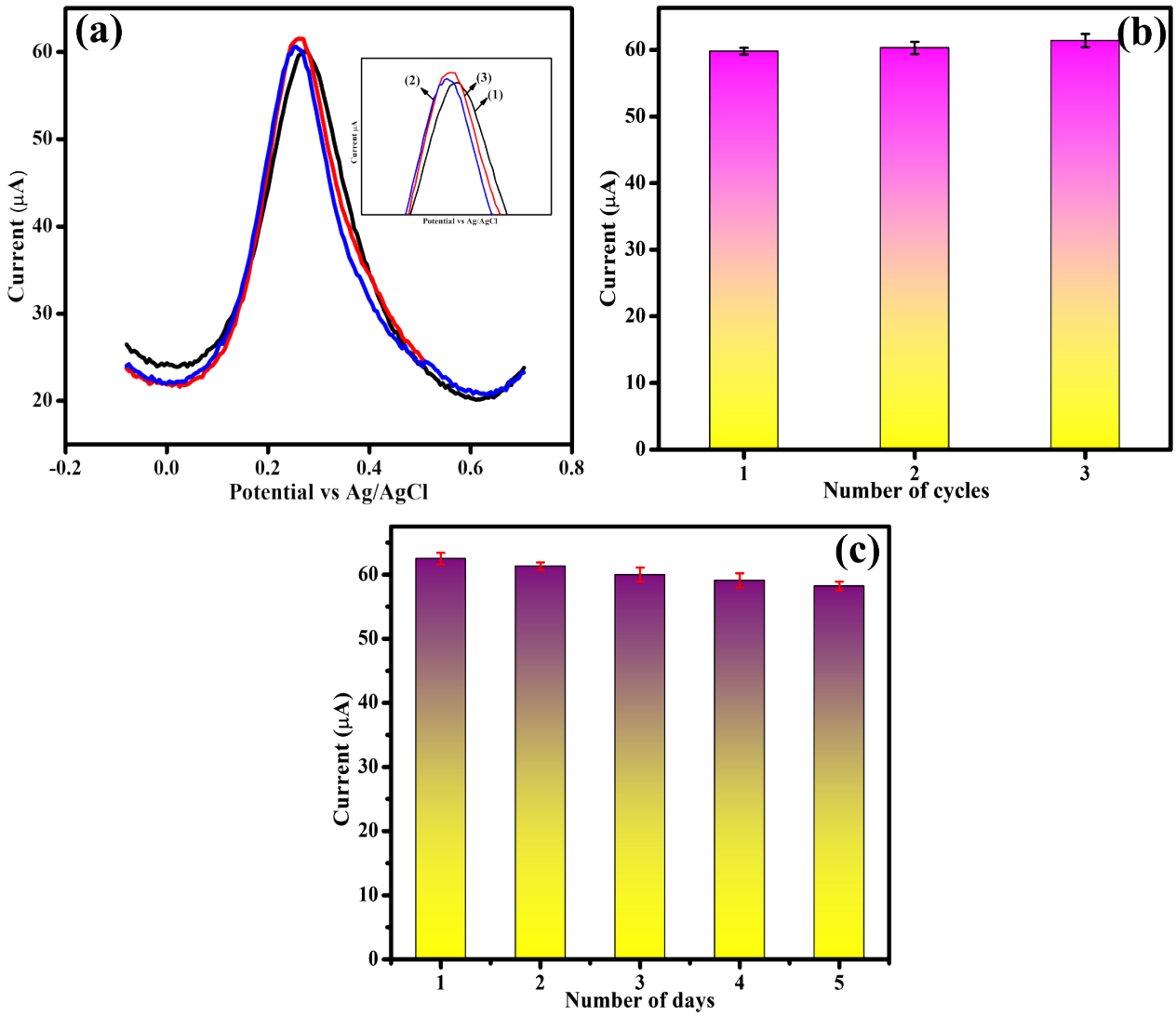

Figure S2. (a) Repeatability and Current response bar diagram of dichlorvos 1st Cycle (1), 2nd Cycle (2), 3rd Cycle (3) and (c) storage stability of the Nd_2O_3@MIL(Fe)-88A electrode toward dichlorvos detection.

Table S1. Comparison table for previously reported DPV studies.

Modified sensor	Method	Linear range	LOD (nM)	Ref.
Polymerizable luminescence probe	Fluorescence spectra	0.5–7 (μM)	300	[1]
Polymerizable luminescence probe	Spectrophotometry	50 – 200 (μM)	320	[2]
Carbon dots – Cu (II)	Fluorescence quenching effect	0.006-0.06(μM)	38	[3]
Choline oxidase/ Poly(brilliant cresyl blue)/CNTs modified electrode	Amperometry	2.5 – 60 (μM)	1.6	[4]
Acetylcholinesterase/rGO @ Nafion /GCE	Amperometry	0.0226 – 0.453 (μM)	9.05	[5]
Acetylcholinesterase/chitosan @TiO_2/ rGO/ GCE	DPV	0.036–22.6 (μM)	29	[6]
Au@MWCNTs/GCE	DPV	1-120 (μM)	5	[7]
ChOx/PBCBethaline-HNO_3 PTD	Amperometry	2.5-60 (nM)	1.6	[8]
Nd_2O_3@MIL(Fe)-88A/GCE	DPV	1-250(nM)	0.92	This work

Table S2. The determination of Dichlorvos in the presence of purple cabbage and orange extracts.

Samples	Spiked (nM)	Found (nM)	Recovery (%)	RSD (%, n=3)
Cabbage extract	0	N. F	-	-
	10	9.7 ± 0.02	97	2.16
	20	19.2 ± 0.06	96	3.39
	30	29.1 ± 0.04	97	1.40
Orange extract	0	N. F	-	-
	10	10.24 ± 0.02	102.4	2.26
	20	19.90 ± 0.04	99.5	2.11
	30	31.03 ± 0.02	103.4	0.64

Note: N.F = Not Found

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