

Multi-residue Method for Pesticides Residue and Toxic Compounds (Non-Dioxins PCB's) Analysis in Shrimps by LC-MS/MS and GC-MS/MS

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Abstract—A method was validated for the multi-residue analysis of 220 pesticides and Non-Dioxins PCB's in Shrimps at $\leq 10 \mu\text{g}/\text{kg}$ level. Shrimp samples (5 g) were extracted with Acetonitrile (10 mL); cleaned by dispersive solid phase extraction and the results were obtained by liquid chromatography–tandem mass spectrometry and Gas Chromatography–Mass spectrometry. Reduction in sample size and proportion of acetonitrile for extraction did not affect accuracy or precision of analysis when compared to the reported methods and was also statistically similar to the QuEChERS technique. The method was rugged with $< 20\%$ measurement uncertainties. Limit of quantification was $\leq 10 \mu\text{g}/\text{kg}$ with recoveries 70–120% for most pesticides. The method offers cheaper and safer alternative to typical multi-residue analysis methods for Shrimps.

Keyword: Pesticides, Shrimps, Antibiotics, GCMSMS, LCMSMS.