BerriesPro

University of Latvia

Laboratory of Natural Product Research

NATIONAL DEVELOPMENT PLAN 2020

EUROPEAN UNION
European Regional Development Fund

INVESTING IN YOUR FUTURE

UNIVERSITY OF LATVIA
ANNO 1919

LABORATORY OF NATURAL PRODUCT RESEARCH

The aim of the Laboratory of Natural Product Research is to investigate natural product composition and potential to be used as valuable source of bioactive substances as well as in other economically beneficial fields. Our team consists of scientists (chemists, biologists etc.) who have proven themselfs in the field. Each year many students protect their bachelor and master thesis that have been developed in our laboratory, as well as several PhD thesis are in progress.

In laboratory we not only concentrate on research but also on cooperation with industry and development of technologies.

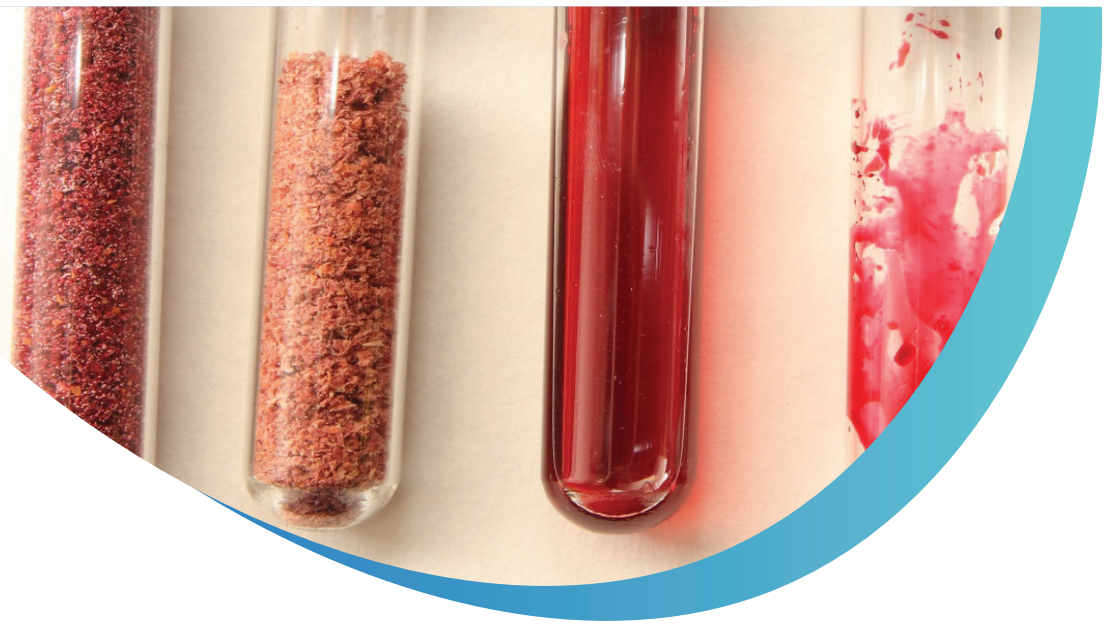
OUR APPROACH

We are working with samples from micro-amounts to lab and preperative scale as well as can consult development of production technology.

"Green" extraction and technologies

Scientific approach for technological development

Analytical charecterization



We have worked on many projects that concentrate on extraction optimization of different products, such as forest berries, Himalayan plants, medical plants etc. In our facilities we can provide all stages for research of natural product composition analysis, both of their organic and inorganic compostion.

SOME OF THE **PROJECTS** WE HAVE WORKED ON INCLUDE:

- Genus Vaccinium berry processing using "green" technologies and innovative, pharmacologically characterized biopharmaceutical products
- Analysis and extraction optimisation of selected Himalayan plants
- Sea buckthorn berry extraction optimisation and composition analysis
- Algae extraction optimisation and composition analysis
- Moss extraction optimisation and chemical composition analysis

Our laboratory is located in University of Latvia, this has given us unique oppurtunity to work with many laboratories in order to explore the benefits of our prepared products.

Therefore we can provides not only analysis of plant extract chemical composition, but also to evaluate biological activity using chemical methods and test organisms.

In cooperation with Faculty of Medicine, Faculty of Biology and Faculty of Chemistry we can test biological activity on different cell cultures as well as on higher organisms.

