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***Corresponding Author:**
Anass A. Alnedhary

Email:
alnedhary@yahoo.com.sg

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Validation and Application of Combined QuEChERS Extraction With Cartridge Solid Phase Extraction Cleanup for Pesticide Multiresidue Analysis in Some Vegetables by GC-ECD

Mahfoudh M. AL-Hammadi¹, Anass A. Alnedhary^{2*}, Abdualqawi A. Numan³, Fatima A. Murshed¹

¹Chemistry Department, Faculty of Science, Sana'a University, Sana'a, Yemen.

²Chemistry Department, Faculty of Education, Khawlan Branch, Sana'a University, Sana'a, Yemen.

³Science Curricula Department, Faculty of Education, Sana'a University, Sana'a, Yemen.

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Supplementary Files

Table S1. Verification Results of Spiked Vegetable Samples.

Pesticide	Tomato			Potato			Cucumber			Carrot		
	LOD ng/g	%R*	%RSD*	LOD ng/g	%R*	%RSD*	LOD ng/g	%R*	%RSD*	LOD ng/g	%R*	%RSD*
Dimethoate	0.9110	82.05	1.37	0.4480	79.46	4.12	0.3480	90.04	8.22	0.0958	82.75	1.58
Quintozene	0.0433	77.22	2.91	0.0113	88.10	5.82	0.0082	85.75	8.70	0.0044	98.25	0.58
Diazinon	1.1400	91.41	4.17	0.3360	85.74	4.25	0.3880	89.72	6.33	0.0916	84.84	6.45
Tolclofos-methyl	0.1900	88.21	0.32	0.0492	88.78	2.84	0.0452	81.66	6.07	0.0164	83.75	3.91
Fenchlorphos	0.0543	92.30	0.80	0.0160	93.02	1.95	0.0117	86.66	9.68	0.0058	79.95	4.23
Malathion	0.7600	86.51	1.11	0.2210	90.41	3.56	0.1740	90.62	3.07	0.0654	87.23	5.59
Parathion	0.1850	90.30	6.88	0.0553	82.15	4.29	0.0345	86.65	8.04	0.0186	82.98	4.00
Bromophos	0.1140	83.39	1.18	0.0361	94.37	0.81	0.0230	86.65	2.28	0.0119	85.35	8.35
Chlorfenvinphos-methyl	0.1330	82.82	2.07	2.4100	82.99	0.29	2.2300	92.16	1.27	0.5840	86.25	6.91
Methidathion	1.0000	80.59	2.97	0.0406	87.37	10.50	0.0239	88.46	2.24	0.0144	103.32	8.98
Lambda-cyhalothrin	0.1820	83.02	3.47	0.0447	105.12	1.91	0.0753	98.22	5.09	0.0177	103.08	3.99
Cypermethrin	0.2010	96.27	2.94	0.0540	88.01	1.72	0.0269	89.95	4.08	0.0206	93.51	3.20
Fenvalerate	0.2370	107.00	8.80	0.0604	84.11	5.36	0.0282	109.60	5.13	0.0235	102.99	2.13
Difenoconazole	0.9570	83.84	6.58	0.3030	86.33	0.71	0.1060	87.66	3.67	0.2150	85.84	2.93
Deltamethrin	0.2860	94.63	5.08	0.1030	108.58	7.30	0.0337	103.76	9.29	0.0383	83.67	1.65

* For Spiked (1 µg/g), n=3

Table S2. Pesticide Residue ($\mu\text{g/g}$) Detected in Tomato and Potato Real Samples.

