

Development of specific LC-ESI-MS/MS methods to study the degradation rates and the Pre Harvest Intervals (PHI) of bifenthrin, lufenuron and iprodione in green beans and peas under the Egyptian field conditions

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Three LC-ESI-MS/MS methods were developed and validated to determine bifenthrin, iprodione and lufenuron residues in green beans and peas. QuEChERS method was used for the sample preparation. Linear dynamic range, limits of detection and quantification (LOD, LOQ), precision and recovery were estimated for the developed methods.

Field trials were carried out in one of the biggest farms in Egypt (Blue Nile) that exports significant quantities of vegetables and fruits to the EU countries.

All the investigated pesticides showed high degradation rates. The $t_{1/2}$ values for bifenthrin were 3.3 and 2.2 days in green beans and peas, respectively. For iprodione, it reached 2.4 days in green beans. Furthermore, the calculated PHI values, according to the Maximum Residues Limits (MRL) set by EU, were 0 and 4 days for bifenthrin in green beans and peas, respectively and 2 days for iprodione in green beans. In case of lufenuron, no $t_{1/2}$ and PHI were estimated as no residues were found in all peas' samples.