

Supporting information

Determination of ultra-trace amounts of chlorophenols in rain, tap and river water samples by electrochemically control in-tube solid phase microextraction method

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Fig. S1. Multi sweep cyclic voltammograms taken during polymerization of pyrrole (0.2 mol L⁻¹) and nafion (1 mL). Scan rate 0.05 V s⁻¹, potential range of -0.6 to 0.6 V, and the number of scans 25.

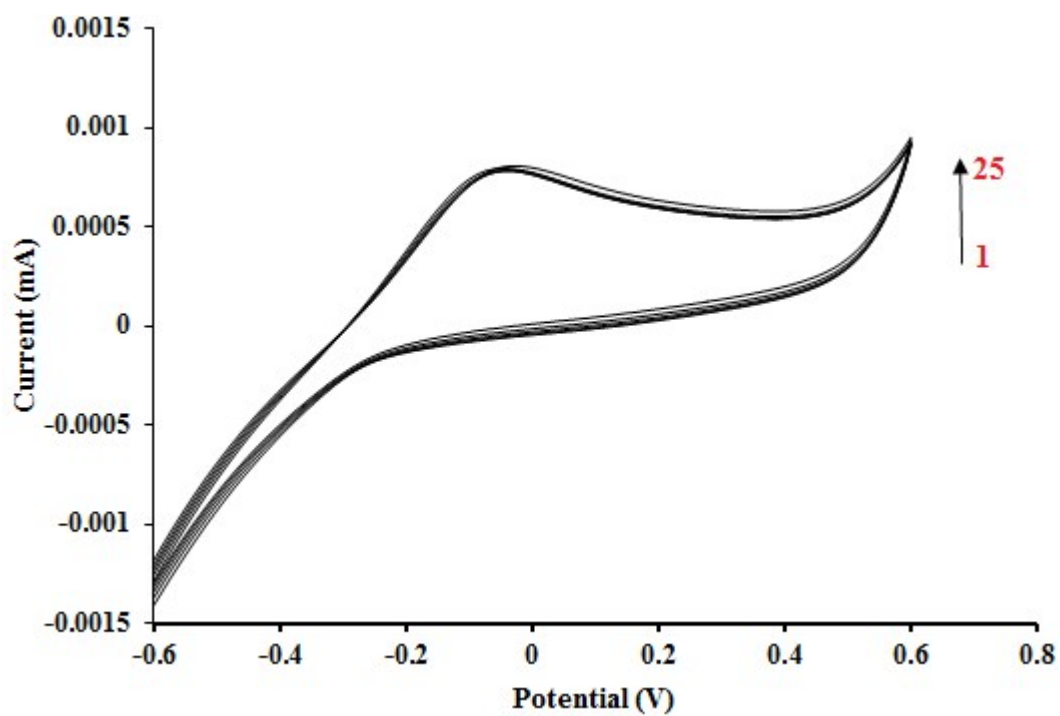


Fig. S2. SEM micrograph Ppy/Naf coating preparation on the inner surface of a stainless steel tube.

