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APPENDICES



APPENDIX A

Table A1 The peak height of five parabens in the concentration of $10 \mu\text{g mL}^{-1}$ at the various pH in 0.05 M phosphate buffer solution:acetonitrile (60:40, %v/v)

pH of 0.05 M phosphate buffer solution	Analyte	peak height (μA)			Mean	SD
		1	2	3		
4	MP	0.3989	0.3909	0.4233	0.4044	0.0169
	EP	0.3394	0.3270	0.3283	0.3316	0.0068
	PP	0.2621	0.2823	0.3009	0.2818	0.0194
	IBP	0.1742	0.1724	0.1999	0.1822	0.0154
	BP	0.1577	0.1637	0.1897	0.1704	0.0170
5	MP	0.5088	0.5073	0.5173	0.5111	0.0054
	EP	0.4010	0.4000	0.4128	0.4046	0.0071
	PP	0.2905	0.2913	0.2624	0.2814	0.0165
	IBP	0.1751	0.1818	0.2181	0.1917	0.0231
	BP	0.1747	0.1720	0.1893	0.1787	0.0093
6	MP	0.6269	0.6242	0.6242	0.6251	0.0016
	EP	0.4563	0.4715	0.4696	0.4658	0.0083
	PP	0.3778	0.3842	0.3723	0.3781	0.0060
	IBP	0.2472	0.2831	0.2661	0.2655	0.0180
	BP	0.2078	0.2213	0.2033	0.2108	0.0094
7	MP	0.6380	0.6161	0.6226	0.6256	0.0112
	EP	0.4904	0.4852	0.4781	0.4846	0.0062
	PP	0.3664	0.3597	0.3468	0.3576	0.0100
	IBP	0.2549	0.2470	0.2322	0.2447	0.0115
	BP	0.2047	0.2323	0.2083	0.2151	0.0150
8	MP	0.5435	0.5188	0.5146	0.5256	0.0156
	EP	0.4353	0.4441	0.4302	0.4365	0.0070
	PP	0.3379	0.3229	0.3023	0.3210	0.0179
	IBP	0.2150	0.2160	0.1958	0.2089	0.0114
	BP	0.2114	0.1965	0.1915	0.1998	0.0104



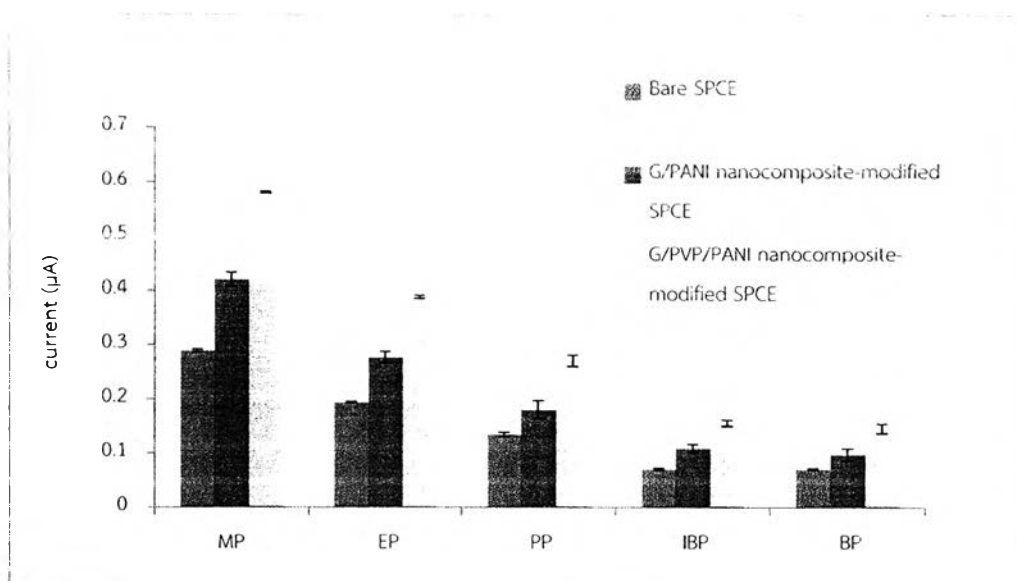


Figure A1 The peak height current comparison of $10 \mu\text{g mL}^{-1}$ parabens for simultaneous determination of five parabens by HPLC in 0.05 M phosphate buffer solution (pH 6):acetonitrile (60:40, %v/v).