Pesticide	RT	Tomato							Potato				*Codex	**EU
		(T1)	(T2)	(T3)	(T4)	(T5)	(T6)	(T7)	(Po1)	(Po2)	(Po3)	(Po4)	MRL	MRL
Dimethoate	12.16	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	—	0.01
Quintozene	13.17	N.D	N.D	N.D	N.D	N.D	N.D	N.D	0.0042	0.0208	N.D	N.D	0.02	0.02
Diazinon	13.46	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	0.5	0.01
Tolclofos-methyl	14.66	N.D	N.D	N.D	0.2858	N.D	N.D	N.D	N.D	N.D	N.D	N.D	—	0.01
Fenchlorphos	15.05	0.0007	0.0021	0.0036	0.0029	0.0005	N.D	0.0179	0.0364	0.0303	0.0273	0.0333	—	0.01
Malathion	15.45	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	0.5	0.02
Parathion	15.76	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	—	0.05
Bromophose	16.23	N.D	N.D	N.D	N.D	N.D	N.D	N.D	0.0667	0.0200	0.0267	0.0734	—	0.02
Chlorfenvinphos-methyl	16.48	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	—	0.01
Methidathion	16.69	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	0.1	0.02
Lambda-cyhalothrin	21.82	0.0038	0.0031	0.0063	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	0.05	0.07
Cypermethrin	24.67	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	0.2	0.5
Fenvalerate	26.79	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	—	0.1
Difenoconazole	27.67	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	0.6	2
Deltamethrin	28.02	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	0.2	0.07

* Codex (FAO/WHO) (mg/kg) (FAO, 2020) **EU (mg/kg) (Europa, 2020)

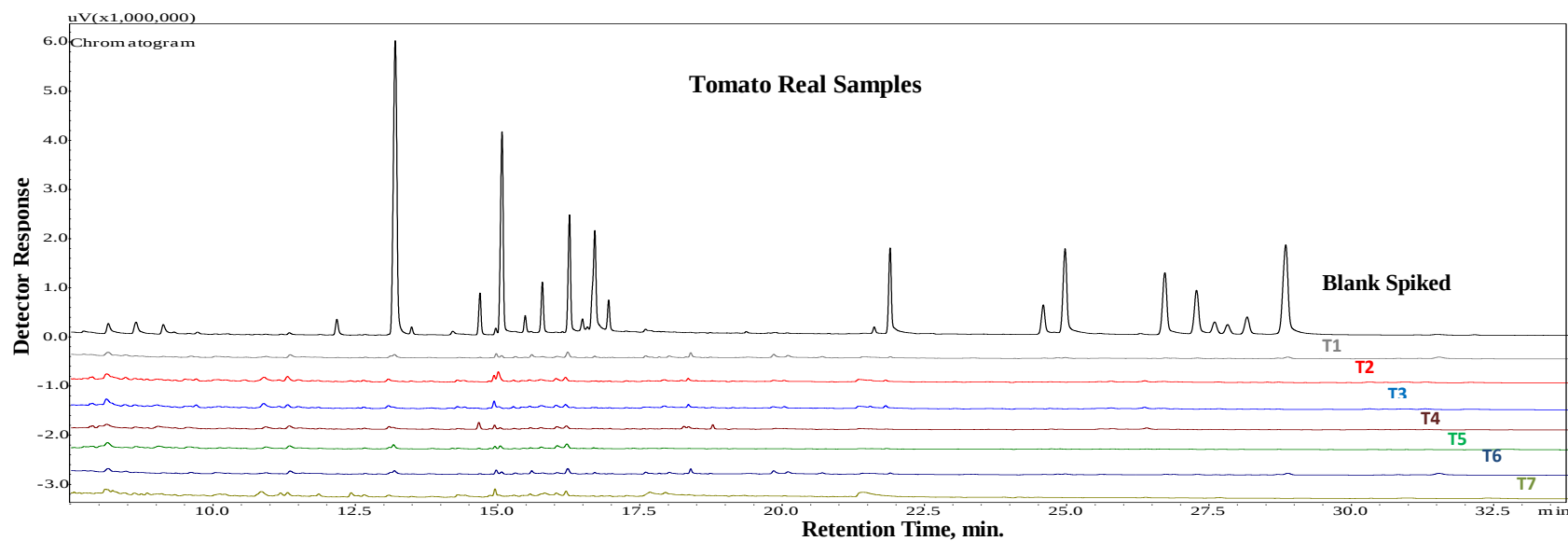


Fig. S1. Chromatograms of Tomato Real Samples Compared with Spiked Blank Tomato Sample (Blank Spiked with 1ppm of Pesticides Mixture).

