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SUPPLEMENTARY MATERIAL TO

Novel Mannich bases bearing pyrazolone moiety Synthesis, characterization and electrochemical studies

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Table 1. *Polarographic characteristics and kinetic parameters of{4-[3-methyl-5-oxo-4-(4^{l}-substituted phenyl hydrazono)-4,5-dihydro-pyrazol-1-yl]-phenoxy}-acetic acid (2-oxo-1-piperidine-1-ylmethyl-1,2-dihydro–indol-3-ylidene)- hydrazide (1 mM) at pH 4.1 in various treatments, Medium : Aqueous dimethyl formamide (40% V/V) (I W = First wave II W = Second wave III W = Third wave)*

#	pH	($\Delta E_{1/2}$/ΔpH)/ mV		α_{na}			No. of protons p		$D \times 10^{-6}$ / cm sec^{-1}			$i \times 10^{3}$/ µA			K^{0}_{fh}/ cm sec^{-1}			ΔG^{*} / kJ mol^{-1}		
		I W	II W	I W	II W	III W	I W	II W	I W	II W	III W	I W	II W	III W	I W	II W	III W	I W	II W	III W
Va	2.10	0.06	0.09	0.47	0.43	-	0.476	0.654	7.50	6.10	-	3.33	3.00	-	3.085	1.333	-	11.682	12.083	-
	4.10	0.06	0.09	0.47	0.43	-	0.476	0.654	6.10	4.79	-	3.00	2.66	-	2.579	1.134	-	11.765	12.159	-
	6.10	0.06	0.09	0.45	0.39	-	0.456	0.593	2.68	1.87	-	2.00	1.66	-	2.264	1.060	-	11.828	12.188	-
	8.10	0.06	0.09	0.41	0.36	0.42	0.415	0.547	1.51	0.92	5.85	1.50	1.16	2.94	0.704	1.050	0.032	12.388	12.196	11.401
	10.10	0.06	0.09	0.41	0.36	0.42	0.415	0.547	1.51	0.92	5.85	1.50	1.16	2.94	0.704	1.050	-0.032	12.388	12.196	11.401
Vb	2.10	0.09	0.08	0.52	0.48	-	0.791	0.649	8.82	7.02	-	3.61	3.22	-	3.001	3.758	-	11.694	11.585	-
	4.10	0.09	0.08	0.52	0.48	-	0.791	0.649	7.23	5.61	-	3.27	2.88	-	2.787	3.144	-	11.728	11.673	-
	6.10	0.09	0.08	0.50	0.44	-	0.760	0.595	3.84	2.13	-	2.38	1.77	-	2.660	1.416	-	11.753	12.054	-
	8.10	0.09	0.08	0.46	0.41	.0.43	0.699	0.554	1.98	1.10	6.76	1.72	1.27	3.16	1.055	1.395	3.145	12.192	12.062	11.012
	10.10	0.09	0.08	0.46	0.41	0.43	0.699	0.554	1.98	1.10	6.76	1.72	1.27	3.16	1.055	1.395	3.145	12.192	12.062	11.012
Vc	2.10	0.11	0.09	0.58	0.52	-	1.078	0.791	8.29	7.23	-	3.50	3.27	-	1.898	1.597	-	11.912	11.996	-
