

Supplementary Material for

Submicron nonporous silica particles for enhanced separation performance in pCEC

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Table S1. The repeatability (three replicates, columns packed by 300, 420, 500, 620, 820 nm nonporous particles) of naphthalene and seven PAHs in pCEC ($n=3$).

PAHs	300 nm				420 nm				500 nm				620 nm				820 nm			
	t_R^a (min)	RSD (%)	A^b ($\mu V \cdot s$)	RSD (%)	t_R (min)	RSD (%)	A ($\mu V \cdot s$)	RSD (%)	t_R (min)	RSD (%)	A ($\mu V \cdot s$)	RSD (%)	t_R (min)	RSD (%)	Avrea (mV/s)	RSD (%)	t_R (min)	RSD (%)	A ($\mu V \cdot s$)	RSD (%)
Naphthalene	2.87	1.20	1081	0.32	2.94	0.62	2337	1.21	2.66	0.02	950	0.63	3.50	0.26	5228	0.07	4.32	0.25	1047	4.63
Acenaphthylene	3.04	1.61	2164	1.18	3.19	0.61	3063	1.25	2.78	0.02	1287	0.89	3.79	0.22	5123	1.19	4.65	0.30	1467	4.91
Fluorene	3.45	0.62	2464	0.97	3.59	0.60	3761	1.82	3.06	0.02	1592	1.01	4.31	0.22	6229	0.95	5.33	0.41	1747	6.09
Phenanthrene	3.69	0.16	3986	1.46	3.95	0.59	4797	0.97	3.24	0.04	1949	2.05	4.72	0.17	7814	1.14	5.83	0.50	2519	2.04
Anthracene	3.87	0.62	3251	0.02	4.18	0.59	3103	1.60	3.42	0.02	1182	3.64	4.99	0.15	6975	1.27	6.22	0.52	2135	0.89
Fluoranthene	4.34	0.20	2967	0.51	4.81	0.56	2990	2.29	3.73	0.05	1145	3.14	5.74	0.12	5034	1.88	7.13	0.66	1418	2.50
Benzanthracene	5.76	0.65	2980	3.17	6.80	0.61	2911	0.70	4.93	0.04	667	4.05	7.97	0.21	4133	4.91	10.25	0.95	1241	4.63
Benzofluoranthene	7.58	0.04	1525	2.26	9.39	0.75	3536	2.04	6.45	0.04	449	0.56	10.76	0.40	4182	7.40	14.23	1.30	1457	1.13

^a t_R (min) = Average Retention time.

^b A (mV/s) = Average Peak area.

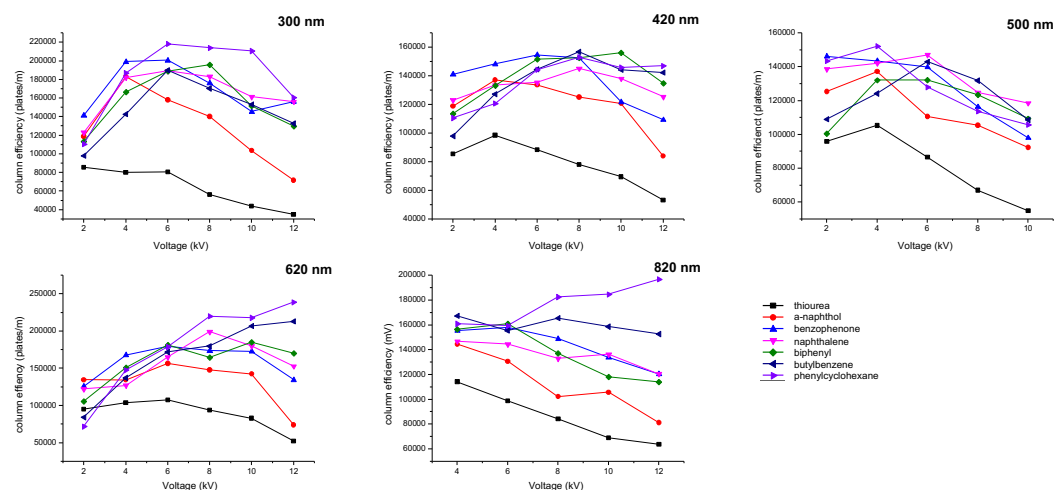


Figure S1. Column efficiency curves of thiourea and six aromatic compounds in 300, 420, 500, 620, 820 nm non-porous submicron packed columns. Peaks: 1) Thiourea; 2) a-naphthol; 3) benzophenone; 4) naphthalene; 5) biphenyl; 6) butylbenzene and 7) phenylcyclohexane.

