

The Laboratory for Sample Conservation and Preparation

Includes equipment for the preparation of environmental samples (air, water, soil, biota) which may be subsequently analyzed by using other high-performance, state-of-the-art equipment available in the REXDAN Research Infrastructure.

The equipment in this laboratory is used both for the conservation of chemical reagents and samples (refrigerator, freezer, chemical niches with exhaust) and for the preliminary preparation of environmental samples.

Members:

- **Associate professor Dr. Mihaela TIMOFTI**

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



- **PhD Researcher Mădălina CĂLMUC**

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The Laboratory for Sample Conservation and Preparation

Members:

Asist. professor Dr. Ira-Adeline SIMIONOV— Ira-Adeline Simionov
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The Laboratory for Sample Conservation and Preparation

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The Laboratory for Sample Conservation and Preparation

Equipment:

Magnetic stirrer with multi-station heating, RT 10, IKA

Uses:

- preparing samples and/or of laboratory reagents;
- making cold or hot aqueous extracts.



Technical specifications:

- 10 stirring / heating stations with a 0.4 L stirring capacity per position;
- adjustable temperature with a heating rate of 30 K/ min;
- speed control in 10 RPM steps.

The Laboratory for Sample Conservation and Preparation

Equipment:

Ultra-pure water device with UV filter, final filter, Simplicity UV System, MerckMilipore

Uses:

- preparing reagents, environmental samples, buffers required for analysis with IC, LC, GC, ICP-MS and cell cultures
- cell microbiology and nanotechnologies.

Technical specifications:

- compact, portable system based on ion exchange resins for obtaining ultra-pure water;
- resistivity: 18.2 M Ω cm at 25 ° C;
- instantaneous water flow produced by the final filter 0.5 L / min;



The Laboratory for Sample Conservation and Preparation

Equipment:

Distillation and deionization equipment, CYCLON, FISTREEM

Uses:

- obtaining deionized, distilled and/or double-distilled water.

Technical specifications:

- production capacity 4 L / h of double-distilled water and 8 L/h of distilled water;
- glass double distiller;
- water conductivity resulting from double distillation: $<1\mu\text{S} / \text{cm}$;
- 30 L water storage tank with level sensor and automatic power



The Laboratory for Sample Conservation and Preparation

Equipment:

Ultrasonic bath, Elmasonic S 60 H, Elma

Uses:

- preparing/analysing samples and/or preparing reagents;
- making cold or hot extracts.

Technical specifications:

- 37kHz ultrasound frequency;
- selectable temperature in 5 °C steps;
- possibility to select the duration of the ultrasound;
- possibility of automatic shutdown after 12 hours of continuous operation;
- functions: sweep, self-degassing / degassing, auto-start, pause, start / stop.



The Laboratory for Sample Conservation and Preparation

Equipment:

Water bath, AD07R-20-A12E, PolyScience

Uses:

- preparing/analysing samples and/or preparing reagents;
- making cold or hot extracts.

Technical specifications:

- recirculation performed with compact circulator;
- pump immersion with adjustable capacity;
- temperature range $-200\text{C} \div . 2000\text{C}$;
- temperature stability: $\pm 0.1 \text{ K}$;
- bathroom volume: 7 L.



The Laboratory for Sample Conservation and Preparation

Equipment:

Technical scales, EX 1103M, OHAUS

Uses:

- weighing samples in the weighing order of grams;
- percentage weighing;
- part counting;
- density determination.

Technical specifications:

- weighing capacity 1100 g;
- reading accuracy: 1 mg;
- 2 touchless sensors.



The Laboratory for Sample Conservation and Preparation

Equipment:

Analitical scales, EX 225D/AD, OHAUS

Uses:

- weighing, with very high accuracy, small amounts of samples or chemicals.

Technical specifications:

- capacity (g) :. 220 g;
- weighing accuracy to 5 decimal places.
- internal calibration with 2 calibration weights;
- 4 touchless sensors.