	4.10	0.11	0.09	0.58	0.52	-	1.078	0.791	6.76	5.85	-	3.16	2.94	-	1.562	1.366	-	12.008	12.071	-
	6.10	0.11	0.09	0.56	0.48	-	1.041	0.730	3.16	2.28	-	2.16	1.83	-	1.523	1.008	-	12.016	12.217	-
	8.10	0.11	0.09	0.52	0.45	0.47	0.967	0.684	1.87	1.20	6.56	1.66	1.33	3.11	1.281	0.991	1.025	12.100	12.226	11.377
	10.10	0.11	0.09	0.52	0.45	0.47	0.967	0.684	1.87	1.20	6.56	1.66	1.33	3.11	1.281	0.991	1.025	12.100	12.226	11.377
Vd	2.10	0.11	0.09	0.55	0.49	-	1.022	0.745	8.05	6.80	-	3.44	3.16	-	1.549	6.679	-	12.012	11.314	-
	4.10	0.11	0.09	0.55	0.49	-	1.022	0.745	6.56	5.66	-	3.11	2.88	-	1.480	1.115	-	12.033	12.167	-
	6.10	0.11	0.09	0.53	0.45	-	0.985	0.684	3.02	2.14	-	2.11	1.77	-	0.808	0.744	-	12.322	12.343	-
	8.10	0.11	0.09	0.51	0.42	0.49	0.948	0.639	1.76	1.10	7.04	1.61	1.27	3.22	0.706	0.698	0.145	12.385	12.393	12.121
	10.10	0.11	0.09	0.51	0.42	0.49	0.948	0.639	1.76	1.10	7.04	1.61	1.27	3.22	0.706	0.698	0.145	12.385	12.393	12.121
Ve	2.10	0.06	0.08	0.56	0.58	-	0.568	0.784	8.84	7.28	-	3.61	3.27	-	12.462	5.753	-	11.012	11.385	-
	4.10	0.06	0.08	0.56	0.58	-	0.568	0.784	7.53	5.88	-	3.33	2.94	-	3.025	4.511	-	11.690	11.498	-
	6.10	0.06	0.08	0.53	0.52	-	0.537	0.703	3.52	2.14	-	2.27	1.77	-	1.117	3.239	-	12.167	11.657	-
	8.10	0.06	0.08	0.48	0.44	0.41	0.486	0.595	2.14	1.10	6.56	1.77	1.27	3.11	0.982	2.350	0.374	12.229	11.811	11.016
	10.10	0.06	0.08	0.48	0.44	0.41	0.486	0.595	2.14	1.10	6.56	1.77	1.27	3.11	0.982	2.350	0.374	12.229	11.811	11.016
Vf	2.10	0.08	0.09	0.58	0.60	-	0.784	0.912	8.57	7.04	-	3.55	3.22	--	1.687	1.579	-	11.970	11.999	-
	4.10	0.08	0.09	0.58	0.60	-	0.784	0.912	7.04	5.66	-	3.22	2.88	-	1.276	1.325	-	12.104	12.083	-
	6.10	0.08	0.09	0.55	0.54	--	0.743	0.821	3.35	2.14	-	2.22	1.77	-	1.238	1.116	-	12.117	12.167	-
	8.10	0.08	0.09	0.50	0.49	0.43	0.676	0.745	2.01	1.10	6.80	1.72	1.27	3.16	1.146	1.113	0.215	12.555	12.167	11.447
	10.10	0.08	0.09	0.50	0.49	0.43	0.676	0.745	2.01	1.10	6.80	1.72	1.27	3.16	1.146	1.113	0215	12.555	12.167	11.447

