

Novel garnished phthalocyanine with MWCNTs on modified GCE: Sensitive and reliable electrochemical investigation of Paracetamol and Dopamine

*Mounesh, K. R. Venugopal Reddy

*Department of Studies and Research in Chemistry Vijayanagara Sri Krishnadevaraya
University, Ballari– 583105 Karnataka (India)
(E-mail: mounesh.m.nayak@gmail.com, Mob No: +91-8197546693)

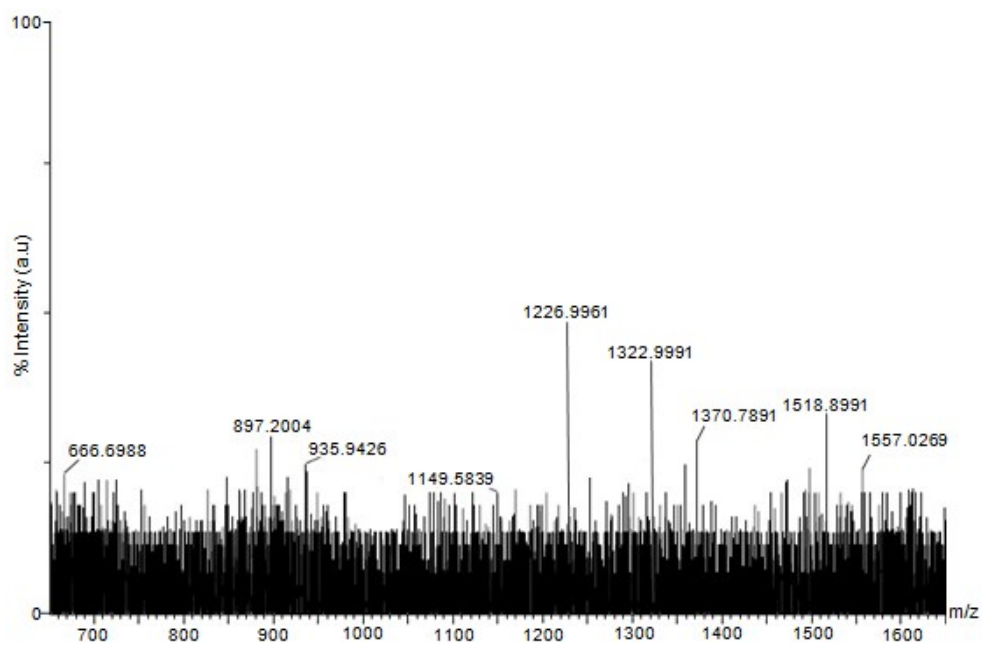


Fig.S1: Mass spectrum of CoTBPCAPc.

