

**Supporting Information:**

**Direct analysis of herbicides by paper spray ionization mass spectrometry**

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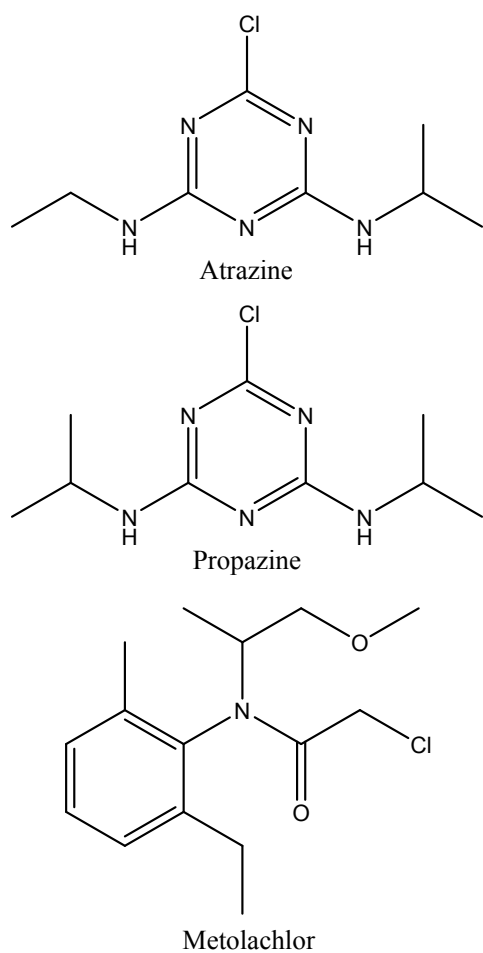
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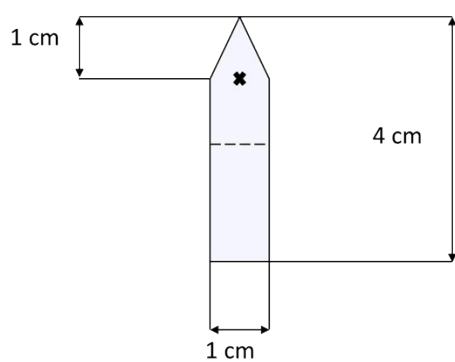
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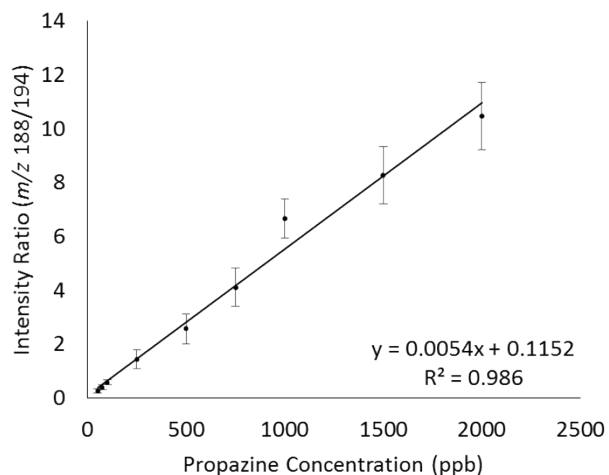
Six pages; four figures and five tables.