Table 2. *Cyclic voltammetric results of {4-[3-methyl-5-oxo-4-(phenyl hydrazono)-4,5-dihydro-pyrazol-1-yl]-phenoxy}-acetic acid (2-oxo-1-piperidine-1-ylmethyl-1,2-dihydro–indol-3-ylidene)- hydrazide (1 mM), Medium: Aqueous dimethylformamide (40% V/V)*

pH	Scan rate, V s^{-1}	Hanging mercury drop electrode								Crown–ether modified carbon paste electrode							
		$-E_{PCI}$ / V	$-E_{PCI\,I}$ / V	$-E_{PC\,III}$ / V	$-E_{PC}$ inv, V	i_{PCI} / µA	i_{PCII}/ µA	i_{PCIII}/ µA	i_{PC} inv/ µA	E_{pcI} / V	E_{pcII} / V	E_{pcIII} / V	E_{pa} / V	i_{pcI} / µA	i_{pcII} / µA	$E_{pcIII,}$ / V	$i_{pa,}$/ µA
2.1	0.010	0.54	0.74		0.64	1.3	1.1		1.0	0.44	0.64		0.86	1.9	1.7		1.2
	0.020	0.58	0.78		0.68	1.8	1.6		1.4	0.48	0.68		0.90	2.6	2.3		1.6
	0.050	0.62	0.82		0.72	2.9	2.4		2.2	0.52	0.72		0.94	4.8	3.7		2.6
	0.100	0.66	0.86		0.76	4.1	3.5		3.1	0.56	0.76		0.98	6.0	5.3		3.7
	0.200	0.70	0.90		0.80	5.8	4.9		4.7	0.60	0.80		10.2	8.4	7.5		5.3
	0.300	0.76	0.96		0.86	7.2	6.0		5.4	0.66	0.86		1.08	10.3	9.2		6.5
	0.500	0.82	1.02		0.92	9.1	7.8		7.1	0.72	0.92		1.14	13.4	12.0		8.4
4.1	0.010	0.67	0.88		0.77	0.9	0.8		0.7	0.57	0.78		1.00	1.6	1.5		1.1
	0.020	0.71	0.92		0.81	1.2	1.2		1.0	0.61	0.82		1.04	2.2	2.1		1.5
	0.050	0.75	0.96		0.85	1.9	1.7		1.5	0.65	0.86		1.08	3.5	3.3		2.4
	0.100	0.79	1.00		0.79	2.8	2.5		2.2	0.69	0.90		1.12	5.0	4.7		3.4
	0.200	0.83	1.04		0.83	4.0	3.5		3.3	0.73	0.94		1.16	7.1	6.7		4.9
	0.300	0.89	1.10		0.89	5.0	4.3		3.8	0.79	1.00		1.22	8.7	8.2		6.0
	0.500	0.95	1.16		0.95	6.3	5.6		4.9	0.85	1.06		1.28	11.3	10.6		7.8
6.1	0.010	0.80	1.06		0.90	0.6	0.5		0.4	0.70	0.96		1.18	1.3	1.2		1.0
	0.020	0.84	1.10		0.94	0.8	0.7		0.6	0.74	1.00		1.22	1.8	1.6		1.4
	0.050	0.88	1.14		0.98	1.3	1.1		0.9	0.78	1.04		1.26	2.9	2.6		2.2
	0.100	0.92	1.18		1.02	1.8	1.5		1.3	0.82	1.08		1.30	4.1	3.7		3.1
	0.200	0.96	1.22		1.06	2.6	2.3		1.8	0.86	1.12		1.34	5.8	5.3		4.4
	0.300	1.02	1.26		1.12	3.2	2.7		2.3	0.92	1.18		1.40	7.1	6.5		5.4
	0.500	1.08	1.32		1.16	4.2	3.5		2.8	0.98	1.24		1.46	9.1	8.4		7.1
8.1	0.010	0.90	1.26	1.61		0.5	0.3	0.8		0.80	1.18	1.51		1.0	0.8	1.1	
	0.020	0.94	1.30	1.65		0.7	0.4	1.2		0.84	1.22	1.55		1.4	1.2	1.5	
	0.050	0.98	1.34	1.69		1.1	0.7	1.7		0.88	1.26	1.59		2.2	1.7	2.4	
	0.100	1.02	1.38	1.73		1.5	0.9	2.5		0.92	1.30	1.63		3.1	2.5	3.4	
	0.200	1.06	1.42	1.77		2.3	1.5	3.5		0.96	1.34	1.67		4.4	3.6	4.9	
	0.300	1.12	1.48	1.83		2.7	1.6	4.3		1.02	1.40	1.73		5.4	4.3	6.0	
	0.500	1.18	1.54	1.89		3.5	2.2	5.6		1.08	1.46	1.79		7.1	5.6	7.8	
10.1	0.010	0.90	1.26	1.61		0.5	0.3	0.8		0.80	1.18	1.51		1.0	0.8	1.1	
	0.020	0.94	1.30	1.65		0.7	0.4	1.2		0.84	1.22	1.55		1.4	1.2	1.5	
	0.050	0.98	1.34	1.69		1.1	0.7	1.7		0.88	1.26	1.59		2.2	1.7	2.4	
	0.100	1.02	1.38	1.73		1.5	0.9	2.5		0.92	1.30	1.63		3.1	2.5	3.4	
	0.200	1.06	1.42	1.77		2.3	1.5	3.5		0.96	1.34	1.67		4.4	3.6	4.9	
	0.300	1.12	1.48	1.83		2.7	1.6	4.3		1.02	1.40	1.73		5.4	4.3	6.0	
	0.500	1.18	1.54	1.89		3.5	2.2	5.6		1.08	1.46	1.79		7.1	5.6	7.8	

