

Application of QuEChERS method for determination of organic pollutants in food and environmental samples

Dr Anna Sadowska-Rociek
Malopolska Centre of Food Monitoring and Certification,
University of Agriculture in Krakow

Malopolska Centre of Food Monitoring and Certification (MCMiAŻ)

MCMiAŻ (Food Technology Faculty, University of Agriculture in Krakow, since 2006) – specialized analytical laboratories providing services of food analysis:

- ▶ **commercial offer for clients** (i.e. determination of metals, P, ash, protein, fat, aminoacids, physicochemical properties of milk and milk products)
- ▶ **scientific research:** assessment the nutritional value of food; the presence of contaminants; development and validation of new analytical methods

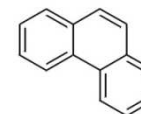
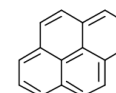
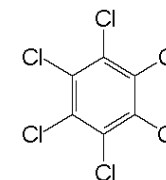
Development of new analytical methods

Application of QuEChERS method for determination of organic pollutants in food and environmental samples

- ▶ QuEChERS (Quick, Easy, Cheap, Effective, Rugged and Safe) method – one of the method of „green chemistry”: smaller samples, less reagents, less wastes, shorter time of analysis – **but still good analytical results**
- ▶ developed for the determination of pesticide residues in food; recent application for other organic contaminants (drugs, veterinary medicines) in other type of samples

Development of the QuEChERS method

Aim of the project: development of the application of QuEChERS method for determination of PAHs and chlorobenzenes



Objects: food samples of plant and animal origin; further environmental samples

Scope:

- ▶ optimisation of the method – selection of an appropriate extraction solvents and sorbents for clean-up;
- ▶ validation of the method and its implementation for widespread use

Development of the QuEChERS method

Results of recent studies:

- ▶ Analysis of ham and herbal plant samples
- ▶ The usefulness of the method was verified basing on the recovery ratio of analysed compounds
- ▶ For both type of matrix, higher results were achieved in the samples extracted with ethyl acetate
- ▶ The results show that the QuEChERS method can be successfully applied for the determination of selected aromatic compounds in plant matrices (recovery ratio ~ 100%)
- ▶ For matrices of animal origin it was found the necessity of modification of the method, especially the selection of an appropriate sorbent for the purification of extracts.



In the near future...

- ▶ development of the method for heavier PAHs
- ▶ seeking a suitable sorbents for animal-origin samples
- ▶ improving recovery ratio of analytes

Area of cooperation:

- ▶ Exchange of experience in the field of presented subject
- ▶ Cooperation and research with other scientists

MCMiAŻ

Ul. Balicka 122

30-149 Krakow, Poland

www.mcm.ar.krakow.pl