

REXDAN Research Center

The Chromatography Laboratory

It is equipped with 3 high-performance chromatographic systems: Liquid Chromatograph coupled with Mass Spectrometer, Gas Chromatograph coupled with Mass Spectrometer and Ion Chromatograph which may be used for:

- assessment of the ecological status of aquatic ecosystems;
- monitoring the level of pollution with organic and inorganic compounds of surface, groundwater, drinking water, wastewater, etc .;
- determining the degree of contamination of soils and sediments with organic pollutants;
- assessment of the degree of bioaccumulation of volatile and non-volatile organic pollutants in aquatic biota;
- identification of the presence of emerging pollutants in environmental samples.

Members:

- **Lecturer Dr. Mihaela TIMOFTI**

<https://dcfm.ugal.ro/index.php/membri/2-uncategorised/40-timofti-mihaela>



- **PhD Student Mădălina CĂLMUC**

<https://scholar.google.com/citations?hl=en&user=-V86bqYAAAAJ>



- **PhD Student Valentina Andreea CĂLMUC**

<https://scholar.google.com/citations?hl=en&user=NcroOfkAAAAJ>



- **Assist. Prof. Dr. Eng. Ștefan-Mihai PETREA**

<https://www.researchgate.net/profile/Stefan-Mihai-Petrea>



The Chromatography Laboratory

Equipment:

High-resolution LC-MS / MS, Vanquish Flex UHPLC Systems coupled to Orbitrap Exploris 120 Mass Spectrometer -Thermo Fisher Scientific

Uses:

- high-resolution qualitative and quantitative analysis and accurate tracing of compounds mass in complex matrices;
- analysis of non-volatile pesticides, personal care products, pharmaceutical compounds and their metabolites, hormones and endocrine disruptors;
- clinical research;
- forensic toxicology;
- drug control and confirmation;
- food industry;
- agriculture;
- flame retardants;
- perfluorinated compounds (PFCs);
- disinfectants.

Technical specifications:

- resolution up to 120,000 (FWHM);
- mass range: m/z 40–3000;
- scan rate up to 22 Hz;
- high accuracy and sensitivity.



The Chromatography Laboratory

Equipment:

GC MS laboratory GC Trace 1310 coupled to TSQ 9000 VPI Mass Spectrometer - Thermo Fisher Scientific and Thermal Desorption System - Unity-xr

Uses:

- analysis of organochlorine pesticides, polyaromatic hydrocarbons, polychlorinated biphenyls, alkylphenols - endocrine disruptors, polybrominated diphenyl ethers, drinking water disinfection by-products, microplastics;
- forensic toxicology;
- food industry;
- agriculture;
- oil and gas analysis.

Technical specifications:

- resolution up to 120,000 (FWHM);
- mass range: m/z 40–3000;
- scan rate up to 22 Hz;
- high accuracy and sensitivity.



The Chromatography Laboratory

Equipment:

Ion chromatograph IC Dionex ICS-6000 Thermo Fisher Scientific

Uses:

- anions: F⁻, Cl⁻, Br⁻, NO₂⁻, NO₃⁻, PO₄³⁻, SO₄²⁻
- cations: Li⁺, Na⁺, NH₄⁺, K⁺, Mg²⁺, Ca²⁺
- food industry;
- pharmaceutical industry;
- aquaculture.

Technical specifications:

- double channel - simultaneous anions and cations analysis;
- high pressure for fast analysis;
- high resolution;
- excellent sensitivity, stability and ease of use.