The Laboratory for Sample Conservation and Preparation

Equipment:

Laboratory centrifuge with cooling, FC5916R, OHAUS

Uses:

- separation of solid phase from liquid phase.

Technical specifications:

- stainless steel centrifuge chamber;
- rotational speed of 16000 RPM;
- spin speed of 26331 RCF;
- max volume capacity centrifuge: 4X750 mL;
- cooling function for temperature range $-20\text{ }^{\circ}\text{C} \div +400\text{ }^{\circ}\text{C}$.



The Laboratory for Sample Conservation and Preparation

Equipment:

Laboratory oven, FD115 Binder, Binder GmbH

Uses:

- preliminary preparation of solid environmental samples (soil, sediment, plant tissue, animal tissue, etc.) in order to further determine different classes of pollutants.

Technical specifications:

- forced air circulation;
- temperature range + 100° C above the ambient up to 300° C.



The Laboratory for Sample Conservation and Preparation

Equipment:

Laboratory glassware washing machine, GW4090, SMEG

Uses:

- efficient and fast washing of laboratory glassware.

Technical specifications:

- fully automated, microprocessor controlled system;
- 40 pre-installed programs;
- the possibility of defining 30 more user programs;
- main operations in a complete cycle, without user intervention: pre-washing, washing, rinsing, final rinsing, drying and cooling;
- two-level washroom and two wash arms (up and down);
- HEPA filtered air drying system, at high temperatures, outside and inside by a turbo-blower injector;
- separate compartment for storing detergent and neutralizing agent;
- basic level rack;
- multifunctional rack with at least 48 injectors;
- rack for simultaneous washing of at least 100 pipettes.



The Laboratory for Sample Conservation and Preparation

Equipment:

Laboratory vibrating mill, 8000D, SPEX Europe

Uses:

- preparing solid samples (soil, sediment, pre-dried plant and/or animal tissues, ores, minerals, frozen products, glass, etc.) to be analysed by FT-IR, XRF by grinding, drying and mixing of the samples in bottles with one or more balls.
- making emulsions and homogenizing powders.

Technical specifications:

- two workstations;
- crushing samples at analytical dimensions of the order of μm ;
- sample sizes between 0.2-10 grams per vial for grinding and up to 60 mL for homogenizing powders or mixing emulsions;
- electronic stopwatch with pause and stop functions which displays the programmed running time and the time remaining while the mill is running;
- both steel and tungsten carbide bottles and balls.



The Laboratory for Sample Conservation and Preparation

Equipment:

Laboratory press for preparing the samples analyzed with FT-IR, MP250M, Maassen GmbH

Uses:

- preparing powder samples for FT-IR, micro FT-IR analysis and/ or X-ray fluorescence spectrometers.

Technical specifications:

- automatic hydraulic press;
- max. pressure 25 T;
- the diameter of the samples produced: 10 mm, 20 mm and 50 mm.



The Laboratory for Sample Conservation and Preparation

Equipment:

Digital MicroPipette Set, BOECO Electronic Pipettes, BOECO

Uses:

- pipetting small and very small volumes.

Technical specifications:

- pipetting, reverse pipetting, mixing and dosing programs;
- battery-based operated with fast charging via USB cable charger;
- includes 3 micropipettes with adjustable pipetting volumes: 0.5 - 10 μl / 5 - 100 μl / 50 - 1000 μl / 50 - 1000 μL



The Laboratory for Sample Conservation and Preparation

Equipment:

CBO5 analysis system for 20-24 samples, FOC 200E + BOD Sensor System 6, VELP Scientifica

Uses:

- biochemical oxygen consumption analysis;
- respirometric studies;
- aerobic and anaerobic analyses.

Technical specifications:

- biochemical oxygen consumption analysis system consisting of 4 units of CBO5 measurement for 24 samples, simultaneously;
- cooling thermostat with measuring units to be set;
- wireless setting and remote control.