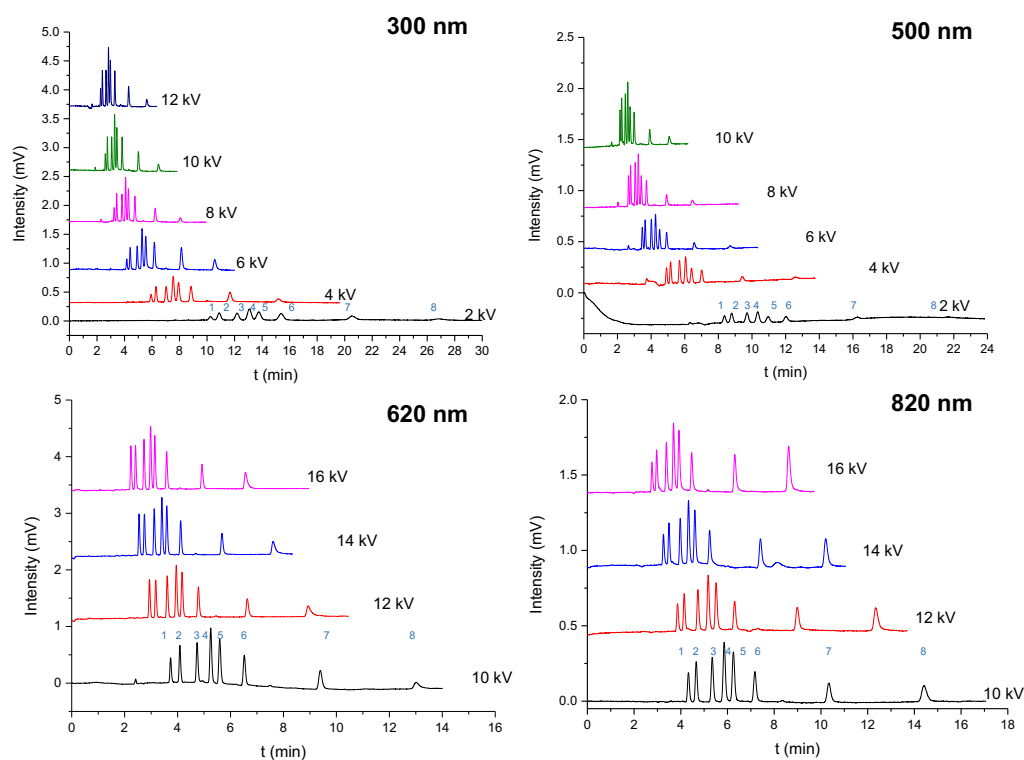


Figure S2. pCEC separation of eight PAHs at voltages of 2 kV to 16 kV on the columns packed with 300, 420, 500, 620, and 820 nm particles. Experimental conditions: Column: 100 μm i.d. x 100/300 mm (effective/total length); Pressure = 15.5 MPa; Mobile phase: acetonitrile–10 mM phosphate buffer (60:40, v/v); pH = 7.8; Split ratios 800:1. Peaks: 1) Naphthalene, 2) Acenaphthylene; 3) Fluorene; 4) Phenanthrene; 5) Anthracene; 6) Fluoranthene; 7) Benzanthracene and 8) Benzofluoranthene.

