



LABORATORY OF FOOD CHEMISTRY AND ANALYSIS

Sample Preparation Facility
Analytical Instruments Facility
Major Food Components Facility
Physical Chemistry Facility
Human Nutrition Facility





SAMPLE PREPARATION FACILITY

located at the basement of Hasiotis building

FUME HOOD

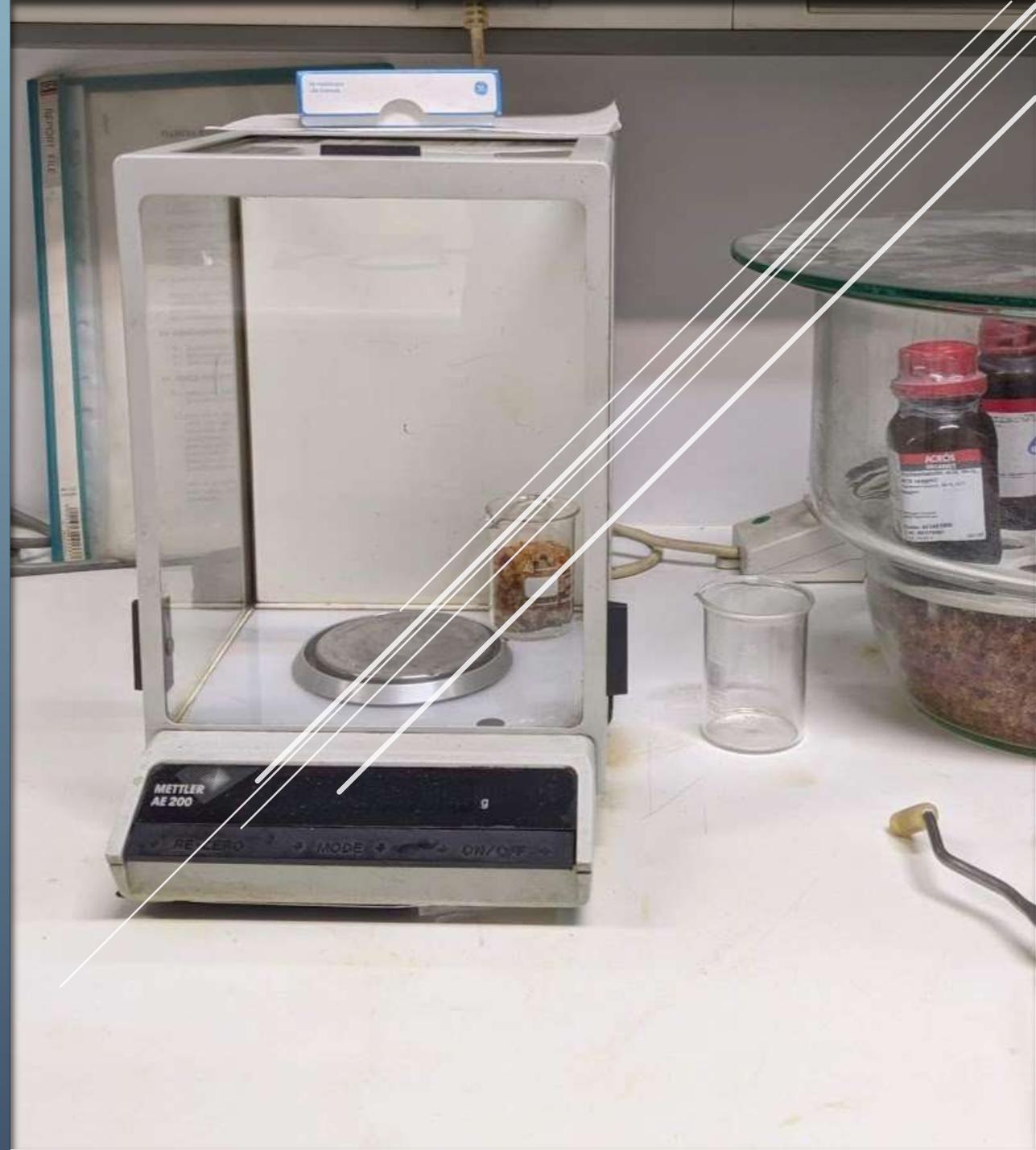
for tasks that require handling hazardous reagents



ANALYTICAL BALANCE

Mettler AE 200

For weighing objects with scale
interval of 0.1 mg



FREEZE DRYER

for efficient removal of water in low temperature under vacuum

for applications involving heat-sensitive components, e.g. phenolics



ROTARY EVAPORATOR

IKA RV-05 basic

for efficient and gentle
evaporation of solvents under
vacuum





▶ for the separation of mixtures with different densities

▶ Hermle Z 326 K refrigerated centrifuge

▶ Heraeus Biofuge pico



BENCHTOP CENTRIFUGES

WATERBATHS

of various sizes for standard temperature control tasks

- ▶ Memmert WNB
- ▶ Lauda A6



for sample purification and separation of analytes, such as anthocyanins from fruit juices