Table 3. *Cyclic voltammetric results of {4-[3-methyl-5-oxo-4-(4^{l}-methyl phenyl hydrazono)-4,5-dihydro-pyrazol-1-yl]-phenoxy}-acetic acid (2-oxo-1-piperidine-1-ylmethyl-1,2-dihydro–indol-3-ylidene)- hydrazide (1 mM), Medium: Aqueous dimethylformamide (40% V/V)*

pH	Scan rate, V s^{-1}	Hanging mercury drop electrode								Crown–ether modified carbon paste electrode							
		$-E_{PCI}$ / V	$-E_{PCI\ I}$ / V	$-E_{PC\ III}$ / V	$-E_{PC}$ inv, V	i_{PCI} / µA	i_{PCII}/ µA	i_{PCIII}/ µA	i_{PC} inv/ µA	E_{pcI} / V	E_{pcII} / V	E_{pcIII} / V	E_{pa} / V	i_{pcI} / µA	i_{pcII} / µA	$E_{pcIII,}$ / V	$i_{pa,}$/ µA
2.1	0.010	0.64	0.77		0.67	1.1	1.0		0.9	0.54	0.67		0.88	1.6	1.2		1.1
	0.020	0.68	0.83		0.73	1.6	1.4		1.2	0.58	0.71		0.92	2.2	1.6		1.5
	0.050	0.72	0.87		0.77	2.4	2.2		1.9	0.62	0.75		0.96	3.5	2.6		2.4
	0.100	0.76	0.91		0.81	3.5	3.1		2.8	0.66	0.79		1.00	5.0	3.7		3.4
	0.200	0.80	0.95		0.85	4.9	4.7		4.0	0.70	0.83		1.04	7.1	5.3		4.9
	0.300	0.86	1.01		0.91	6.0	5.4		5.0	0.76	0.89		1.10	8.7	6.5		6.0
	0.500	0.92	1.07		0.97	7.8	7.1		6.3	0.82	0.95		1.16	11.3	8.4		7.8
4.1	0.010	0.54	1.02		0.92	1.0	0.9		0.7	0.88	0.92		1.13	1.3	1.0		1.0
	0.020	0.58	1.06		0.96	1.4	1.2		1.0	0.92	0.96		1.17	1.8	1.4		1.4
	0.050	0.62	1.10		1.00	2.2	1.9		1.5	0.96	1.00		1.21	2.9	2.2		2.2
	0.100	0.66	1.14		1.04	3.1	2.8		2.2	1.0	1.04		1.25	4.1	3.1		3.1
	0.200	0.70	1.18		1.08	4.7	4.0		3.3	1.04	1.08		1.29	5.8	4.4		4.4
	0.300	0.76	1.24		1.14	5.4	5.0		3.8	1.10	1.14		1.35	7.1	5.4		5.4
	0.500	0.82	1.30		1.20	7.1	6.3		4.9	1.16	1.20		1.41	9.1	7.1		7.1
6.1	0.010	1.11	1.10		1.00	0.8	0.6		0.5	1.01	1.00		1.21	1.1	0.8		0.6
	0.020	1.15	1.14		1.04	1.2	0.8		0.7	1.05	1.04		1.25	1.5	1.2		0.9
	0.050	1.19	1.18		1.08	1.7	1.3		1.1	1.09	1.08		1.29	2.4	1.7		1.3
	0.100	1.23	1.22		1.12	2.5	1.8		1.5	1.13	1.12		1.33	3.4	2.5		1.9
	0.200	1.27	1.26		1.16	3.5	2.6		2.3	1.17	1.16		1.37	4.9	3.6		2.7
	0.300	1.33	1.32		1.22	4.3	3.2		2.3	1.23	1.22		1.43	6.0	4.3		3.2
	0.500	1.39	1.38		1.28	5.6	4.2		3.5	1.29	1.28		1.49	7.8	5.6		4.3
8.1	0.010	1.21	1.28	1.58		0.6	0.4	1.0		1.11	1.18	1.48		0.9	0.6	1.0	
	0.020	1.25	1.32	1.62		0.8	0.6	1.4		1.15	1.22	1.52		1.2	0.9	1.4	
	0.050	1.29	1.36	1.66		1.3	0.9	2.2		1.19	1.26	1.56		1.9	1.3	2.2	
	0.100	1.33	1.40	1.70		1.8	1.3	3.1		1.23	1.30	1.60		2.8	1.9	3.1	
	0.200	1.37	1.44	1.74		2.6	1.8	4.7		1.27	1.34	1.64		4.1	2.7	4.4	
	0.300	1.43	1.50	1.80		3.2	2.3	5.4		1.33	1.40	1.70		5.0	3.2	5.4	
	0.500	1.49	1.56	1.86		4.2	2.8	7.1		1.39	1.46	1.76		6.3	4.3	7.1	
10.1	0.010	1.21	1.28	1.58		0.6	0.4	1.0		1.11	1.18	1.48		0.9	0.6	1.0	
	0.020	1.25	1.32	1.62		0.8	0.6	1.4		1.15	1.22	1.52		1.2	0.9	1.4	
	0.050	1.29	1.36	1.66		1.3	0.9	2.2		1.19	1.26	1.56		1.9	1.3	2.2	
	0.100	1.33	1.40	1.70		1.8	1.3	3.1		1.23	1.30	1.60		2.8	1.9	3.1	
	0.200	1.37	1.44	1.74		2.6	1.8	4.7		1.27	1.34	1.64		4.1	2.7	4.4	
	0.300	1.43	1.50	1.80		3.2	2.3	5.4		1.33	1.40	1.70		5.0	3.2	5.4	
	0.500	1.49	1.56	1.86		4.2	2.8	7.1		1.39	1.46	1.76		6.3	4.3	7.1	

Table 4. *Cyclic voltammetric results of {4-[3-methyl-5-oxo-4-(4^{I}-methoxy phenyl hydrazono)-4,5-dihydro-pyrazol-1-yl]-phenoxy}-acetic acid (2-oxo-1-piperidine-1-ylmethyl-1,2-dihydro–indol-3-ylidene)- hydrazide (1 mM), Medium: Aqueous dimethylformamide (40% V/V)*