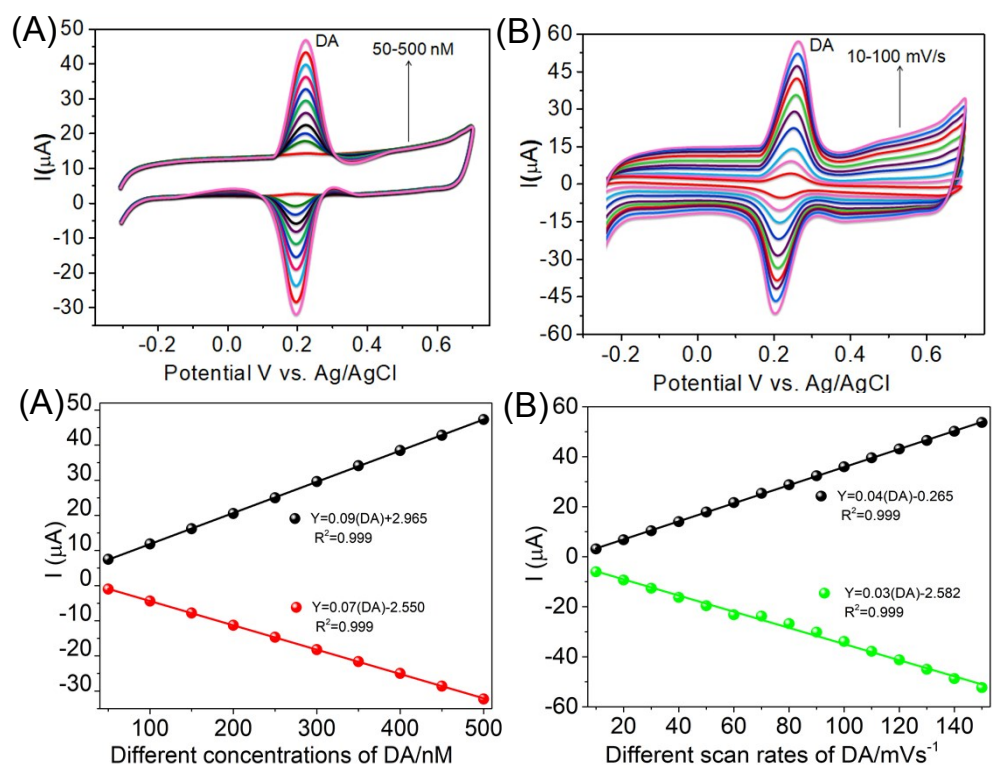


Fig.S2: Experimental CVs at peaks: (A) Different concentrations (50-500 nM) of DA, (B) different scan rates of DA by CoTBPCAPc/MWCNTs/GCE, (C, D) Linear plot of different concentration of DA and scan rates of DA vs. peak current in PBS (pH 7) electrolyte solution.

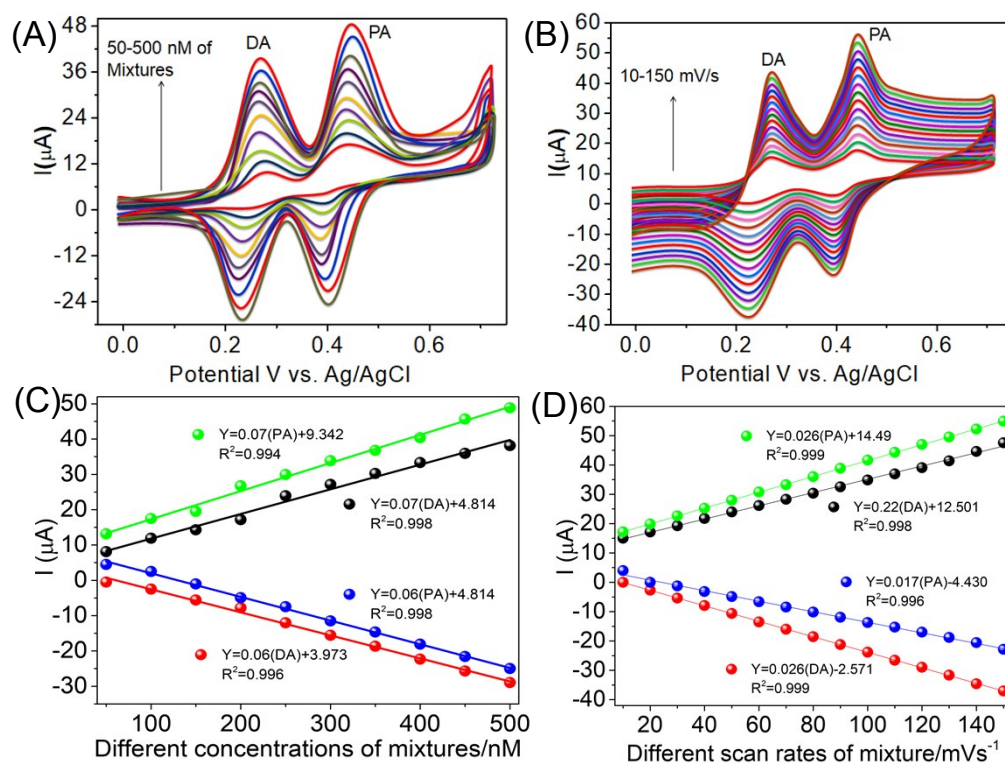


Fig.S3: Experimental CVs at peaks: (A) Different concentrations (50-500 nM) of DA + PA, (B) different scan rates of mixture by CoTBPCAPc/MWCNTs/GCE, (C, D) Linear plot of different concentration of mixture and scan rates of mixture vs. peak current in PBS (pH 7) electrolyte solution.

