

BIOPROCESSING RESEARCH UNIT

CENTRE FOR AQUACULTURE AND SEAFOOD DEVELOPMENT

RESEARCH LAB

The bioprocessing research laboratory is equipped for analytical work and small-scale process development. This 228 square metre facility features a laboratory-scale spray dryer and freeze dryer as well as a Gas Chromatograph-Mass Spectrometry system (2015), food chemistry analytical equipment and environmental analysis equipment.

This research laboratory is available to clients for:

- Lab scale purification and concentration of valuable marine extracts
- Lab scale production (up to 5 kg) of marine bio-products
- Testing and analysis of products and processing effluents
- General food chemistry, oil, biodiesel and waste water analysis



SPECIALIZED ANALYTICAL EQUIPMENT

- GC-MS (Thermo Fisher TRACE, Gas Chromatograph – Mass Spectrometer)

FOOD CHEMISTRY ANALYTICAL EQUIPMENT

- Kjeldahl Titration Unit (FOSS Kjeltac 8100)
- Kjeldahl Digestor with controller (DigiPREP HT)
- Soxhlet Extraction system

ENVIRONMENTAL ANALYTICAL EQUIPMENT

- Ammonia multimeter probe (HACH)
- COD Reactor (HACH)
- HQ 440D Hach multimeter (HACH) and various probes (pH, BOD, conductivity, Nitrates, ORP/Redox & Ammonia)
- Jar Tester Apparatus (2), Phipps & Bird
- Imhoff cones (15) & Stands
- Isotemp BOD Incubator (Fisher Scientific Isotemp 3720)
- Digester (HACH DRB 200)

CONCENTRATION/DRYING EQUIPMENT

- Convection dryer
- Fluidized bed dryer (Sherwood Tornado Model 501)
- Freeze dryer (Labconco FreeZone 2.5)
- Spray dryer (Buchi Mini Spray Dryer B-290)

PARTICLE SIZE REDUCTION

- IKA Blender mill
- IKA Lab Hammermill (MF-10)
- IKA Programmable stirrers
- Various household blenders and grinders

OIL ANALYSIS EQUIPMENT

- Pensky-Marten Flashpoint apparatus
- Carbon residue analyzer

GENERAL EQUIPMENT

- Thermo Scientific Heratherm Drying ovens (2: 1 Mechanical Convection, 1 Gravity Convection)
- Muffle furnace (Thermolyne)
- Dessicator; Fisher Scientific (2 large, 1 small)
- Preparative and analytical scales
 - Denver Instrument Scale PI-214
 - Denver Instrument Scale S-4001
- Shaking water bath - Reciprocating & orbital (OLS 200 Grant)
- Beckman Centrifuge J2-21M/E
- pH meters
- Selection of programmable hot plates
- Magnetic and overhead stirrers
- Microcentrifuge (MSE Micro Centaur)
- Incubated and refrigerated floor shaker (Thermo Scientific MaxQ 6000, Model 4353)
- 24" platform scale; 50lb capacity (0.1Kg/lb)
- Brookfield viscometer with disc
- Eppendorf pipettes, various sizes

GENERAL INFRASTRUCTURE

- 6' Fume hood with air, water and nitrogen supply
- 3' fume hood
- -80°C freezer
- -20°C freezer
- Fridge (2: 1 Flammable materials fridge, 1 standard fridge)
- Chemical storage room
- Vacuum pack machine (Foodsaver)
- Millipore Milli-Q Direct 8 water system (GC/HPLC-grade)
- Labconco Steam dishwasher
- Ice Machine (IGLOO)