pH	Scan rate, V s^{-1}	Hanging mercury drop electrode								Crown–ether modified carbon paste electrode							
		$-E_{PCI}$ / V	$-E_{PCI\,I}$ / V	$-E_{PC\,III\,/}$ V	$-E_{PC}$ inv, V	i_{PCI} / µA	i_{PCII}/ µA	i_{PCIII}/ µA	i_{PC} inv/ µA	E_{pcI} / V	E_{pcII} / V	E_{pcIII} / V	E_{pa} / V	$i_{pcI\,/}$ µA	i_{pcII} / µA	$E_{pcIII,}$ / V	$i_{pa,}$/ µA
2.1	0.010	0.73	0.78		0.68	1.1	1.0		0.8	0.63	0.68		0.89	2.1	2.3		1.9
	0.020	0.77	0.82		0.72	1.6	1.4		1.2	0.67	0.72		0.93	2.9	3.2		2.6
	0.050	0.81	0.86		0.76	2.4	2.2		1.7	0.71	0.76		0.97	4.6	5.0		4.8
	0.100	0.85	0.90		0.80	3.5	3.1		2.5	0.75	0.80		1.01	6.6	7.2		6.0
	0.200	0.89	0.94		0.84	4.9	4.7		3.6	0.79	0.84		1.05	9.3	10.2		8.4
	0.300	0.95	1.00		0.90	6.0	5.4		4.3	0.85	0.90		1.11	11.4	12.5		10.3
	0.500	1.01	1.06		0.96	7.8	7.1		5.6	0.91	0.96		1.17	14.8	16.2		13.4
4.1	0.010	0.98	1.05		0.90	1.0	0.9		0.7	0.90	0.94		1.15	2.0	2.1		1.7
	0.020	1.02	1.09		0.94	1.4	1.3		0.9	0.94	0.98		1.19	2.8	2.9		2.3
	0.050	1.06	1.13		0.98	2.2	1.9		1.5	0.98	1.02		1.23	4.4	4.6		3.7
	0.100	1.10	1.17		1.02	3.1	2.8		2.3	1.02	1.06		1.27	6.3	6.6		5.3
	0.200	1.14	1.21		1.06	4.7	4.1		3.2	1.06	1.10		1.31	8.9	9.3		7.5
	0.300	1.20	1.27		1.12	5.4	4.9		3.9	1.12	1.16		1.37	10.9	11.4		9.2
	0.500	1.26	1.33		1.18	7.1	6.4		4.9	1.18	1.22		1.43	14.1	14.8		12.0
6.1	0.010	1.26	1.18		1.08	0.7	0.6		0.6	1.08	1.16		1.37	1.7	1.8		1.5
	0.020	1.30	1.22		1.12	0.9	0.9		0.9	1.12	1.20		1.41	2.1	2.5		2.1
	0.050	1.34	1.26		1.16	1.5	1.3		1.3	1.16	1.24		1.45	3.3	3.9		3.3
	0.100	1.38	1.30		1.20	2.3	1.9		1.9	1.20	1.28		1.49	4.7	5.6		4.7
	0.200	1.42	1.34		1.24	3.2	2.7		2.7	1.24	1.32		1.53	6.7	8.0		6.7
	0.300	1.48	1.40		1.30	3.9	3.2		3.2	1.30	1.38		1.59	8.2	9.8		8.2
	0.500	1.54	1.46		1.36	4.9	4.3		4.3	1.36	1.44		1.65	10.6	12.7		10.6
8.1	0.010	1.43	1.33	1.64		0.5	0.4	0.9		1.23	1.33	1.54		1.2	1.4	1.6	
	0.020	1.47	1.37	1.68		0.7	0.6	1.3		1.27	1.37	1.58		1.6	1.9	2.2	
	0.050	1.51	1.41	1.72		1.1	0.9	1.9		1.31	1.41	1.62		2.6	3.0	3.5	
	0.100	1.55	1.45	1.76		1.5	1.3	2.8		1.35	1.45	1.66		3.7	4.4	5.0	
	0.200	1.39	1.49	1.80		2.3	1.8	4.1		1.39	1.49	1.70		5.3	6.2	7.1	
	0.300	1.65	1.55	1.86		2.8	2.3	4.9		1.45	1.55	1.76		6.6	7.6	8.7	
	0.500	1.71	1.61	1.92		3.5	2.8	6.4		1.51	1.61	1.82		8.4	9.8	11.3	
10.1	0.010	1.43	1.33	1.64		0.5	0.4	0.9		1.23	1.33	1.54		1.2	1.4	1.6	
	0.020	1.47	1.37	1.68		0.7	0.6	1.3		1.27	1.37	1.58		1.6	1.9	2.2	
	0.050	1.51	1.41	1.72		1.1	0.9	1.9		1.31	1.41	1.62		2.6	3.0	3.5	
	0.100	1.55	1.45	1.76		1.5	1.3	2.8		1.35	1.45	1.66		3.7	4.4	5.0	
	0.200	1.59	1.49	1.80		2.3	1.8	4.1		1.39	1.49	1.70		5.3	6.2	7.1	
	0.300	1.65	1.55	1.86		2.8	2.3	4.9		1.45	1.55	1.76		6.6	7.6	8.7	
	0.500	1.71	1.61	1.92		3.5	2.8	6.4		1.51	1.61	1.82		8.4	9.8	11.3	

Table 5. *Cyclic voltammetric results of {4-[3-methyl-5-oxo-4-(4[/]-ethoxy phenyl hydrazono)-4,5-dihydro-pyrazol-1-yl]-phenoxy}-acetic acid (2-oxo-1-piperidine-1-ylmethyl-1,2-dihydro–indol-3-ylidene)- hydrazide (1 mM), Medium: Aqueous dimethylformamide (40 % V/V)*