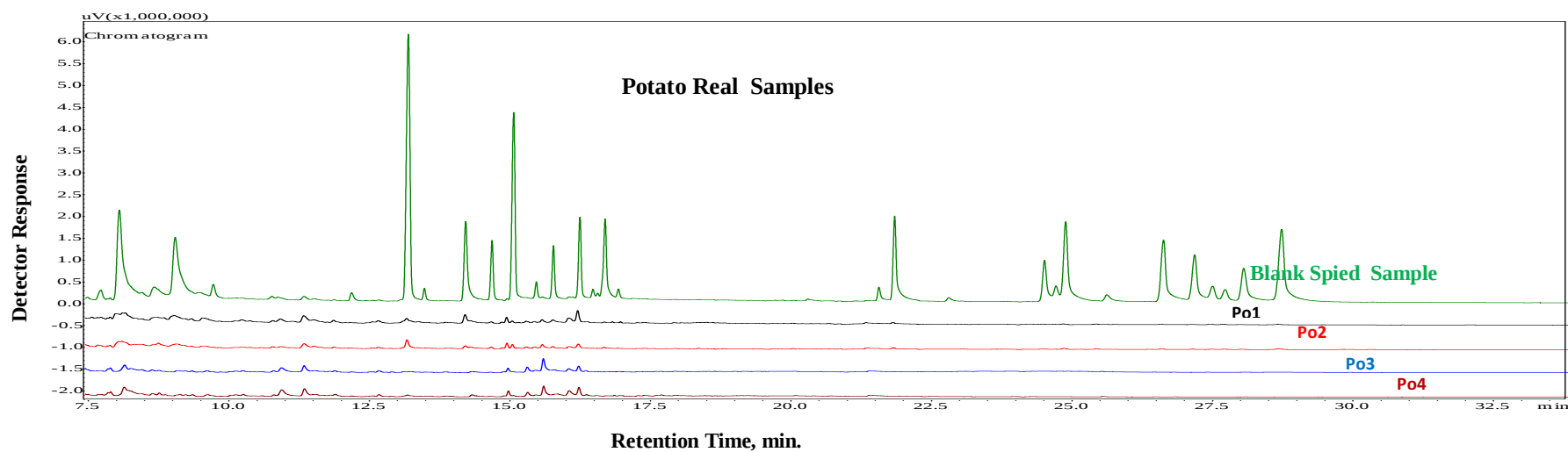


Fig. S2. Chromatograms of Potato Real Samples Compared with Spiked Blank Potato Sample (Blank Spiked with 1ppm of Pesticides Mixture).

