

# Multi-residue routine analysis of 57 pesticides by Gas Chromatography coupled with Time of Flight Mass Spectrometry in Honeybee's pollens

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**Abstract** A multi residue analysis was developed for quantification of 57 pesticides, belonging to different chemical classes, in pollens. It consists in one single extraction, based on QuEChERS method, followed by gas chromatography coupled with Time of Flight mass spectrometry. QuEChERS method, which involves a salting-out liquid-liquid extraction with acetonitrile followed by a dispersive-SPE clean up, was adjusted to pollen, an high fat matrix, by taking out lipids, which interfered with mass spectrometry analysis, with a small fraction of hexane in acetonitrile. This method, combined with high resolution detection, allowed quantification and confirmation at levels as low as 10 ng/g with recoveries between 70 and 120 %. This methodology will be extended to liquid chromatography coupled with tandem-mass spectrometry in order to quantify 30 other pesticides and adjusted to honeys and honeybees. Application to 100 samples of each matrix is planned for a global view of pesticide presence in honeybees' environment.