The Determination of the QuECHERS Performance Method to Identify Pesticides Content in Cereal

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SUMMARY

According to existing regulations in determining pesticide residues in cereal matrix, is required to determine parameters of performance method for both standard methods and those that are made slight changes to improve the method. For the purposes of the above, we done a validation of the QuEChERS method as follows:

1. Has been established the concentration area for which there is linearity, achieving a five-point calibration curve, divided in two curves with the following standard concentrations: 0.02ppm, 0.05ppm, 0.2ppm, (small concentration curve) and 0.2ppm, 0.5 ppm, 1.25ppm (big concentration curve) determining the correlation coefficient ($R^2$);

2. To highlight the accuracy of the method - repeatability and reproducibility was performed to determine pesticides residues of simultaneously on six samples determining the average standard deviation (RSD%)

3. In order to verify the accuracy, recovery coefficient was determined (±CV), for each compound realizing in this way, enriching of the sample with the pesticides standard concentration

4. To determine the limit of detection for each component separately, were injected decreasing concentrations of each standard;

The QuEChERS extraction method used in this study minimize the time, labor and cost of the sample preparation.

The interest compounds were: amodosulfuron, deltametrin, propiconazole, tebuconazole, thiacloprid

The chromatographic separation was achieved on a 50 m × 0.32 mm i.d. ZB-5ms capillary column (Phenomenex, USA) with 0.25 μm film thickness. Both data acquisition and processing were accomplished by software GC-MS – Solution Version 2.3.(Shimadzu Corporation).

REFERENCES


2. SR EN 15662/2009 determination of pesticide residues providing the GC-MS and / or LC-MS after extraxtie / partition with acetonitrile and SPE purification dispersive QuEChERS method.