**HPLC/MS/MS**

**Equipment:** Dionex Ultimate 3000 HPLC with an AB SCiex 3200 mass spectrometric detector.

**No. of Equipment: TUL1**

**Responsible coordinator:** doc. RNDr. Michal Řezanka, Ph.D.

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**Equipment Description**

Description of equipment: The instrument is an HPLC chromatograph with a triple quadrupole/linear ion trap mass spectrometer. The HPLC is a binary system with two pumps enabling very fast mobile phase gradients. It has an automatic autosampler for more than 120 samples and is able to inject samples from various types of vials and well plates in the range from 1 to 100 µl of sample per injection. The available ion sources are ESI and APCI. The columns available are C18, PFP, Hilic and GPC coluns for both aqueous and non-aqueous media. The best target analytes are polar and semi-polar natural substances, pharmaceuticals and pollutants with M up to 2000 g/mol. The instrument has unit resolution so the best applications are trace determinations of target analytes, screening for suspected constituents of samples and verification of the presence of degradation/metabolism products.

**Specification of expertise relevant to NanoEnviCz workpackages:**

**WP3**d,g,h, **WP**4a-c,**WP5**a-c,**WP6**a,b,e, **WP7**a-e,h, **WP8**a-c,**WP9**a

**Detailed description of expertise**

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

Nanofibers, wastewater treatment, polluted groundwater treatment, oxidants, nanoparticles.

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

Functionalization of nanofibers, characterization of nanofibers, performance testing of membranes, testing of the effectivity of oxidants and nanoparticles for polluted water treatment.

**Keywords describing research area:**

HPLC, mass spectrometry, Nanofibers, wastewater, membrane, nanoparticles, oxidants, pesticides, antibiotics.

**Competence**

**Relevance for applied and industrial research:**

Testing of the efficacy of any processes for removing pollutants from water. Determination of the chemical composition of manufactured goods. Controlling the quality of process fluids.

**Relevance for fundamental studies:**

Characterization of nanofibre composition. Studies on the release of pharmaceuticals from nanofibers. Testing the performance of membranes, nanoparticles and oxidants for water treatment. Analytical method development.