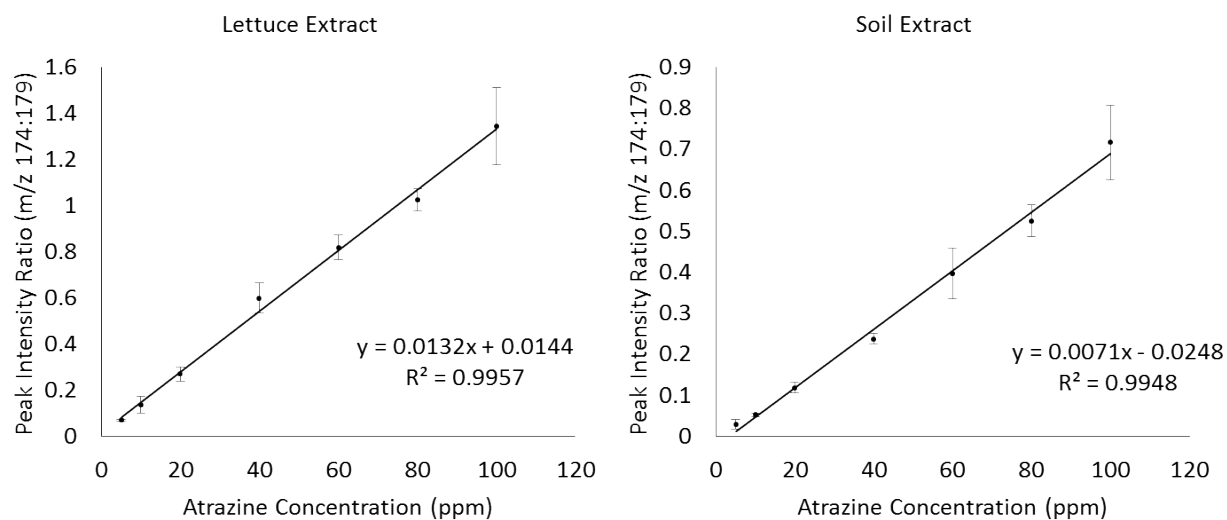
**Figure S1:** The herbicides investigated in this study: three triazine herbicides and the chloroacetanilide herbicide metolachlor.



**Figure S2:** Paper strip design.



**Figure S3:** Calibration curve for quantitation of propazine in ground water.



**Figure S4:** Atrazine calibration curves in from 5-100 ppm in soil and lettuce extracts.

Measurements included in these curves were performed using an earlier version of the paper spray ion source.

**Table S1:** Typical mass spectrometer settings for paper spray of herbicides.

Parameter	Setting
Inlet Capillary	-3833 V
Capillary Exit	158.3 V
Skimmer	46.2 V
Octopole 1 dc	17.26 V
Octopole 2 dc	6.06 V
Octopole RF Amplitude	179.2 Vpp
Lens 1	-9.0 V
Lens 2	-74.5 V
Trap Drive	44.1
MS/MS Amplitude	1.40-1.70 V
Low Mass Cutoff (% of parent ion mass)	40%

**Table S2:** Atrazine QC measurements.

	Unweighted		1/x		1/x <sup>2</sup>		
Concentration	Value	Error	Value	Error	Value	Error	% RSD
3 ppb	8.44 ppb	181 %	3.06 ppb	1.89 %	4.11 ppb	37.0 %	61.9%
60 ppb	86.7 ppb	44.6 %	83.8 ppb	39.6 %	60.3 ppb	0.58 %	3.7%
150 ppb	210 ppb	40.2 %	211 ppb	40.6 %	149 ppb	0.69 %	8.4%
400 ppb	456 ppb	14.1 %	465 ppb	16.1 %	326 ppb	18.6%	13.1%

**Table S3:** Equations for weighted linear fits to atrazine calibration curve.

Weighting	Equation
Unweighted	Signal Ratio = 0.001295 x C <sub>atrazine, ppb</sub> + 0.007027
1/x	Signal Ratio = 0.001257 x C <sub>atrazine, ppb</sub> + 0.014122
1/x <sup>2</sup>	Signal Ratio = 0.001804 x C <sub>atrazine, ppb</sub> + 0.010548

**Table S4:** Metolachlor QC measurements.

	Unweighted		1/x		1/x <sup>2</sup>		
Concentration	Value	Error	Value	Error	Value	Error	% RSD
750 ppt	4.42 ppb	490 %	399 ppt	46.9 %	480 ppt	36.0 %	6.06 %
15 ppb	20.9 ppb	39.5 %	17.6 ppb	17.2 %	14.3 ppb	4.22 %	34.1 %
100 ppb	96.1 ppb	3.86 %	95.9 ppb	4.08 %	77.5 ppb	22.5 %	10.4 %
250 ppb	244 ppb	2.32 %	250 ppb	0.05 %	202 ppb	19.2 %	23.3 %

**Table S5:** Equations for weighted linear fits to metolachlor calibration curve.

Weighting	Equation
Unweighted	Signal Ratio = $0.003255 \times C_{\text{metolachlor, ppb}} - 0.002880$
1/x	Signal Ratio = $0.003125 \times C_{\text{metolachlor, ppb}} + 0.010268$
1/x <sup>2</sup>	Signal Ratio = $0.003874 \times C_{\text{metolachlor, ppb}} + 0.009652$