



Determination of 25 Pesticides By GC-ECD And MSD With Measurement of Uncertainty In Tomato Using Modified QuEChERS Technique

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ABSTRACT

A multi-residue method was developed by slight modification in QuEChERS method and subsequently validated for determination of 25 pesticide residues including organochlorine, organophosphates, synthetic pyrethroids and herbicides in tomato. Samples were extracted with acetonitrile and clean up was done by PSA and C₁₈. Recovery studies were carried out at three spiking concentration level namely 1 LOQ (Limit of quantification), 5 LOQ and 10 LOQ levels. Mean recovery varied from 74 % to 117 % with Relative Standard Deviation (RSD) below 20%. For the measurement of uncertainty (MU), three main independent sources viz. weighing, purity of the standard and repeatability were considered. MU for more than 80 percent of pesticides were below 5 percent and for rest 20 percent pesticides MU were in the range of 5 to 10 percent. The method developed can be used for the analysis of all 25 pesticides in one single determination step.

Keywords: Multi-residue analysis, Pesticides, LOQ, Tomato, QuEChERS.