pH	Scan rate, V s^{-1}	Hanging mercury drop electrode								Crown–ether modified carbon paste electrode							
		$-E_{PCI}$ / V	$-E_{PCI\ I}$ / V	$-E_{PC\ III}$ / V	$-E_{PC}$ inv, V	i_{PCI} / µA	i_{PCII}/ µA	i_{PCIII}/ µA	i_{PC} inv/ µA	E_{pcI} / V	E_{pcII} / V	E_{pcIII} / V	E_{pa} / V	i_{pcI} / µA	i_{pcII} / µA	$E_{pcIII,}$ / V	$i_{pa,}$/ µA
2.1	0.010	0.76	0.73		0.63	1.2	1.0		0.9	0.75	0.78		0.99	1.9	1.7		1.5
	0.020	0.80	0.77		0.67	1.7	1.4		1.3	0.79	0.82		1.03	2.6	2.3		2.1
	0.050	0.84	0.81		0.71	2.6	2.2		1.9	0.83	0.86		1.07	4.8	3.7		3.3
	0.100	0.88	0.85		0.75	3.7	3.1		2.8	0.87	0.90		1.11	6.0	5.3		4.7
	0.200	0.92	0.89		0.79	5.3	4.4		4.1	0.91	0.94		1.15	8.4	7.5		6.7
	0.300	1.06	0.95		0.85	6.6	5.4		5.0	0.97	1.00		1.21	10.3	9.2		8.2
	0.500	1.12	1.01		0.91	8.5	7.1		6.4	1.03	1.06		1.27	13.4	12.0		10.6
4.1	0.010	1.08	0.94		0.84	1.0	0.9		0.7	0.96	1.1		1.31	1.6	1.4		1.3
	0.020	1.12	0.98		0.88	1.4	1.3		1.0	1.00	1.14		1.35	2.2	1.9		1.8
	0.050	1.16	1.02		0.92	2.2	1.9		1.5	1.04	1.18		1.39	3.5	3.0		2.9
	0.100	1.20	1.06		0.96	3.1	2.8		2.2	1.08	1.22		1.43	5.0	4.4		4.1
	0.200	1.24	1.10		1.00	4.4	4.1		3.3	1.12	1.26		1.47	7.1	6.2		5.8
	0.300	1.30	1.16		1.06	5.4	5.0		3.8	1.18	1.32		1.53	8.7	7.6		7.1
	0.500	1.36	1.22		1.12	7.1	6.4		4.9	1.24	1.38		1.59	11.3	9.8		9.1
6.1	0.010	1.23	1.12		1.02	0.8	0.7		0.6	1.14	1.25		1.46	1.2	1.1		1.0
	0.020	1.27	1.16		1.06	1.2	1.0		0.9	1.18	1.29		1.50	1.6	1.6		1.4
	0.050	1.31	1.20		1.10	1.8	1.5		1.3	1.22	1.33		1.54	2.6	2.4		2.2
	0.100	1.35	1.24		1.14	2.5	2.2		1.9	1.26	1.37		1.58	3.7	3.4		3.1
	0.200	1.39	1.28		1.18	3.6	3.3		2.7	1.30	1.41		1.62	5.3	4.9		4.4
	0.300	1.45	1.34		1.24	4.3	3.8		3.2	1.36	1.47		1.68	6.6	6.0		5.4
	0.500	1.51	1.40		1.30	5.6	4.9		4.3	1.42	1.53		1.74	8.4	7.8		7.1
8.1	0.010	1.49	1.30	1.59		0.6	0.5	1.0		1.32	1.51	1.61		0.9	0.7	1.2	
	0.020	1.53	1.34	1.63		0.9	0.7	1.4		1.36	1.55	1.65		1.2	1.0	1.6	
	0.050	1.57	1.38	1.67		1.3	1.1	2.2		1.40	1.59	1.69		1.9	1.5	2.6	
	0.100	1.61	1.42	1.71		1.9	1.5	3.1		1.44	1.63	1.73		2.8	2.2	3.7	
	0.200	1.65	1.46	1.75		2.7	2.3	4.4		1.48	1.67	1.77		4.0	3.3	5.3	
	0.300	1.71	1.52	1.81		3.2	2.8	5.4		1.54	1.73	1.83		4.9	3.8	6.6	
	0.500	1.77	1.58	1.87		4.3	3.5	7.1		1.60	1.79	1.89		6.3	4.9	8.4	
10.1	0.010	1.49	1.30	1.59		0.6	0.5	1.0		1.32	1.51	1.61		0.9	0.7	1.2	
	0.020	1.53	1.34	1.63		0.9	0.7	1.4		1.36	1.55	1.65		1.2	1.0	1.6	
	0.050	1.57	1.38	1.67		1.3	1.1	2.2		1.40	1.59	1.69		1.9	1.5	2.6	
	0.100	1.61	1.42	1.71		1.9	1.5	3.1		1.44	1.63	1.73		2.8	2.2	3.7	
	0.200	1.65	1.46	1.75		2.7	2.3	4.4		1.48	1.67	1.77		4.0	3.3	5.3	
	0.300	1.71	1.52	1.81		3.2	2.8	5.4		1.54	1.73	1.83		4.9	3.8	6.6	
	0.500	1.77	1.58	1.87		4.3	3.5	7.1		1.60	1.79	1.89		6.3	4.9	8.4	

Table 6. *Cyclic voltammetric results of {4-[3-methyl-5-oxo-4-(4[I]-chloro phenyl hydrazono)-4,5-dihydro-pyrazol-1-yl]-phenoxy}-acetic acid (2-oxo-1-piperidine-1-ylmethyl-1,2-dihydro–indol-3-ylidene)- hydrazide (1 mM), Medium : Aqueous dimethylformamide (40% V/V)*