The Laboratory for Sample Conservation and Preparation

Equipment:

Microwave digestion system, ETHOS EASY, Milestone

Uses:

- sample preparation for ICP-MS analysis.
- mineralization of organic and inorganic samples in order to perform subsequent simple and/or complex elemental analyses.

Technical specifications:

- stainless steel, multi-layer Teflon (PTFE) lined microwave cavity;
- the volume of the microwave cavity of 70 L;
- built-in exhaust system;
- dual magnetron and rotary speaker for even field distribution with a total microwave power of 1900 W.



The Laboratory for Sample Conservation and Preparation

Equipment:

System for sample extraction/ purification by extraction, SOXTHERM

Uses:

- preparing samples for chromatographic analysis and for determining the content of lubricating oils in water, pesticides in soil, EOX in soil, etc.

Technical specifications:

- unit for the control and monitoring of 4 extraction systems, each using a different program;
- controller for storing/recalling various extraction programs with multifunctional display;
- compressor;
- extraction system consisting of a 4-seater base unit which allows 4 extractions to be performed simultaneously.



The Laboratory for Sample Conservation and Preparation

Equipment:

Automatic Titrator, Eco Titrator , Metrohm

Uses:

- determination of various parameters: alkalinity (p + m values), carbon dioxide, free chlorine in drinking water, calcium and magnesium hardness, total hardness, etc.

Technical specifications:

- integrated stirrer and sample dispenser;
- 20 mL and 50 mL burettes;
- combined pH electrode;
- temperature probe;
- selective copper electrode and corresponding standard solution of Cu;
- Calcium selective ion electrode and corresponding standard Ca solution;
- REDOX electrode and corresponding standard chloride solution.



The Laboratory for Sample Conservation and Preparation

Equipment:

Laboratory freezer, MDF-MU549DH-PE

Uses:

- the preservation of raw and prepared samples;
- the conservation of chemical reagents and standards.

Technical specifications:

- two separate chambers for which the cooling temperature can be set independently ;
- temperature setting in the range $-180^{\circ}\text{C} \div -450^{\circ}\text{C}$.
- digital temperature display ;
- volume of approx. 480 L;
- temperature control by microprocessor;
- temperature sensor: thermistor;
- external and internal construction: coated steel (painted) or stainless steel;
- alarms for temperature deviations and power failures.



The Laboratory for Sample Conservation and Preparation

Equipment:

Laboratory refrigerator, MPR-S500H-PE

Uses:

- the preservation of raw and prepared samples
- the conservation of chemical reagents and standards.

Technical specifications:

- temperature control in the range $+2^{\circ}$ ÷ $+14^{\circ}$ C;
- volume: approx. 550 L;
- external and internal steel construction with coating (painted) or stainless steel;
- temperature control by microprocessor;
- 2 sliding stick doors;
- temperature sensor: thermistor;
- cooling by forced air circulation;
- alarm in case of temperature deviations.



The Laboratory for Sample Conservation and Preparation

Equipment:

Chemical niche with exhaust for acids and solvents, NC_90_C, NC_120_C, NC_150_C

Uses:

- the preparation of chemical reagents and of samples to be analysed by various advanced analysis techniques.

Technical specifications:

- NC_90_C with INOX interior: L x W x H = 1060mm X 900mm x 2400mm
- NC_120_C: L x W x H = 1360mm X 900mm x 2000mm
- NC_150_C: L x W x H = 1660mm X 900mm x 2400mm
- internal preparation enclosure with anti-acid technical ceramic top
- technological control panel with electric circuit for 2 ÷ 4 16A electrical sockets, chemical niche lighting, niche exhaust system, frequency inverter with the role of engine speed adjustment;
- suction-exhaustion system is equipped with filters for acids or solvents and electric motor with single-phase power supply, maximum power consumption 1.1 KW, piping and centrifugal fan;
- fixed underbench storage element with inner casing made of fireproof melamine panels and doors/drawer faces of laminated panel equipped with ventilation grids connected to the exhaust system.