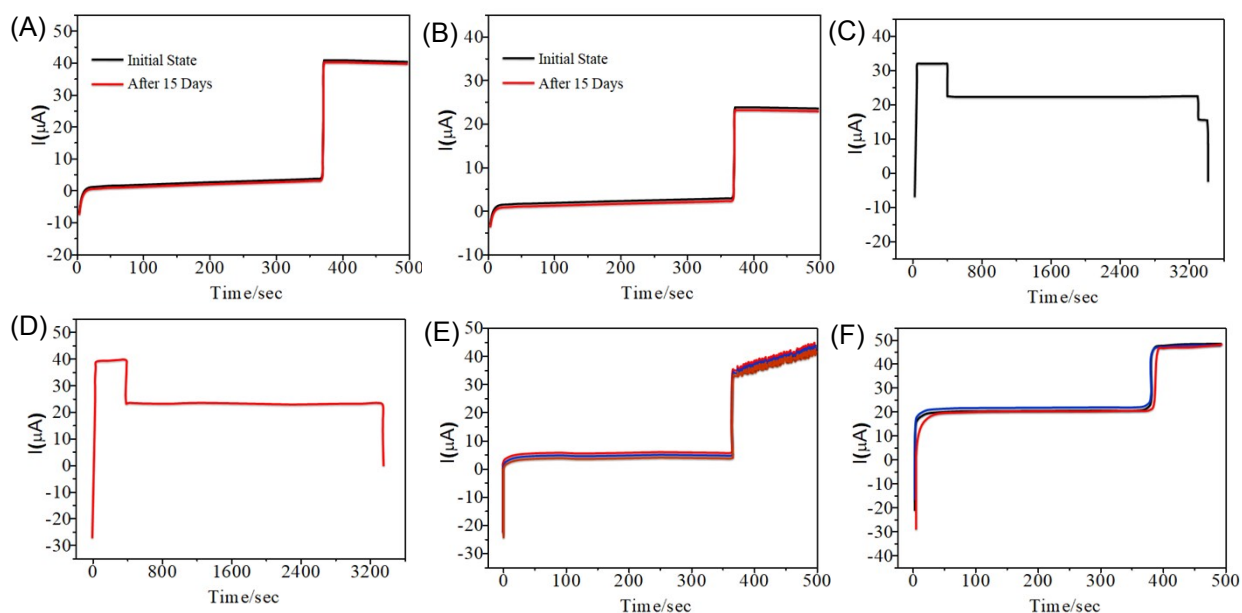


Fig.S4: Storage stability of the CoTBPCAPc/MWCNTs/GCE for the response to 100 nM DA (A) and 100 nM PA (B). (C, D) Operational stability of the CoTBPCAPc/MWCNTs/GCE under continuous response at the optimized potential of +200 mV and +400 mV in a stirred PBS (pH 7) containing 100 nM DA and PA. (E, F) Reproducibility of the CoTBPCAPc/MWCNTs/GCE at the potential of +200 and +400 mV in a stirred PBS (pH 7) for injections of 100 nM DA and PA.

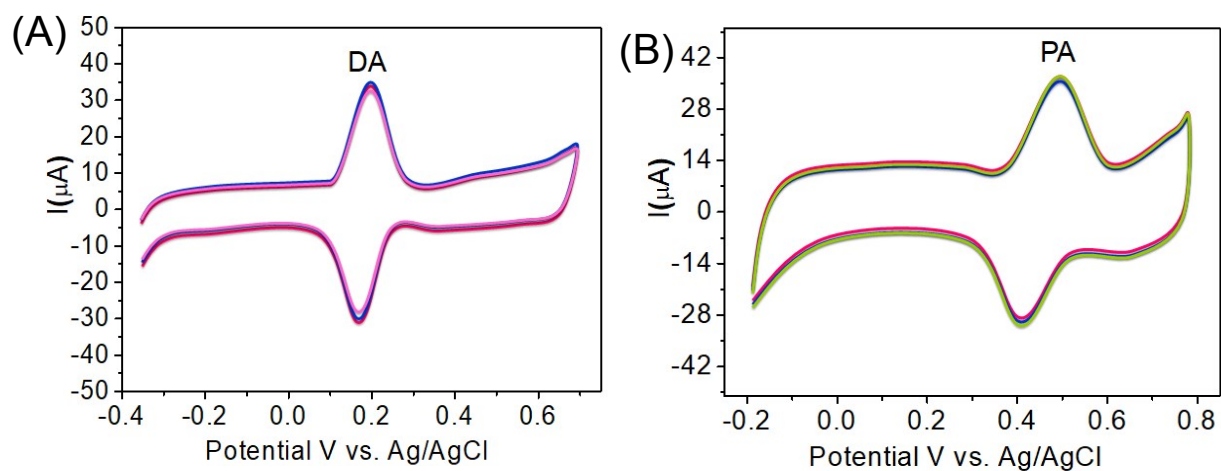


Fig.S5: Ten successive CVs 100 nM of (A) DA and (B) PA of CoTBPCAPc/MWCNTs/GCE in PBS (pH 7) solution at scan rate of 0.10 V s^{-1} .

