Chromatographic methods for determination of herbicide residues in various matrices

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Modern agriculture depends to a large degree on the use of herbicides in order to cotrol weeds that compete with the crops. Herbicides are widely used in agricultural crops to control weeds they may produce important yield reductions. The introduction of these pesticides in the food chain via the environment can be considered a risk for human health due to the toxicity of the most of these compounds. In the last years, new extraction procedures have been developed to overcome the drawbacks caused by using high amounts of glassware and toxic solvents in the classical liquid extraction methods. The newest results in the use of various extraction techniques and chromatographic methods such as high-performance liquid chromatography and gas-chromatography mass spectrometry used for the assessment of herbicide residue in various matrices have been compiled an critically evaluated.The objectives of these review are the concise enumeration of the chromatographic separation methods used for the determination of herbicide residue in various organic and anorganic matrices, and the compilation and critical evaluation of the most meaningful results.