Table A2 The peak height of five parabens in the concentration of 10 µg mL⁻¹ at the various injection volume in 0.05 M phosphate buffer solution (pH 6):acetonitrile (60:40, %v/v)

Injection volume (µL)	Analyte	peak height (µA)			Mean	SD
		1	2	3		
10	MP	0.3629	0.3647	0.3549	0.3608	0.0052
	EP	0.2534	0.2468	0.2591	0.2531	0.0062
	PP	0.1478	0.1431	0.1579	0.1496	0.0076
	IBP	0.0697	0.0685	0.0659	0.0680	0.0019
	BP	0.0415	0.0596	0.0566	0.0525	0.0097
20	MP	0.6633	0.6612	0.7257	0.6834	0.0366
	EP	0.4694	0.4809	0.4933	0.4812	0.0120
	PP	0.2870	0.2840	0.2933	0.2881	0.0047
	IBP	0.1207	0.1216	0.1151	0.1191	0.0035
	BP	0.0916	0.1039	0.1057	0.1004	0.0077
30	MP	0.9496	0.9550	0.9570	0.9539	0.0038
	EP	0.7033	0.6984	0.7110	0.7042	0.0064
	PP	0.4201	0.4189	0.4254	0.4215	0.0035
	IBP	0.1780	0.1814	0.1731	0.1775	0.0042
	BP	0.1398	0.1411	0.1381	0.1397	0.0015
40	MP	1.2540	1.2420	1.2640	1.2533	0.0110
	EP	0.9001	0.9042	0.9033	0.9025	0.0022
	PP	0.5310	0.5314	0.5315	0.5313	0.0003
	IBP	0.2343	0.2380	0.2443	0.2389	0.0051
	BP	0.1676	0.1713	0.1707	0.1699	0.0020
50	MP	1.5110	1.4910	1.4960	1.4993	0.0104
	EP	1.0810	1.0730	1.0960	1.0833	0.0117
	PP	0.6424	0.6438	0.6381	0.6414	0.0030
	IBP	0.2934	0.2929	0.2997	0.2953	0.0038
	BP	0.2130	0.1936	0.2128	0.2065	0.0111



APPENDIX B

Table B1 Values of the t-distribution (two-tailed)

DF	80%	90%	95%	98%	99%
1	3.078	6.314	12.706	31.82	63.657
2	1.886	2.92	4.303	6.965	9.925
3	1.638	2.353	3.182	4.541	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
6	1.44	1.943	2.447	3.143	3.707
7	1.415	1.895	2.365	2.998	3.499
8	1.397	1.86	2.306	2.897	3.355
9	1.383	1.833	2.262	2.821	3.25
10	1.372	1.812	2.228	2.764	3.169
11	1.363	1.796	2.201	2.718	3.106
12	1.356	1.782	2.179	2.681	3.055
13	1.35	1.771	2.16	2.65	3.012
14	1.345	1.761	2.145	2.625	2.977
15	1.341	1.753	2.131	2.602	2.947
16	1.337	1.746	2.12	2.584	2.921
17	1.333	1.74	2.11	2.567	2.898
18	1.33	1.734	2.101	2.552	2.878
19	1.328	1.729	2.093	2.539	2.861
20	1.325	1.725	2.086	2.528	2.845



APPENDIX C

Table C1 The acceptable precision, the data from AOAC manual for peer verified methods program, VA, NOV 1993

Analyte concentration	%RSD
100%	± 1.3
10%	± 2.7
1%	± 2.8
0.10%	± 3.7
100 ppm	± 5.3
10 ppm	± 7.3
1 ppm	± 11
100 ppb	± 15
10 ppb	± 21
1 ppb	± 30



Table C2 The acceptable accuracy. The data from AOAC manual for peer verified methods program, VA, NOV 1993

Analyte concentration	%Recovery
100%	98-102
10%	98-102
1%	97-103
0.10%	95-105
100 ppm	90-107
10 ppm	80-110
1 ppm	80-110
100 ppb	80-110
10 ppb	60-115
1 ppb	40-120



VITA

Miss Suphunnee Khajornkavinkul was born on August. 5th 1987 in Bangkok, Thailand. She graduated with high school degree from Sai Nam Peung School, Bangkok in 2005. She received her Bachelor's degree of Science (Industrial Chemistry-Analytical Instrumentation) from King Mongkut's Institute of Technology Ladkrabang in 2009. After that, in 2010, she has become a graduate student in the analytical chemistry, Chulalongkorn University. In addition, she was a member of Electrochemical and Optical Spectroscopy Research Unit (EOSRU) under the direction of Professor Dr. Orawon Chailapakul. She graduated with Master's degree in chemistry of academic year 2013 from Chulalongkorn University.