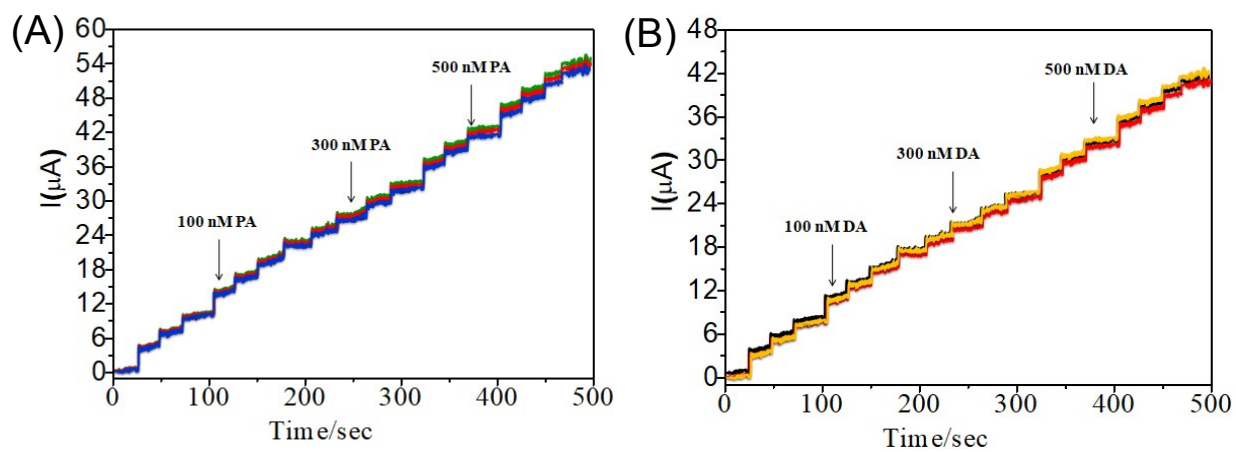


Fig.S6: Representative amperometric curves of three CoTBPCAPc/MWCNTs/GCE prepared on a same GCE in 5 mL stirring PBS (pH 7) solution with successive additions of 500 nM DA and PA at +200 mV and +400 mV (n=3).

Table S1. Determination of DA and PA in pharmaceutical samples.

Quantitative analyses of DA and PA in the samples	Sample	Added (nmol L ⁻¹)		Found (nmol L ⁻¹)		Recovery (%)		RSD [§] (%)	
		DA	PA	DA	PA	DA	PA	DA	PA
Dopamine hydrochloride injection	1	100	-	100.4	-	100.3	-	1.96	-
	2	200	-	200.3	-	102.2	-	2.76	-
Paracetamol tablet	1	-	100	-	99.94	-	99.93	-	4.95
	2	-	200	-	199.96	-	199.96	-	2.25

1 and 2 spiked diluted pharmaceutical samples of DA and PA in PBS. § Relative standard deviation of three measured values.

Table S2. Determination of mixtures of DA and PA in urine samples at CoTBPCAPc/MWCNTs/GC electrode (n=3).

Samples	<u>Added (nM)</u>			<u>Detected (nM)</u>			<u>Recovery (%)</u>			<u>RSD[§] (%)</u>		
	DA	PA	Urine sample	DA	PA	Urine sample	DA	PA	Urine sample	DA	PA	Urine sample
Dopamine hydrochloride injection (1.6 mg mL ⁻¹)	-	-	-	10.3	-	-	-	-	-	-	-	-
Paracetamol tablet (BP 500)	-	-	-	-	60.65	-	-	-	-	-	-	-
1	60	60	-	70.5	104.9	-	100.3	99.9	-	2.25	1.58	-
2	100	85	-	94.0	130.2	-	98.6	99.6	-	4.25	3.62	-
3	100	100	-	109.1	160.5	-	98.9	101.2	-	3.45	2.81	-
Urine samples												
1	-	-	100	-	-	103.3	-	-	97.8	-	-	4.28
2	-	-	150	-	-	156.4	-	-	104.3	-	-	3.28
3	-	-	200	-	-	205.6	-	-	102.8	-	-	2.87

1, 2 and 3 spiked diluted pharmaceutical samples of mixtures of DA and PA in urine. § Standard addition method.