



# 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



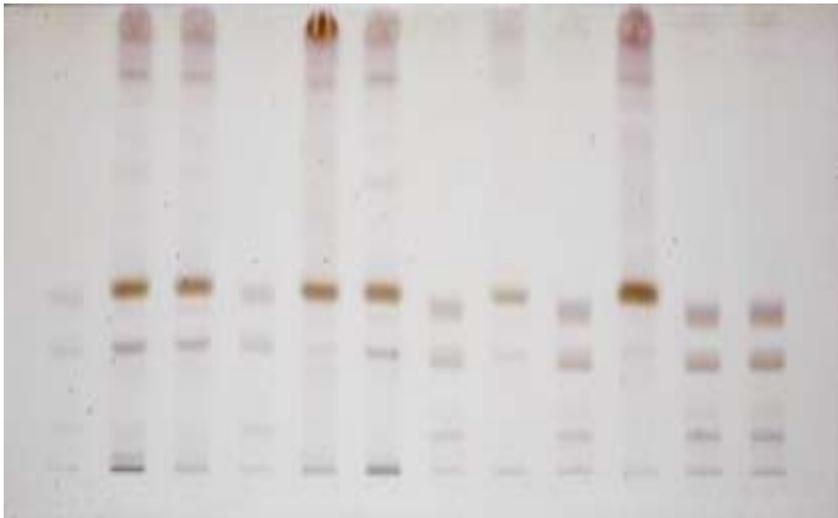
for sample purification and separation of analytes, such as anthocyanins from fruit juices

# 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



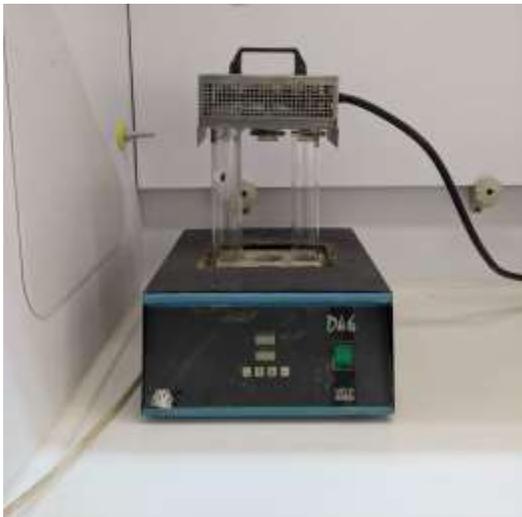
- ▶ Memmert UNE 400
- ▶ for moisture determination using temperature programming

DRYING OVEN



# VULCAN 3-550 BENCHTOP MUFFLE FURNACE

Used for ash determination in various  
food matrices



- ▶ Foss Kjelttec 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

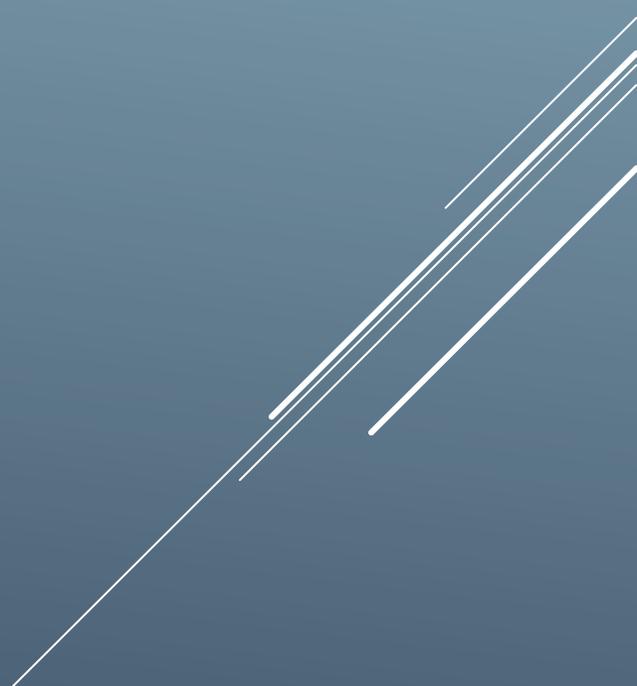


# ANALYTICAL BALANCES



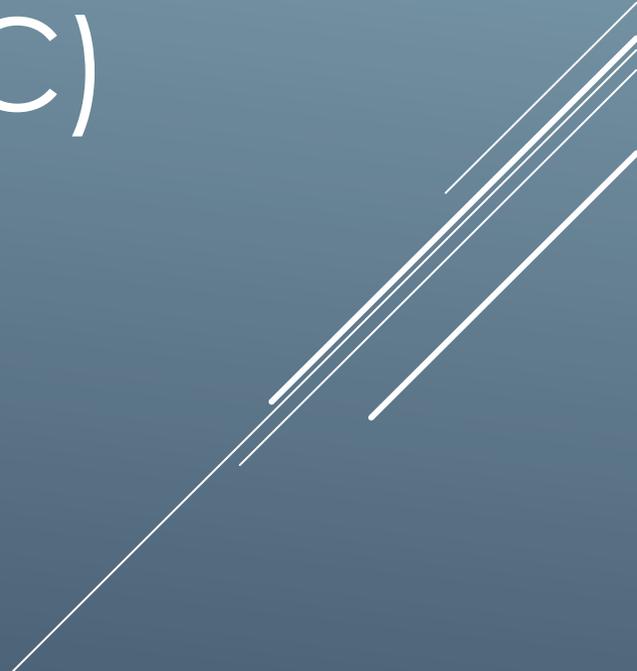


# WATER PURIFICATION SYSTEM





# FREEZERS (-80°C)





# ERGOSPIROMETRY SYSTEM

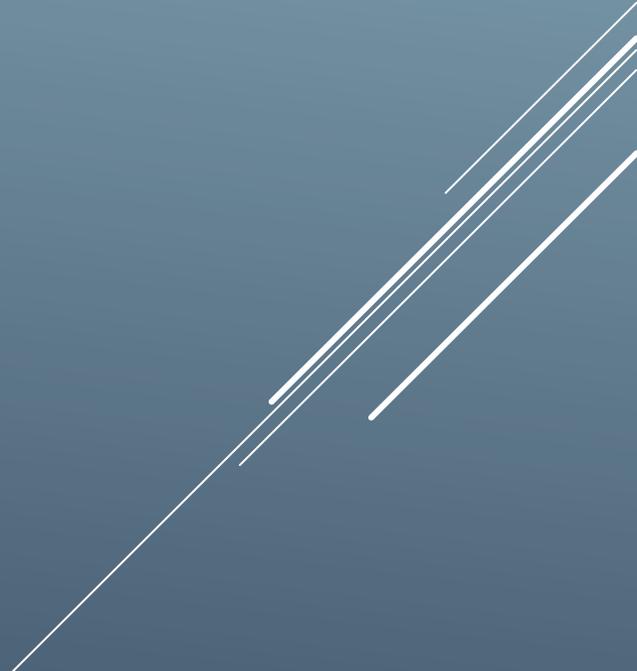
for basal metabolic rate determination

# BODY COMPOSITION ANALYZERS





# CHAIR FOR BLOOD COLLECTION





# LAB OFFICES