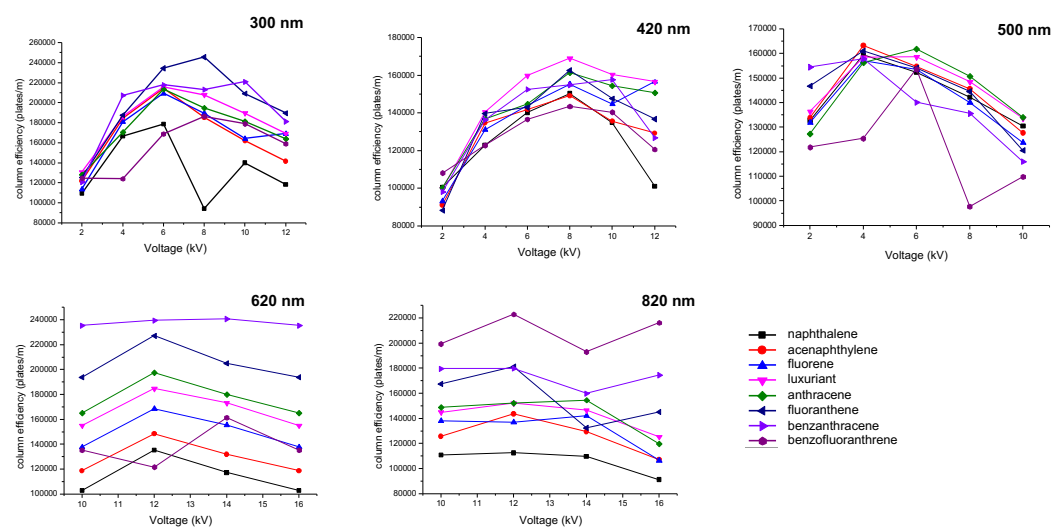


Figure S3. Column efficiency curves of eight PAHs on the columns packed with 300, 420, 500, 620, and 820 nm particles. Peaks: 1. naphthalene; 2. acenaphthylene; 3. fluorene; 4. luxuriant; 5. anthracene; 6. fluoranthene; 7. benzantracene; 8. Benzofluoranthrene.

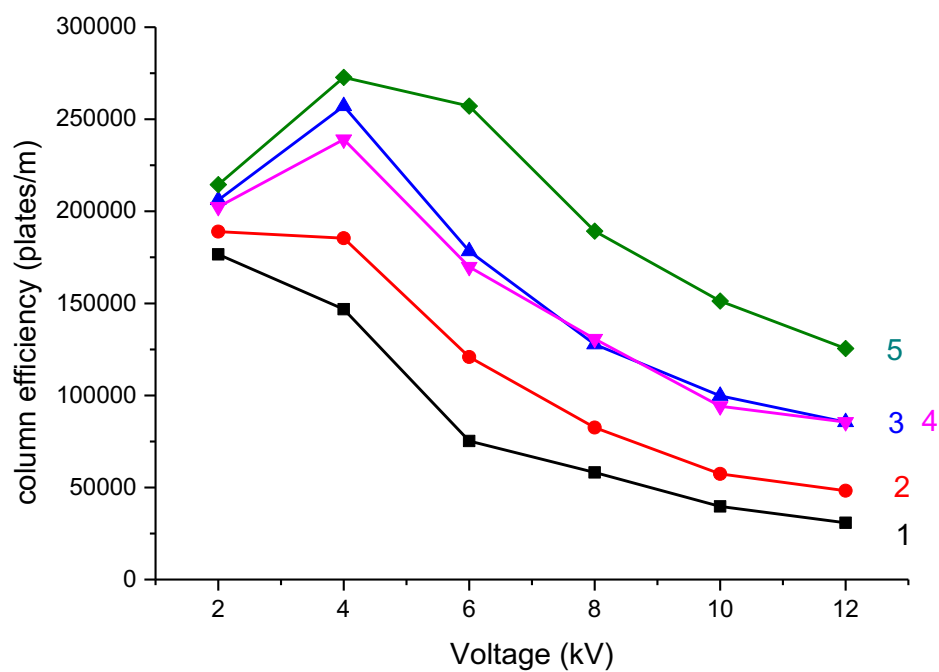


Figure S4. Column efficiency curves of five Estrogens in 300 nm non-porous submicron packed column. 1) E3; 2) BPA; 3) E2; 4) E1; 5) HE.