SOLID PHASE EXTRACTION UNIT





- ▶ Camag Linomat IV for sample application
- ▶ Camag chambers for the development stage i.e. separation of sample components
- ▶ DNR MiniBIS Pro imaging system for the detection and quantitation of chromatographic bands



THIN LAYER CHROMATOGRAPHY



- ▶ For the automatic determination of the oxidation stability of natural fats and oils or of products that contain fat

METROHM
RANCIMAT 679



- ▶ Velp Scientifica refrigerated incubator FTC 90E
- ▶ for applications requiring constant temperature control, such as food preservation or fermentation

BENCHTOP
INCUBATOR

ORBITAL SHAKERS

utilized primarily for extraction and derivatization steps in metabolomics





ANALYTICAL INSTRUMENTS FACILITY

located at the ground floor of Hasiotis building

Shimadzu GCMS QP2010 Ultra

Used primarily for analysis of volatiles in various food matrices (e.g. olive oil, meat, fish, wine, etc) and for food metabolomics

GAS CHROMATOGRAPH- MASS SPECTROMETER





- ▶ Shimadzu, FIONS
- ▶ Three systems equipped with various detectors (FID, ECD, NPD), headspace autosampler, split/splitless and on-column inlets
- ▶ Used for the quantitative determination of volatiles in various food matrices,

GAS CHROMATOGRAPHS



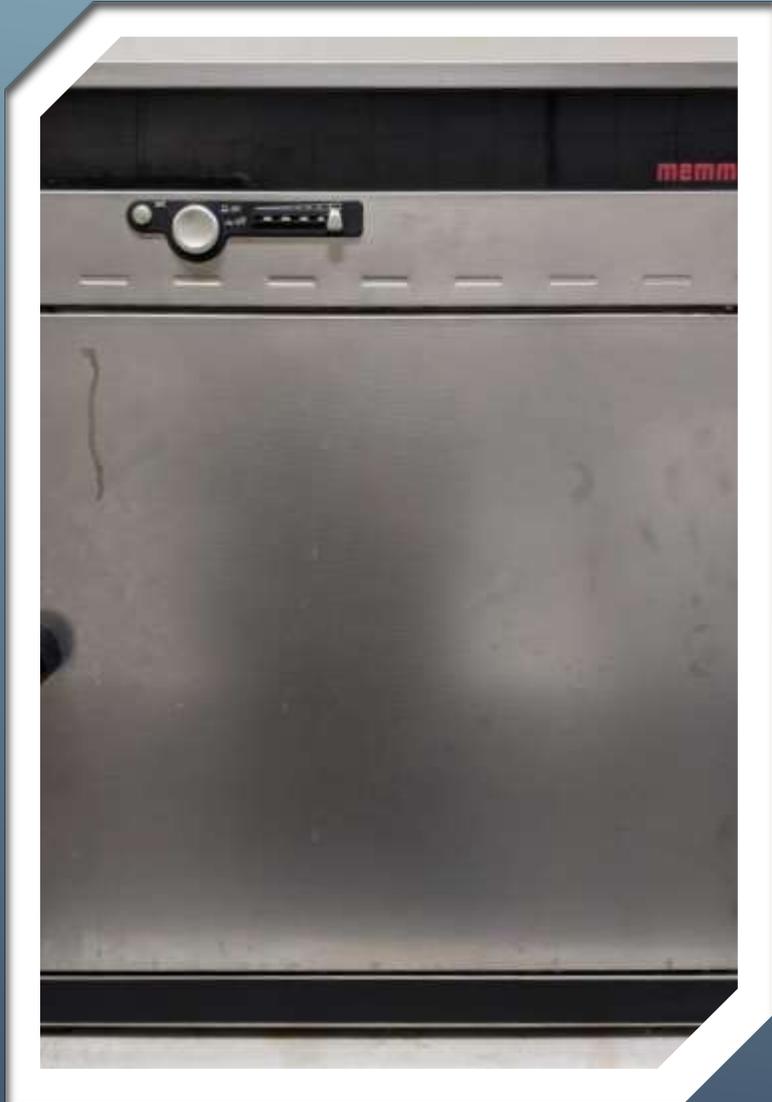
- ▶ Perkin Elmer, Jasco
- ▶ Three systems equipped with various detectors (Photodiode Array, Fluorescence, Refractive Index)
- ▶ Utilized in the analysis of food components, such as phenolics, vitamins, sugars, acids, ect

HIGH PERFORMANCE LIQUID CHROMATOGRAPHS



- ▶ Located at the ground floor of Hasiotis building
- ▶ Apparatus for the determination of moisture, ash, protein, fat and crude fiber content