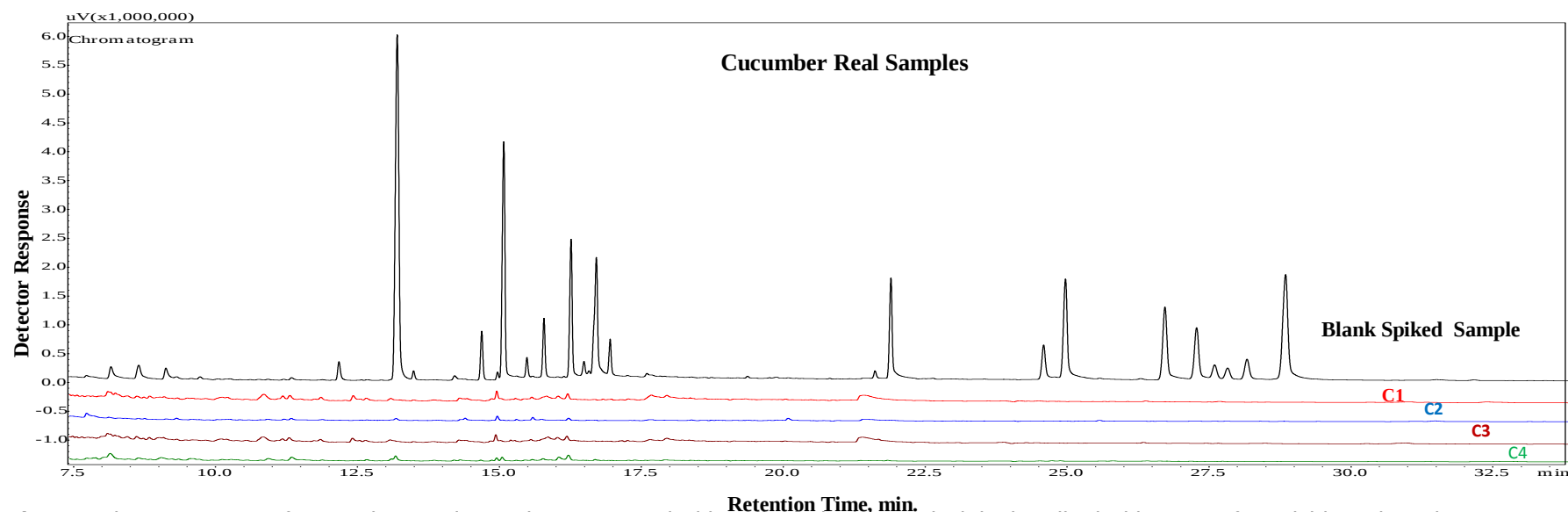


Fig. S3. Chromatograms of Cucumber Real Samples Compared with Spiked Blank Sample (Blank Spiked with 1ppm of Pesticides Mixture).

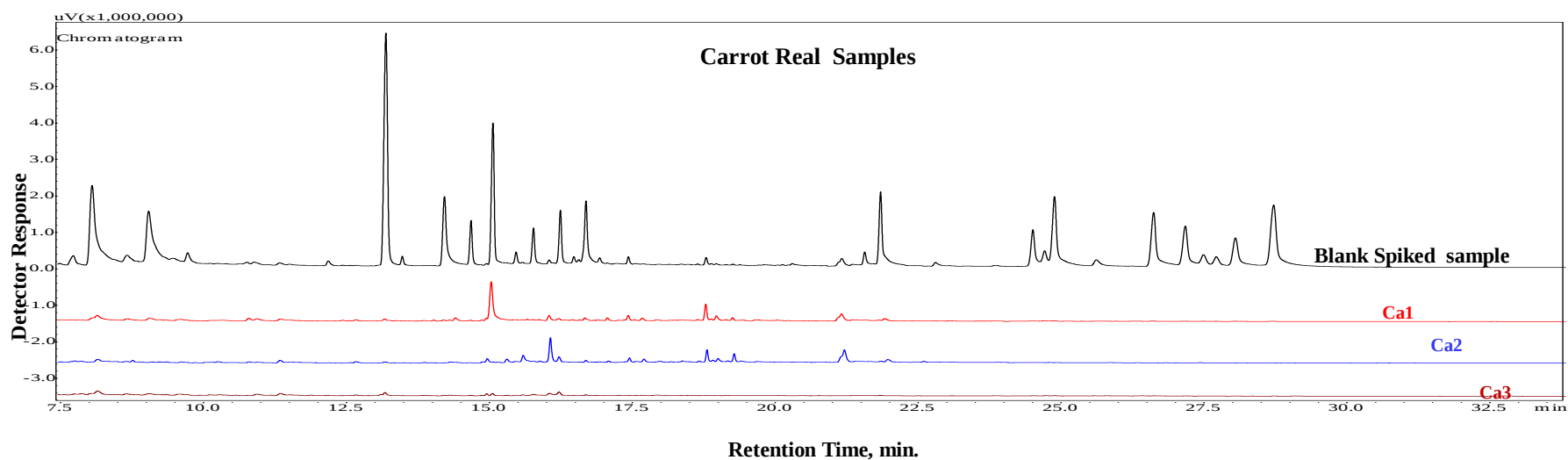


Fig. S4. Chromatograms of Carrot Real Samples Compared with Spiked Blank Sample (blank spiked with 1ppm of pesticide mixture).