

Supplementary Materials

# A Disposable Screen Printed Electrodes with Hexagonal Ni(OH)<sub>2</sub> Nanoplates Embedded Chitosan Layer for the Detection of Depression Biomarker

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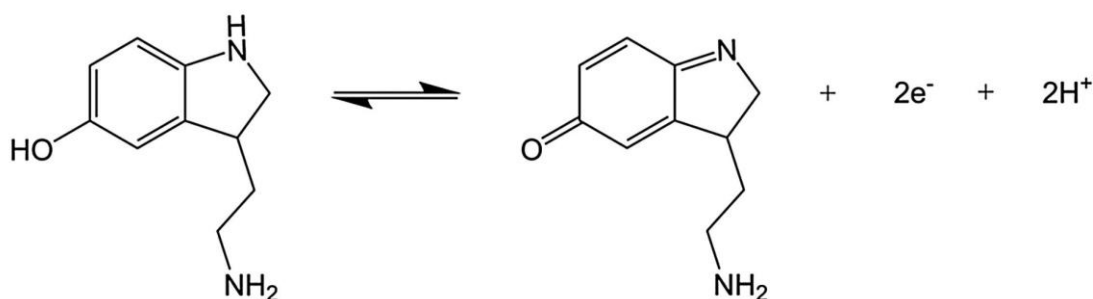
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**Scheme 1.** Plausible electrochemical oxidation reaction mechanism of 5-HT.

**Table S1.** Composition of prepared artificial urine and saliva samples.

Chemical component	Synthetic Urine (g L <sup>-1</sup> )	Synthetic Saliva (g L <sup>-1</sup> )
CaCl <sub>2</sub> ·2H <sub>2</sub> O	1.12	0.81
NaCl	2.92	0.40
Na <sub>2</sub> SO <sub>4</sub>	2.24	—
KH <sub>2</sub> PO <sub>4</sub>	1.40	0.78
KCl	1.60	0.43
NH <sub>4</sub> Cl	1.00	—
Urea	25.0	1.00
Creatinine	1.10	—

**Table S2.** Comparison of working concentration range and detection limit of 5-HT by NH-HNP-Chit/SPCE with recently reported methods.

Electrode	Detection Method	Linear Range	Limit of detection	Reference
MCM-41-COOH/Au@nano-CILPE	SWV	0.2 – 20 μM	0.1 μM	[S1]
Pt/MWCNT/PPy/AgNPs	DPV	0.50 – 5.0 μmol L <sup>-1</sup>	0.15 μmol L <sup>-1</sup>	[S2]
DDF-CNT-TiO <sub>2</sub> /IL/GC	DPV	1.0 – 650.0 μM	0.154 μM	[S3]

GCE/MWCNT-NiO	SWV		118 nM	
GCE/MWCNT-ZnO	SWV	$5.98 \times 10^{-3}$ - 62.8 $\mu$ M	129 nM	[S4]
GCE/MWCNT-Fe <sub>3</sub> O <sub>4</sub>	SWV		166 nM	
PEDOT:PSS/TPyP- 3IP/FTO	CV	-	0.23 $\mu$ M	[S5]
NiO/CNT/PEDOT/GCE	DPV	0.3 – 35 $\mu$ M	0.063 $\mu$ M	[S6]
MWCNT/GC	DPV	5 – 210 $\mu$ M	460 nmol L <sup>-1</sup>	[S7]
IL-DC-CNT/GC	DPV	5.0 – 900.0 $\mu$ M	2 $\mu$ M	[S8]
polymelamine/EPPGS	SWV	0.1 – 100 $\mu$ M	30 nM	[S9]
G-g-PLA-Pd/GCE	amperometric	0.1–100.0 $\mu$ M	0.08 $\mu$ M	[S10]
MWCNT-Chit/GCE	DPV	0.05–16 $\mu$ M	50 nM	[S11]
NH-HNP-Chit/SPCE	DPV	0.1 – 30 $\mu$ M	60 nM	This work

MCM-41-COOH-carboxyl-functionalized mesoporous molecular sieve; ILPE-ionic liquid paste electrode; MWCNT- multi-walled carbon nanotubes; PPy- polypyrrole; AgNPs- silver nanoparticles; DDF- 9-(1,3-dithiolan-2-yl)-6,7-dihydroxy-3,3-dimethyl-3,4-dihydrodibenzo[b,d]furan-1(2H)-one; IL- 1-butyl-3-methylimidazolium tetrafluoroborate; (TPyP)-tetrakis(4-pyridyl)-21H,23H-porphyrin; PEDOT-poly(3,4-ethylenedioxythiophene); IL-ionic liquid; EPPGS-edge plane pyrolytic graphite sensor; PLA- poly(lactic acid).

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