pH	Scan rate, V s^{-1}	Hanging mercury drop electrode								Crown–ether modified carbon paste electrode							
		$-E_{PCI}$ / V	$-E_{PCI\ I}$ / V	$-E_{PC\ III}$ / V	$-E_{PC}$ inv, V	i_{PCI} / µA	i_{PCII}/ µA	i_{PCIII}/ µA	i_{PC} inv/ µA	E_{pcI} / V	E_{pcII} / V	E_{pcIII} / V	E_{pa} / V	i_{pcI} / µA	i_{pcII} / µA	$E_{pcIII,}$ / V	$i_{pa,}$/ µA
2.1	0.010	0.34	0.78		0.68	1.3	1.1		1.0	0.24	0.70		0.91	1.7	1.4		1.2
	0.020	0.38	0.82		0.72	1.8	1.6		1.4	0.28	0.74		0.95	2.3	1.9		1.6
	0.050	0.42	0.86		0.76	2.9	2.4		2.2	0.32	0.78		0.99	3.7	3.0		2.6
	0.100	0.46	0.90		0.80	4.1	3.4		3.1	0.36	0.82		1.03	5.3	4.4		3.7
	0.200	0.50	0.94		0.84	5.8	4.9		4.4	0.40	0.86		1.07	7.5	6.2		5.3
	0.300	0.56	1.00		0.90	7.2	6.0		5.4	0.46	0.92		1.13	9.2	7.6		6.6
	0.500	0.62	1.06		0.96	9.1	7.8		7.1	0.52	0.98		1.19	12.0	9.8		8.4
4.1	0.010	0.51	0.99		0.89	1.1	0.9		0.8	0.40	0.89		1.1	1.5	1.2		1.0
	0.020	0.55	1.03		0.93	1.6	1.2		1.2	0.44	0.93		1.14	2.1	1.6		1.4
	0.050	0.59	1.07		0.97	2.4	1.9		1.7	0.48	0.97		1.18	3.3	2.6		2.2
	0.100	0.63	1.11		1.01	3.4	2.8		2.5	0.52	1.01		1.22	4.7	3.7		3.1
	0.200	0.67	1.15		1.05	4.9	4.1		3.6	0.56	1.05		1.26	6.7	5.3		4.4
	0.300	0.73	1.21		1.11	6.0	5.0		4.3	0.62	1.11		1.32	8.2	6.6		5.4
	0.500	0.79	1.27		1.17	7.8	6.3		5.6	0.68	1.17		1.38	10.6	8.4		7.1
6.1	0.010	0.66	1.17		1.07	0.9	0.7		0.6	0.56	1.07		1.28	1.2	1.0		0.7
	0.020	0.70	1.21		1.11	1.2	1.0		0.9	0.60	1.11		1.32	1.6	1.4		1.0
	0.050	0.74	1.25		1.15	1.9	1.5		1.3	0.64	1.15		1.36	2.6	2.2		1.5
	0.100	0.78	1.29		1.19	2.8	2.2		1.9	0.68	1.19		1.40	3.7	3.1		2.2
	0.200	0.82	1.33		1.23	4.1	3.3		2.7	0.72	1.23		1.44	5.3	4.4		3.3
	0.300	0.88	1.39		1.29	5.0	3.8		3.2	0.78	1.29		1.50	6.6	5.4		3.8
	0.500	0.94	1.45		1.35	6.3	4.9		4.3	0.84	1.35		1.56	8.4	7.1		4.9
8.1	0.010	0.81	1.32	1.63		0.6	0.5	1.0		0.71	1.23	1.53		0.8	0.6	1.0	
	0.020	0.85	1.36	1.67		0.9	0.7	1.4		0.75	1.27	1.57		1.2	0.9	1.4	
	0.050	0.89	1.40	1.71		1.3	1.1	2.2		0.79	1.31	1.61		1.7	1.3	2.2	
	0.100	0.93	1.44	1.75		1.9	1.5	3.1		0.83	1.35	1.65		2.7	1.9	3.1	
	0.200	0.97	1.48	1.79		2.7	2.3	4.4		0.87	1.39	1.69		3.6	2.7	4.4	
	0.300	1.03	1.54	1.85		3.2	2.8	5.4		0.93	1.45	1.75		4.3	3.2	5.4	
	0.500	1.09	1.60	1.91		4.3	3.5	7.1		0.99	1.51	1.81		5.6	4.3	7.1	
10.1	0.010	0.81	1.32	1.63		0.6	0.5	1.0		0.71	1.23	1.53		0.8	0.6	1.0	
	0.020	0.85	1.36	1.67		0.9	0.7	1.4		0.75	1.27	1.57		1.2	0.9	1.4	
	0.050	0.89	1.40	1.71		1.3	1.1	2.2		0.79	1.31	1.61		1.7	1.3	2.2	
	0.100	0.93	1.44	1.75		1.9	1.5	3.1		0.83	1.35	1.65		2.7	1.9	3.1	
	0.200	0.97	1.48	1.79		2.7	2.3	4.4		0.87	1.39	1.69		3.6	2.7	4.4	
	0.300	1.03	1.54	1.85		3.2	2.8	5.4		0.93	1.45	1.75		4.3	3.2	5.4	
	0.500	1.09	1.60	1.91		4.3	3.5	7.1		0.99	1.51	1.81		5.6	4.3	7.1	

