Electronic Supplementary Material (ESI) for Analyst.

Supplementary Information

Determination of acidity constants at 37 ºC through the internal standard capillary electrophoresis (IS-CE) method: internal standards and application to polyprotic drugs.

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Table SI-1: Electrophoretic data for the determination of the acidity constants of ampicillin (H_2X^+) at 37 ºC

			IS		Analyte
IS	**p$K_{a(IS)}$**	**pH$_{nom}$**	**μ x 10^9 [a]**	**pH$_{det}$**	**μ x 10^9 [a]**
2-Chlorobenzoic acid	2.79	6.0	-27.9	-	-
		2.5	-2.0	1.59	13.4
		3.0	-9.2	2.40	11.8
		3.5	-21.2	3.20	3.8
Pilocarpine	6.85	4.0	26.6	-	-
		6.5	20.0	6.46	-4.6
		7.0	12.3	7.00	-9.0
		7.5	11.7	7.04	-1.2
		8.0	4.0	7.69	-15.3

[a] Mobility in $m^2 \cdot V^{-1} \cdot s^{-1}$.

Table SI-2: Electrophoretic data for the determination of the acidity constants of labetalol (H_2X^+) at 37ºC

			IS		Analyte
IS	**p$K_{a(IS)}$**	**pH$_{nom}$**	**μ x 10^9 [a]**	**pH$_{det}$**	**μ x 10^9 [a]**
Phenobarbital	7.17	10.0	-22.7	-	-
		7.0	-8.4	6.85	10.9
		7.5	-10.6	7.02	9.8
		8.0	-17.6	7.62	4.4
Ephedrine	9.27	7.5	27.0	-	-
		9.5	17.1	9.12	-6.0
		10.0	14.6	9.28	-7.7
		10.5	2.3	10.39	-15.4

[a] Mobility in $m^2 \cdot V^{-1} \cdot s^{-1}$.

Table SI-3: Electrophoretic data for the determination of the acidity constants of procainamide (H_2B^{2+}) at 37 ºC

			IS		Analyte
IS	**p$K_{a(IS)}$**	**pH$_{nom}$**	**μ x 10^9 [a]**	**pH$_{det}$**	**μ x 10^9 [a]**
2-Chlorobenzoic acid	2.79	5.5	-30.9	-	18.9
		2.0	-3.7	1.83	36.3
		2.5	-8.8	2.30	32.6
		3.0	-9.6	2.35	31.5
		3.5	-21.2	3.04	25.4
Propranolol	9.24	5.5	18.9	-	-
		8.0	17.8	8.10	17.8
		8.5	17.9	8.08	17.9
		9.0	15.3	8.69	15.3
		9.5	14.1	8.85	14.1
		10.0	9.6	9.31	9.6

[a] Mobility in $m^2 \cdot V^{-1} \cdot s^{-1}$.

Table SI-4: Electrophoretic data for the determination of the acidity constants of quinine (H_2B^{2+}) at 37ºC

			IS		Analyte
IS	**p$K_{a(IS)}$**	**pH$_{nom}$**	**μ x 10^9** [a]	**pH$_{det}$**	**μ x 10^9** [a]
Aniline	4.53	2.0	38.0	-	38.0
		4.0	33.1	3.79	33.1
		4.5	20.7	4.54	25.4
		5.0	9.7	5.08	20.1
Lidocaine	7.78	5.5	23.0	-	-
		7.5	15.8	7.53	15.8
		8.0	10.5	7.94	13.4
		8.5	6.8	8.25	10.9
		9.0	3.7	8.59	7.1

[a] Mobility in $m^2 \cdot V^{-1} \cdot s^{-1}$.

Table SI-5: Electrophoretic data for the determination of the acidity constants of cephalexin (H_2X^+) at 37ºC

			IS		Analyte
IS	**p$K_{a(IS)}$**	**pH$_{nom}$**	**μ x 10^9** [a]	**pH$_{det}$**	**μ x 10^9** [a]
2-Chlorobenzoic acid	2.79	11.0	-30.8	-	-16.0
		2.0	-3.7	1.84	16.2
		2.5	-8.9	2.31	11.6
		3.0	-9.6	2.36	11.9
		3.5	-21.4	3.06	4.5
2,4,6-Trimethylpyridine	7.22	4.0	32.0	-	-
		6.0	28.8	6.34	-2.3
		6.5	26.2	6.65	-4.6
		7.5	14.7	7.38	-11.6

[a] Mobility in $m^2 \cdot V^{-1} \cdot s^{-1}$.

Table SI-6: Electrophoretic data for the determination of the acidity constants of cefadroxil (H_3X^+) at 37ºC

			IS		Analyte
IS	**p$K_{a(IS)}$**	**pH$_{nom}$**	**μ x 10^9 [a]**	**pH$_{det}$**	**μ x 10^9 [a]**
2-Chlorobenzoic acid	2.79	5.5	-30.4	-	-
		2.0	-3.6	1.83	15.7
		2.5	-8.8	2.31	11.0
		3.0	-11.2	2.47	7.9
		3.5	-21.3	3.07	3.4
2,4,6-Trimethylpyridine	7.22	4.0	30.3	-	-
		6.5	23.8	6.74	-4.2
		7.0	21.4	6.93	-5.9
		7.5	16.5	7.23	-9.4
Nortriptyline	9.79	6.0	20.4	-	-
		9.0	17.9	9.02	-16.8
		9.5	15.2	9.41	-18.4
		10.0	11.2	9.79	-22.6
		10.5	4.9	10.38	-26.3
		11.0	2.4	10.76	-27.6

[a] Mobility in $m^2 \cdot V^{-1} \cdot s^{-1}$.

Table SI-7: Electrophoretic data for the determination of the acidity constants of tetracycline (H_3X^+) at 37ºC

			IS		Analyte
IS	**p$K_{a(IS)}$**	**pH$_{nom}$**	**μ x 10^9** [a]	**pH$_{det}$**	**μ x 10^9** [a]
4-Nitrobenzoic acid	3.27	6.5	-29.1	-	-
		3.0	-4.0	2.39	15.3
		3.5	-13.8	3.13	9.2
		4.0	-19.5	3.49	6.1
4-Nitrophenol	6.82	11.0	-31.2	-	-14.4
		7.0	-19.2	6.94	-4.2
		7.5	-20.4	7.00	-4.7
		8.0	-27.6	7.61	-8.2
Nortriptyline	9.79	7.0	21.1	-	-
		8.5	18.9	8.94	-10.4
		9.0	17.4	9.21	-11.4
		9.5	15.3	9.46	-12.1
		10.0	13.6	9.62	-12.8
		10.5	4.6	10.43	-14.0
		11.0	2.4	10.77	-14.4

[a] Mobility in $m^2 \cdot V^{-1} \cdot s^{-1}$.