

PHD STUDY PROGRAM

**PROPOSAL OF THEME**

*Study Program:* **Agricultural Chemistry**

*Department of:* **Agroenvironmental Chemistry and Plant Nutrition**

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*Co-supervisor:* Ing. Filip Mercl, PhD.

*Form of Study:* **Full\_time**

*Type of Theme:* **Framework**

**Theme: Study and Determination of Emerging Contaminants in the Environmental Components**

**Hypothesis:** Growing knowledge and development of analytical technics lead to the growing number of contaminants determined in the individual components of the environment, originating from the industry, as well from daily human been activities. We assume, that compounds released into the environment can be bound in biological materials, further degraded or transformed. The determination of bound compounds will depend on the origin of biological materials, and will behave differently according to different content of major components, active compounds and pigments in matrices.

**Annotation:** Advanced analytical instruments allow significant improvement of sensitivity and accuracy of contaminants and their metabolites determination in the individual components of the environment, extending the spectrum of possible contaminants investigated. The determination of low concentrations requires new approaches to samples preparation, storage, extraction procedures as well to their determination.

The PhD task will mainly focus on the determination of emerging contaminants originated from pharmaceuticals, personal care products, industrial additives, their metabolites as well degradation products in waters, soils, plants and waste materials of biological origin (sewage sludge, manure, slurry, composts) where mentioned compounds can accumulate, transform, or degraded. The evaluation of the extractability, stability, and transformation of individual compounds during processing, storage, and determination of different matrices will be part of the study too.

PhD student actively involved in the investigation will get apart from regular scholarship additional financial support from other external research project.

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*Signature:*