**Liquid chromatograph with MS detection**

**Equipment: Liquid chromatograph with MS detection, LC/MS/MS Agilent 6495**

**No. of Equipment: UJEP18**

**Responsible coordinator:** Prof. Ing. Pavel Janoš, CSc.

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**Equipment Description**

**Description of equipment:**

**Liquid Chromatograph with Triple Quadrupole Mass Spectrometer**

Agilent 1290 Infinity UHPLC system consisting of an Agilent 1290 Infinity Binary Pump (G4220A), an Agilent 1290 Infinity High Performance Autosampler (G4226A), a sample cooler (G1330B), and an Agilent 1290 Infinity Thermostatted Column compartment (G1316C). The UHPLC system is coupled to an Agilent G6495 Triple Quadrupole LC/MS System equipped with an Agilent Jet Stream electrospray ionization source. Agilent MassHunter Workstation Software is used for data acquisition and analysis. Verified/validated methods are available for the determination trace residues of organic pollutants (e.g. pesticides). Limit of quantitation is 10 ng/L in liquid samples and 50 to 100 ng/kg in soil.

**Specification of expertise relevant to NanoEnviCzworkpackages:**

**WP4**a,b, **WP7**c, **WP9**a,b

**Detailed description of expertise**

**Please, specify the main research topics connected with equipment**:

Analysis of Multi-Pesticides Residues in soil and water

Determination of selected cytostatics

**Please, specify the secondary research topics connected with equipment**:

Analysis of different organic pollutans (drugs, disruptors)

Analysis of degradation products of pesticides

**Keywords describing research area:**

Organic pollutants; Pesticides; Drugs; Fate of pollutants in the Environment

**Competence**

**Relevance for applied and industrial research:**

Over the last century more than 1000 pesticides have been in common use for crop protection. Beyond approved and recommended usage, there always exists the possibility that any of these chemicals can be found in the environment and make their way into the food supply. To protect the environment and human health, detection and identification in survey type monitoring is very important. Liquid chromatography/tandem mass spectrometry with a triple quadrupole (LC/MS) meets this need by providing the most sensitive and highly selective detection in complex samples.

 The equipment is a key part of the laboratory for determination of trace organic pollutants in the environment (CADORAN). The CADORAN is a part of the laboratory complex of the Institute of Public Health (Zdravotní ústav se sídlem v Ústí nad Labem) consisting of more than 10 laboratories in various cities in the Czech Republic. The laboratories are accredited by the Czech Institute for Accreditation according to the ČSN EN ISO/IEC 17025:2005 standard for chemical, physical, microbiological, sensory and toxicity tests of waters, wastes, biological materials and air. Complete range of environmental analyses, environmental impact assessments and risk studies to human health may be accomplished on a special demand.

**Relevance for fundamental studies:**

Identification and determination of degradation products of pesticides and highly toxic agents.