SUPPLEMENTARY MATERIAL

Table 1S: Regression parameters for various solutes and **Ultisil XB-C18 (Welch)** column**,** using **MeOH** as organic component of the mobile phase, and the calculated values of hydrophobicity indexes

Compound	$a = \log k_w$	$-b = S$	$\log k_{org}$	HI^V	HI^L	$\log K_{ow}$ *theoretic*	$\log K_{ow}$ *experimental*	$\frac{1}{4}\sqrt{M_w}$
Benzene	2.14	2.71	-0.57	0.79	2.89	1.99	1.99	2.21
Toluene	2.69	3.14	-0.45	0.86	3.30	2.54	2.73	2.40
Ethylbenzene	3.22	3.60	-0.38	0.89	3.74	3.03	3.15	2.57
Propylbenzene	3.81	4.11	-0.30	0.93	4.23	3.52	3.69	2.74
Butylbenzene	4.42	4.64	-0.22	0.95	4.75	4.01	4.38	2.89
Benzoic acid	1.71	2.72	-1.01	0.63	2.90	1.87	1.87	2.76
Methyl benzoate	2.16	2.88	-0.72	0.75	3.05	1.83	2.12	2.92
Ethyl benzoate	2.68	3.33	-0.65	0.80	3.48	2.32	2.64	3.06
Propyl benzoate	3.25	3.81	-0.56	0.85	3.94	2.81	3.01	3.20
Butyl benzoate	3.84	4.31	-0.47	0.89	4.42	3.30	3.84	3.33
4-Hydroxybenzoic acid	1.06	2.59	-1.53	0.41	2.78	1.39	1.58	2.94
Methyl paraben	1.65	2.73	-1.08	0.60	2.91	1.99	1.96	3.08
Ethyl paraben	2.15	3.13	-0.98	0.69	3.29	2.49	2.47	3.22
Propyl paraben	2.69	3.57	-0.88	0.75	3.71	2.98	3.04	3.35
Butyl paraben	3.27	4.05	-0.78	0.81	4.17	3.47	3.57	3.48
4-Hydroxy benzaldehyde	1.04	2.24	-1.20	0.46	2.45	1.23	1.35	2.76
4-Hydroxy acetophenone	1.16	2.41	-1.25	0.48	2.61	1.19	1.35	2.92
4-Hydroxy propiophenone	1.69	2.76	-1.07	0.61	2.94	1.68	2.03	3.06

4-Hydroxy butyrophenone	2.19	3.15	-0.96	0.69	3.30	2.17	-	3.20
4-Hydroxy valerophenone	2.77	3.62	-0.85	0.77	3.76	2.67	-	3.33

Table 2S: Regression parameters for various solutes and **Ultisil XB-C18 (Welch)** column, using **AcCN** as organic component of the mobile phase, and the calculated values of hydrophobicity indexes

Compound	a = $\log k_w$	$-b$ = S	$\log k_{org}$	HI^V	HI^L	$\log K_{ow}$ *theoretic*	$\log K_{ow}$ *experimental*	$\frac{1}{4}\sqrt{M_w}$
Benzene	1.70	2.19	-0.49	0.78	2.41	1.99	1.99	2.21
Toluene	2.06	2.48	-0.42	0.83	2.67	2.54	2.73	2.40
Ethylbenzene	2.41	2.79	-0.48	0.86	2.96	3.03	3.15	2.57
Propylbenzene	2.80	3.10	-0.30	0.90	3.26	3.52	3.69	2.74
Butylbenzene	3.19	3.41	-0.22	0.94	3.55	4.01	4.38	2.89
Benzoic acid	0.89	1.84	-0.95	0.48	2.09	1.87	1.87	2.76
Methyl benzoate	1.56	2.13	-0.57	0.73	2.35	1.83	2.12	2.92
Ethyl benzoate	1.92	2.42	-0.50	0.79	2.62	2.32	2.64	3.06
Propyl benzoate	2.31	2.75	-0.44	0.84	2.93	2.81	3.01	3.20
Butyl benzoate	2.71	3.07	-0.36	0.88	3.23	3.30	3.84	3.33
4-Hydroxybenzoic acid	0.44	1.82	-1.38	0.24	2.08	1.39	1.58	2.94
Methyl paraben	0.99	1.96	-0.97	0.51	2.20	1.99	1.96	3.08
Ethyl paraben	1.29	2.18	-0.89	0.59	2.40	2.49	2.47	3.22
Propyl paraben	1.63	2.46	-0.83	0.66	2.66	2.98	3.04	3.35
Butyl paraben	1.99	2.74	-0.75	0.73	2.92	3.47	3.57	3.48

4-Hydroxy benzaldehyde	0.66	1.72	-1.06	0.38	1.99	1.23	1.35	2.76
4-Hydroxy acetophenone	0.66	1.72	-1.06	0.38	1.99	1.19	1.35	2.92
4-Hydroxy propiophenone	1.02	1.97	-0.95	0.52	2.21	1.68	2.03	3.06
4-Hydroxy butyrophenone	1.34	2.22	-0.88	0.60	2.43	2.17	-	3.20
4-Hydroxy valerophenone	1.69	2.50	-0.81	0.68	2.69	2.67	-	3.33

