Supporting File

***Optimization of Instrument Parameters to the Pesticides***

Standard solution of the pesticides was used for optimizing the parameters of the instruments and developing excellent analytical methods for detection of the residue. Target compounds prepared in solvent were monitored in the scan range of 50-500 m/z to produce the best spectrum of the positively charged precursor ions. Each pesticide exhibited its highest intensity at different mass (m/z), and these peaks corresponded to their protonation ([M+H]+). Further, to obtain higher intensity value for each pesticide, the declustering potential voltage (DP) and collision energy (CE) for collision-induced dissociation of the precursor ions were optimized separately to provide better sensitivity and fragmentation. Taking chlorantraniliprole as an example, CE was adjusted under the condition of a fixed CE in a wide interval (10-30V). When the CE was 17.96 V, the ion intensity and sensitivity were highest. The CE was thus fixed at 17.96 V and the DP was adjusted to obtain the maximum response of ions. The highest quantitative and qualitative ion intensity was realized when the CEs were17.96 V and 20.32 V. The mass condition of 14 pesticides was finally performed as shown in the supporting file (S1), and also their corresponding quantitative ion chromatograms are also shown in supporting file (S2).

S1 MS/MS parameters of 14 pesticides in MRM mode.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Pesticides | Precursor ion  (m/z) | Product ions (m/z)  with CE (V)a | | DP (V) | LOD  (mg/kg) |
| Quantitation | Confirmation |
| Imidacloprid | 256.1[M+H]+ | 208.9(19.23) | 175.1(19.87) | 66.17 | 0.0005 |
| Cyromazine | 167.0[M+H]+ | 108.0(29.48) | 125.0(23.36) | 159.86 | 0.002 |
| Buprofezin | 306.1[M+H]+ | 200.8(16.43) | 116.0(23.04) | 123.40 | 0.003 |
| Pymetrozine | 218.1[M+H]+ | 105.0(27.10) | 78.9(52.90) | 88.85 | 0.015 |
| Chlorantraniliprole | 484.0[M+H]+ | 285.8(17.96) | 452.6(20.32) | 113.85 | 0.004 |
| Carbendazim | 192.1[M+H]+ | 160.0(23.84) | 132.1(41.74) | 140.63 | 0.0004 |
| Iprodione | 330.2[M+H]+ | 245.0(19.18) | 288.1(16.84) | 83.90 | <0.0003 |
| Tebuconazole | 308.2[M+H]+ | 70.0(38.90) | 125.0(25.0) | 119.51 | <0.005 |
| Prochloraz | 376.1[M+H]+ | 308.0(15.84) | 266.0(22.90) | 98.31 | 0.0015 |
| Hymexazol | 100.1[M+H]+ | 54.1(20.7) | 44.1(30.9) | 62.87 | 0.002 |
| Diethofencarb | 268.1[M+H]+ | 226.0(14.06) | 180.0(25.61) | 75.96 | 0.0002 |
| Tetramethirn | 332.2[M+H]+ | 164.0(30.2) | 135.0(23.15) | 81.93 | <0.02 |
| Pyraclostrobin | 388.0[M+H]+ | 194.0(17.01) | 164.0(24.20) | 105.93 | 0.0002 |
| Kresoxim-methyl | 314.1[M+H]+ | 206.0(9.19) | 267.0(10.20) | 102.19 | 0.006 |

a) CE is in the brackets.

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S2 Chromatogram of quantitative ions of the pesticides, the molecular weight in the figure was corresponding to the pesticides in S1.

S3. Pesticides recoveries from the homogenous vegetables samples (n=8)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Pesticides | Recoveries (%); RSD (%) | | | | | |
|  |  | salad |  |  |  |
| 0.005 | 0.05 | 0.5 |  |
| Imidacloprid | 101.45  6.47 | 91.07  7.47 | 85.07  4.92 |  |
| Cyromazine | 101.46  8.87 | 98.66  7.52 | 86.71  5.40 |  |
| Iprodione | 102.20  8.23 | 91.67  7.05 | 93.67  7.79 |  |
| Tebuconazole | 93.03  7.76 | 93.42  9.34 | 82.74  2.41 |  |
| Prochloraz | 96.67  4.30 | 95.17  5.79 | 94.63  5.99 |  |
| Diethofencarb | 82.89  5.30 | 87.62  7.49 | 88.47  5.04 |  |