MAJOR FOOD COMPONENTS ANALYSIS FACILITY



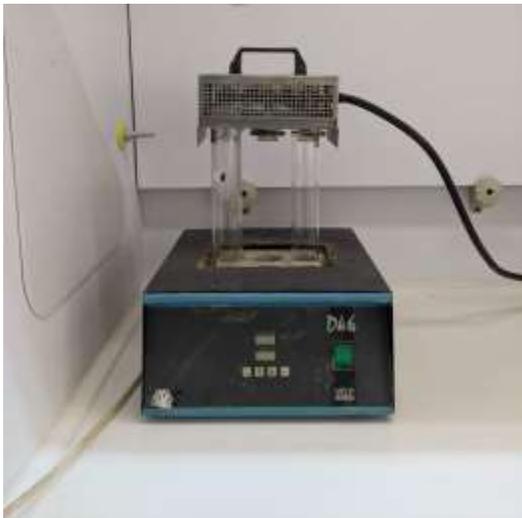
- ▶ Memmert UNE 400
- ▶ for moisture determination using temperature programming

DRYING OVEN



VULCAN 3-550 BENCHTOP MUFFLE FURNACE

Used for ash determination in various
food matrices



- ▶ Foss Kjeltec 8400 distillation system
- ▶ Nitrogen, protein, Non Protein Nitrogen (NPN) and volatiles (TVBN and more)

KJELDAHL APPARATUS

SOXHLET & MOJONNIER APPARATUS

Used for fat content
determination in
various food
matrices





- ▶ Defatting, boiling, rinsing and filtration are performed under reproducible and controlled conditions
- ▶ Crude Fibre (CF), Neutral Detergent Fibre (NDF), Acid Detergent Fibre (ADF) and Acid Detergent Lignin (ADL)
- ▶ Raw materials and finished products in feed and agriculture

FOSS FC 221: MANUAL CRUDE FIBER ANALYZER



located at the ground floor of Hasiotis building

PHYSICAL CHEMISTRY FACILITY





ROTATIONAL VISCOMETER

For measuring the
viscosity of liquids



- ▶ for measuring the mechanical properties of a sample as a function of time, temperature and frequency

DYNAMIC MECHANICAL ANALYZER



TENSIOMETER

for measuring surface
and interfacial tension
using either du Nouy
ring or Wilhelmy plate



DOUBLE BEAM UV- VIS SPECTROPHOTOMETER

with multiple temperature-controlled
cells for measuring the absorbance of
samples



FORCED DRAFT OVEN

for sample drying



- ▶ Waterbath for procedures demanding temperature control
- ▶ Homogenizer for emulsion formation
- ▶ Various hot plates with stirrer
- ▶ Various balances

VARIOUS INSTRUMENTS



VARIOUS INSTRUMENTS

- ▶ pH-meters (portable and for bench)
- ▶ refractometers (portable and for bench)
- ▶ portable conductivity meter
- ▶ colorimeter

HUMAN NUTRITION FACILITY

located at the building of past National Dairy Board
and at the building of the past Veterinary clinic



AUTOMATED BIOCHEMICAL ANALYZER



AUTOMATED IMMUNOANALYZER

for measurement of
hormones

BONE DENSITY AND BODY COMPOSITION SCAN

Dual energy X-ray
absorptiometry -
DEXA



ATOMIC ABSORPTION SPECTROMETER

Measurement of inorganic elements in foods, in digests and biological fluids



PLATE READER

using luminescence, fluorescence
intensity





- ▶ various applications in the determination of multiple bioindices

PLATE READER UV-VIS SPECTROPHOTOMETER



OSMOMETER

measurement of osmolality in
body fluids



CENTRIFUGES



ANALYTICAL BALANCES





WATER PURIFICATION SYSTEM

FREEZERS (-80°C)





ERGOSPIROMETRY SYSTEM

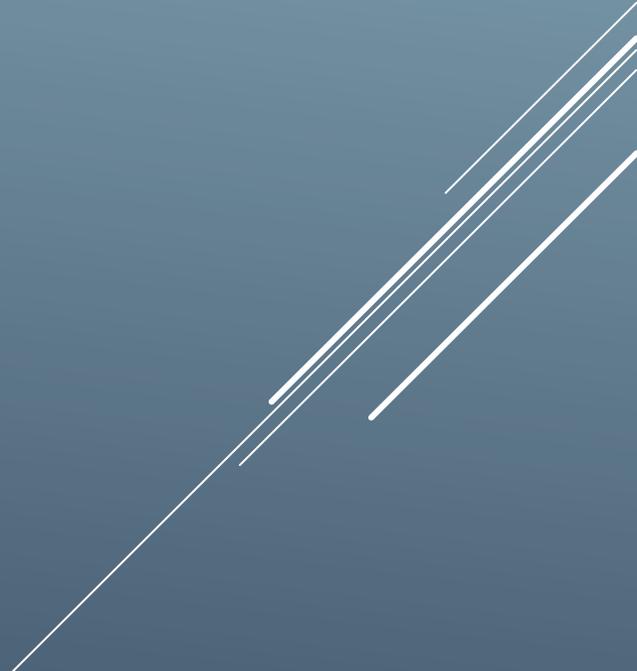
for basal metabolic rate determination

BODY COMPOSITION ANALYZERS





CHAIR FOR BLOOD COLLECTION





LAB OFFICES