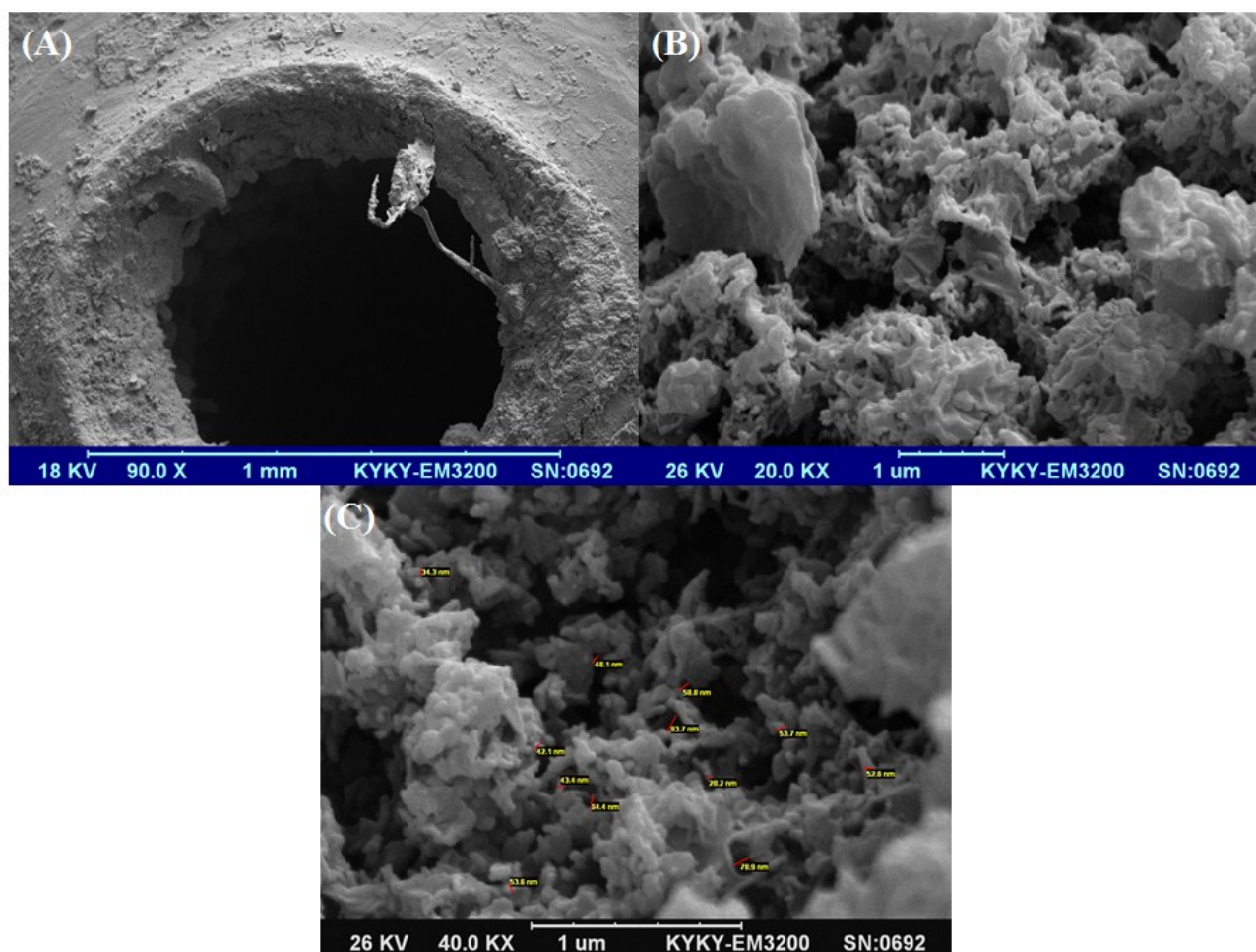


Table S1 Design matrix and responses for the central composite design.

Factor		Symbol		Level				
				$-\alpha$	-1	0	+1	$+\alpha$
pH	A	1	4	7	10	13		
Extraction flow rate (mL min ⁻¹)	B	0.9	1.8	2.7	3.6	4.5		
Desorption flow rate (mL min ⁻¹)	C	0.9	1.8	2.7	3.6	4.5		
Extraction time (min)	D	10	15	20	25	30		
Desorption time (min)	E	2	4	6	8	10		

No.	A	B	C	D	E	pH	Extraction flow rate	Desorption flow rate	Extraction time	Desorption time	Total peak area
1	1	-1	1	-1	1	10.00	1.80	3.60	15.00	8.00	752
2	-1	1	-1	1	1	4.00	3.60	1.80	25.00	8.00	1100
3	0	0	0	0	0	7.00	2.70	2.70	20.00	6.00	2100
4	-2	0	0	0	0	1.00	2.70	2.70	20.00	6.00	1100
5	0	0	0	0	0	7.00	2.70	2.70	20.00	6.00	1752
6	0	-2	0	0	0	7.00	0.90	2.70	20.00	6.00	452
7	-1	-1	1	1	1	4.00	1.80	3.60	25.00	8.00	700
8	1	-1	-1	-1	-1	10.00	1.80	1.80	15.00	4.00	1117
9	-1	1	1	1	-1	4.00	3.60	3.60	25.00	4.00	1400
10	1	1	-1	-1	1	10.00	3.60	1.80	15.00	8.00	1400
11	0	0	0	0	0	7.00	2.70	2.70	20.00	6.00	1800
12	-1	-1	-1	1	-1	4.00	1.80	1.80	25.00	4.00	600
13	0	0	0	0	2	7.00	2.70	2.70	20.00	10.00	1552
14	0	0	2	0	0	7.00	2.70	4.50	20.00	6.00	907
15	0	0	0	0	0	7.00	2.70	2.70	20.00	6.00	1458
16	0	2	0	0	0	7.00	4.50	2.70	20.00	6.00	1100
17	1	-1	-1	1	1	10.00	1.80	1.80	25.00	8.00	1821
18	0	0	0	0	0	7.00	2.70	2.70	20.00	6.00	1900
19	-1	1	1	-1	1	4.00	3.60	3.60	15.00	8.00	1200
20	1	-1	1	1	-1	10.00	1.80	3.60	25.00	4.00	1700
21	0	0	0	-2	0	7.00	2.70	2.70	10.00	6.00	1499
22	0	0	0	0	0	7.00	2.70	2.70	20.00	6.00	1600
23	0	0	0	2	0	7.00	2.70	2.70	30.00	6.00	2712
24	-1	-1	-1	-1	1	4.00	1.80	1.80	15.00	8.00	500
25	0	0	0	0	0	7.00	2.70	2.70	20.00	6.00	1800
26	1	1	1	-1	-1	10.00	3.60	3.60	15.00	4.00	1100
27	2	0	0	0	0	13.00	2.70	2.70	20.00	6.00	1900
28	-1	1	-1	-1	-1	4.00	3.60	1.80	15.00	4.00	502
29	0	0	0	0	0	7.00	2.70	2.70	20.00	6.00	1725
30	-1	-1	1	-1	-1	4.00	1.80	3.60	15.00	4.00	700
31	0	0	0	0	0	7.00	2.70	2.70	20.00	6.00	1652
32	0	0	-2	0	0	7.00	2.70	0.90	20.00	6.00	350
33	0	0	0	0	-2	7.00	2.70	2.70	20.00	2.00	640
34	0	0	0	0	0	7.00	2.70	2.70	20.00	6.00	1800
35	1	1	-1	1	-1	10.00	3.60	1.80	25.00	4.00	1275
36	1	1	1	1	1	10.00	3.60	3.60	25.00	8.00	2600

