

LABORATORIES OF APPLIED BIOCATALYSIS

Description of main activities:

The preparation of whole cell biocatalysts and enzymes, the preparation of recombinant biocatalysts, combined chemo-biocatalysis, the use of biocatalysts in special chemicals production, immobilisation of biocatalysts, pharmaceutical biotechnology and redox biocatalysis. The results and experiences gleamed in this field cover a broad range of applications. Biocatalysts and selective producers are employed in the production of precursors for chemical and pharmaceutical industries as well as in the production of antigens and substances with a high added value, usable in pharmacy, medicine and food science.

Equipment available:

- Fermenters New Brunswick BioFlo 115 – 7 fermenters, culture vessels with working volumes from 0.5 up to 12 litres with automatic control and sampling,
- Bioreactor DasGip – 4 fermenters, culture vessels with working volumes from 50 up to 250 ml with automatic control and sampling,
- Gas chromatograph Agilent FID and MS detector, qualitative and quantitative analysis of fermentation broth metabolites and trace analysis,
- Ultrafiltration and microfiltration unit Acta Flux S, laboratory instrument for the concentration of biomass and proteins produced by fermentation,
- UV/VIS Spectrometer VarioScan fluorescence-plate reader UV, measurement at different wavelengths and fluorescence detection,
- HPLC Agilent with UV/VIS and RI detector, analysis of microbial products and metabolites,
- Freeze Dryers Leybold-Heraeus concentration of biochemicals and drying of microbial cultures,
- Bactron Anaerobic Chamber, manipulation with anaerobes,
- Isotachophoresis Labeco, the analysis of organic acids and ions in a culture medium,
- UV/VIS spectrophotometer Agilent, the measurement of spectra and enzyme kinetics,
- Microscope Kvant, traditional optical microscopy and fluorescence microscopy,
- Laminar flow cabinet Ekokrok, sterile work with microorganisms,
- Eppendorf Mastercycler (PCR), DNA electrophoresis Consort, DNA amplification and analysis,
- -80 °C ultra-low temperature freezer Thermo Scientific, long-term storage of microorganisms and enzymes,
- Hitachi ultracentrifuge, protein isolation,
- Continuous Cell Disruptor, cell disruption is provided in continuous mode,
- ÄKTA Purifier chromatography system, low pressure chromatography, protein purification system,
- Nano, Ultra, Micro Filtration Unit, purification and desalination of samples.

CONTACT

Faculty of Chemical and Food Technology STU in Bratislava

Radlinského 9
812 37 Bratislava 1
Slovak Republic

Assoc. Prof. Ing. Martin Rebroš, PhD.
martin.rebros@stuba.sk