Table 7. *Cyclic voltammetric results of {4-[3-methyl-5-oxo-4-(4^{l}-bromo phenyl hydrazono)-4,5-dihydro-pyrazol-1-yl]-phenoxy}-acetic acid (2-oxo-1-piperidine-1-ylmethyl-1,2-dihydro–indol-3-ylidene)- hydrazide (1 mM), Medium: Aqueous dimethylformamide (40% V/V)*

pH	Scan rate, V s^{-1}	Hanging mercury drop electrode								Crown–ether modified carbon paste electrode							
		$-E_{PCI}$ / V	$-E_{PCI\,I}$ / V	$-E_{PC\,III}$ / V	$-E_{PC}$ inv, V	i_{PCI} / µA	i_{PCII}/ µA	i_{PCIII}/ µA	i_{PC} inv/ µA	E_{pcI} / V	E_{pcII} / V	E_{pcIII} / V	E_{pa} / V	i_{pcI} / µA	i_{pcII} / µA	$E_{pcIII,}$ / V	$i_{pa,}$/ µA
2.1	0.010	0.43	0.82		0.72	1.6	1.4		1.1	0.33	0.72		0.93	2.0	1.8		1.4
	0.020	0.47	0.86		0.76	2.2	2.0		1.6	0.37	0.76		0.97	2.8	2.5		1.9
	0.050	0.51	0.90		0.80	3.5	3.0		2.4	0.41	0.80		1.01	4.4	3.9		3.0
	0.100	0.55	0.94		0.84	5.1	4.4		3.4	0.45	0.84		1.05	6.3	5.6		4.4
	0.200	0.59	0.98		0.88	7.2	6.2		4.9	0.49	0.88		1.09	8.9	8.0		6.2
	0.300	0.65	1.04		0.94	8.7	7.6		6.0	0.55	0.94		1.15	10.9	9.8		7.6
	0.500	0.71	1.10		1.00	11.3	9.9		7.8	0.61	1.00		1.21	14.1	12.7		9.8
4.1	0.010	0.54	1.02		0.92	1.3	1.1		0.9	0.44	0.92		1.13	1.7	1.5		1.1
	0.020	0.58	1.06		0.96	1.8	1.6		1.2	0.48	0.96		1.17	2.3	2.1		1.6
	0.050	0.62	1.10		1.00	2.9	2.4		1.9	0.52	1.00		1.21	3.7	3.3		2.4
	0.100	0.66	1.14		1.04	4.1	3.4		2.8	0.56	1.04		1.25	5.3	4.7		3.4
	0.200	0.70	1.18		1.08	5.8	4.9		4.1	0.60	1.08		1.29	7.5	6.7		4.9
	0.300	0.76	1.24		1.14	7.2	6.0		5.0	0.66	1.14		1.35	9.2	8.2		6.0
	0.500	0.82	1.30		1.20	9.1	7.8		6.3	0.72	1.20		1.41	12.0	10.6		7.8
6.1	0.010	0.75	1.19		1.09	1.1	0.9		0.7	0.65	1.09		1.30	1.2	1.1		0.9
	0.020	0.79	1.23		1.13	1.6	1.2		1.0	0.69	1.13		1.34	1.6	1.5		1.2
	0.050	0.83	1.27		1.17	2.4	1.9		1.5	0.73	1.17		1.38	2.6	2.4		1.9
	0.100	0.87	1.31		1.21	3.4	2.8		2.2	0.77	1.21		1.42	3.7	3.4		2.8
	0.200	0.91	1.35		1.25	4.9	4.1		3.3	0.81	1.25		1.46	5.3	4.9		4.0
	0.300	0.97	1.41		1.31	6.0	5.0		3.8	0.87	1.31		1.52	6.6	6.0		4.9
	0.500	1.03	1.47		1.37	7.8	6.3		4.9	0.93	1.37		1.58	8.4	7.8		6.3
8.1	0.010	0.90	1.38	1.64		0.8	0.6	1.0		0.80	1.28	1.54		1.0	0.6	0.9	
	0.020	0.94	1.42	1.68		1.2	0.9	1.4		0.84	1.32	1.58		1.4	0.9	1.2	
	0.050	0.98	1.46	1.72		1.7	1.3	2.2		0.88	1.36	1.62		2.2	1.3	1.9	
	0.100	1.02	1.50	1.76		2.5	1.9	3.1		0.92	1.40	1.66		3.1	1.9	2.8	
	0.200	1.06	1.54	1.80		3.6	2.7	4.4		0.96	1.44	1.70		4.4	2.7	4.0	
	0.300	1.12	1.60	1.86		4.3	3.2	5.4		1.02	1.50	1.76		5.4	3.2	4.9	
	0.500	1.18	1.66	1.92		5.6	4.3	7.1		1.08	1.56	1.82		7.1	4.3	6.3	
10.1	0.010	0.90	1.38	1.64		0.8	0.6	1.0		0.80	1.28	1.54		1.0	0.6	0.9	
	0.020	0.94	1.42	1.68		1.2	0.9	1.4		0.84	1.32	1.58		1.4	0.9	1.2	
	0.050	0.98	1.46	1.72		1.7	1.3	2.2		0.88	1.36	1.62		2.2	1.3	1.9	
	0.100	1.02	1.50	1.76		2.5	1.9	3.1		0.92	1.40	1.66		3.1	1.9	2.8	
	0.200	1.06	1.54	1.80		3.6	2.7	4.4		0.96	1.44	1.70		4.4	2.7	4.0	
	0.300	1.12	1.60	1.86		4.3	3.2	5.4		1.02	1.50	1.76		5.4	3.2	4.9	
	0.500	1.18	1.66	1.92		5.6	4.3	7.1		1.08	1.56	1.82		7.1	4.3	6.3	