Table 3S: Regression parameters for various solutes and **Gemini 5 u C18 110A (Phenomenex)** column, using **MeOH** as organic component of the mobile phase, and the calculated values of hydrophobicity indexes

Compound	a = $\log k_w$	$-b$ = S	$\log k_{org}$	HI^V	HI^L	$\log K_{ow}$ *theoretic*	$\log K_{ow}$ *experimental*	$\frac{1}{4}\sqrt{M_w}$
Benzene	2.15	2.75	-0.60	0.78	2.93	1.99	1.99	2.21
Toluene	2.71	3.20	-0.49	0.85	3.35	2.54	2.73	2.40
Ethylbenzene	3.24	3.68	-0.44	0.88	3.81	3.03	3.15	2.57
Propylbenzene	3.84	4.22	-0.38	0.91	4.34	3.52	3.69	2.74
Butylbenzene	4.44	4.75	-0.31	0.93	4.85	4.01	4.38	2.89
Benzoic acid	1.71	2.77	-1.06	0.62	2.94	1.87	1.87	2.76
Methyl benzoate	2.21	2.99	-0.78	0.74	3.15	1.83	2.12	2.92
Ethyl benzoate	2.75	3.46	-0.71	0.79	3.60	2.32	2.64	3.06
Propyl benzoate	3.31	3.95	-0.64	0.84	4.07	2.81	3.01	3.20
Butyl benzoate	3.91	4.48	-0.57	0.87	4.59	3.30	3.84	3.33
4-Hydroxybenzoic acid	1.12	2.67	-1.55	0.42	2.85	1.39	1.58	2.94
Methyl paraben	1.70	2.83	-1.13	0.60	3.00	1.99	1.96	3.08

Ethyl paraben	2.19	3.24	-1.05	0.68	3.39	2.49	2.47	3.22
Propyl paraben	2.74	3.69	-0.95	0.74	3.82	2.98	3.04	3.35
Butyl paraben	3.32	4.19	-0.87	0.79	4.31	3.47	3.57	3.48
4-Hydroxy benzaldehyde	1.12	2.39	-1.27	0.47	2.59	1.23	1.35	2.76
4-Hydroxy acetophenone	1.22	2.54	-1.32	0.48	2.73	1.19	1.35	2.92
4-Hydroxy propiophenone	1.75	2.89	-1.14	0.61	3.06	1.68	2.03	3.06
4-Hydroxy butyrophenone	2.26	3.31	-1.05	0.68	3.46	2.17	-	3.20
4-Hydroxy valerophenone	2.84	3.79	-0.95	0.75	3.92	2.67	-	3.33

***Table 4S**:* Regression parameters for various solutes and **Gemini 5 u C18 110A (Phenomenex)** column, using **AcCN** as organic component of the mobile phase, and the calculated values of hydrophobicity indexes

Compound	a = $\log k_w$	$-b$ = S	$\log k_{org}$	HI^V	HI^L	$\log K_{ow}$ *theoretic*	$\log K_{ow}$ *experimental*	$\frac{1}{4}\sqrt{M_w}$
Benzene	1.61	2.11	-0.50	0.76	2.33	1.99	1.99	2.21
Toluene	1.97	2.42	-0.45	0.81	2.62	2.54	2.73	2.40
Ethylbenzene	2.31	2.72	-0.41	0.85	2.90	3.03	3.15	2.57
Propylbenzene	2.70	3.04	-0.34	0.89	3.20	3.52	3.69	2.74
Butylbenzene	3.06	3.33	-0.27	0.92	3.48	4.01	4.38	2.89
Benzoic acid	0.87	1.85	-0.98	0.47	2.10	1.87	1.87	2.76
Methyl benzoate	1.51	2.12	-0.61	0.71	2.34	1.83	2.12	2.92
Ethyl benzoate	1.86	2.39	-0.53	0.78	2.59	2.32	2.64	3.06
Propyl benzoate	2.24	2.71	-0.47	0.83	2.89	2.81	3.01	3.20

Butyl benzoate	2.62	3.03	-0.41	0.86	3.19	3.30	3.84	3.33
4-Hydroxybenzoic acid	0.34	1.70	-1.36	0.20	1.97	1.39	1.58	2.94
Methyl paraben	0.95	1.95	-1.00	0.49	2.19	1.99	1.96	3.08
Ethyl paraben	1.25	2.17	-0.92	0.58	2.39	2.49	2.47	3.22
Propyl paraben	1.58	2.44	-0.86	0.65	2.64	2.98	3.04	3.35
Butyl paraben	1.93	2.73	-0.80	0.71	2.91	3.47	3.57	3.48
4-Hydroxy benzaldehyde	0.61	1.70	-1.09	0.36	1.97	1.23	1.35	2.76
4-Hydroxy acetophenone	0.61	1.70	-1.09	0.36	1.97	1.19	1.35	2.92
4-Hydroxy propiophenone	0.97	1.94	-0.97	0.50	2.18	1.68	2.03	3.06
4-Hydroxy butyrophenone	1.28	2.19	-0.91	0.58	2.41	2.17	-	3.20
4-Hydroxy valerophenone	1.63	2.47	-0.84	0.66	2.66	2.67	-	3.33