Lab scale
Preparative
scale

Lab scale
Preparative
scale

Plant
material

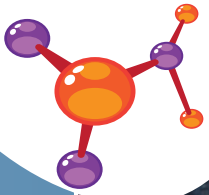
Extraction

Extracts

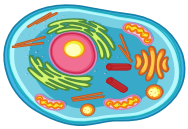
Sample characterisation

Extraction optimisation

Analytical characterisation

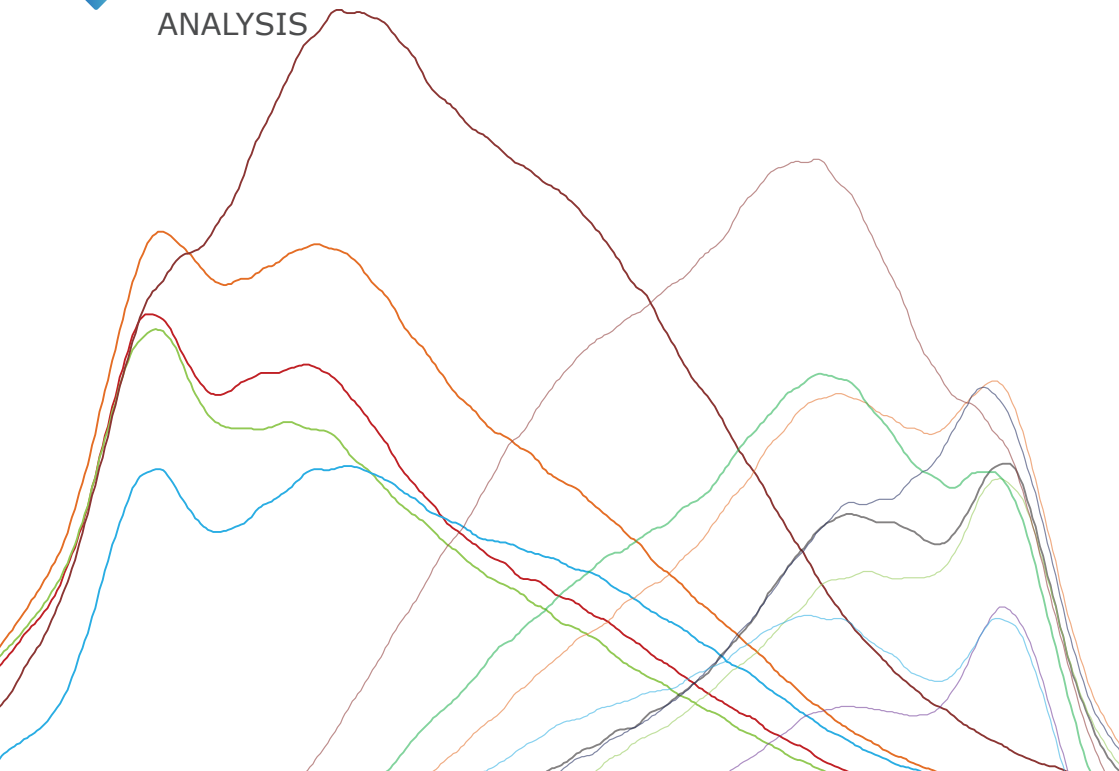


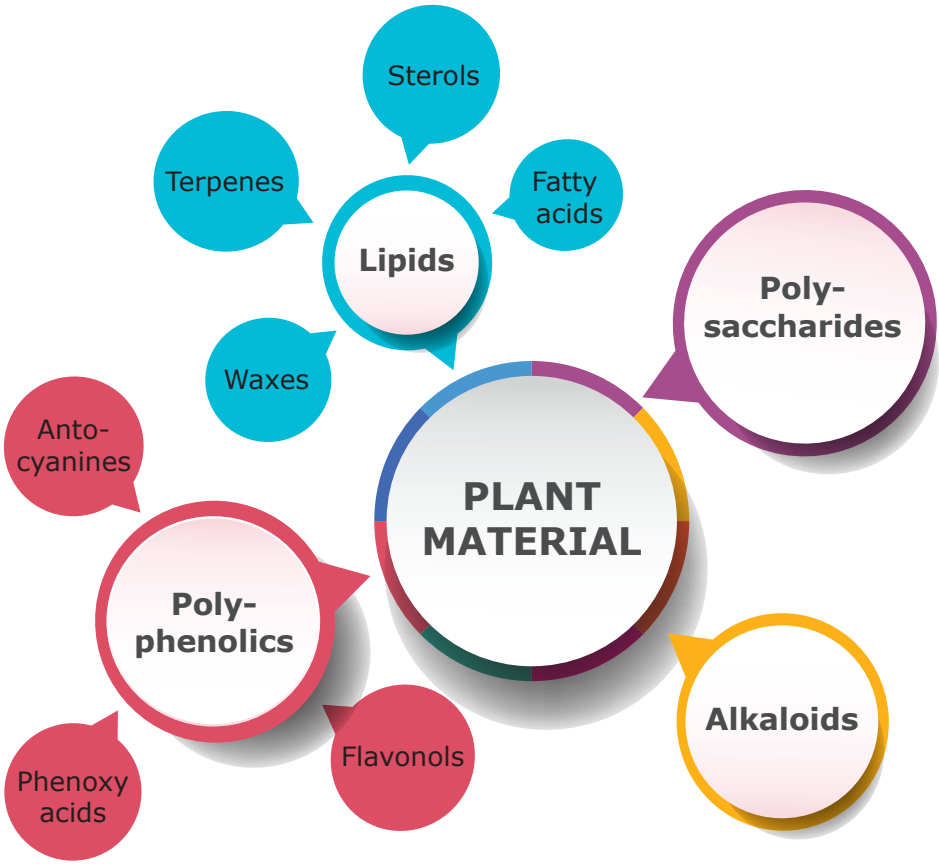
Biological activity



METHODS OF ANALYSIS
WE CAN PERFORM:

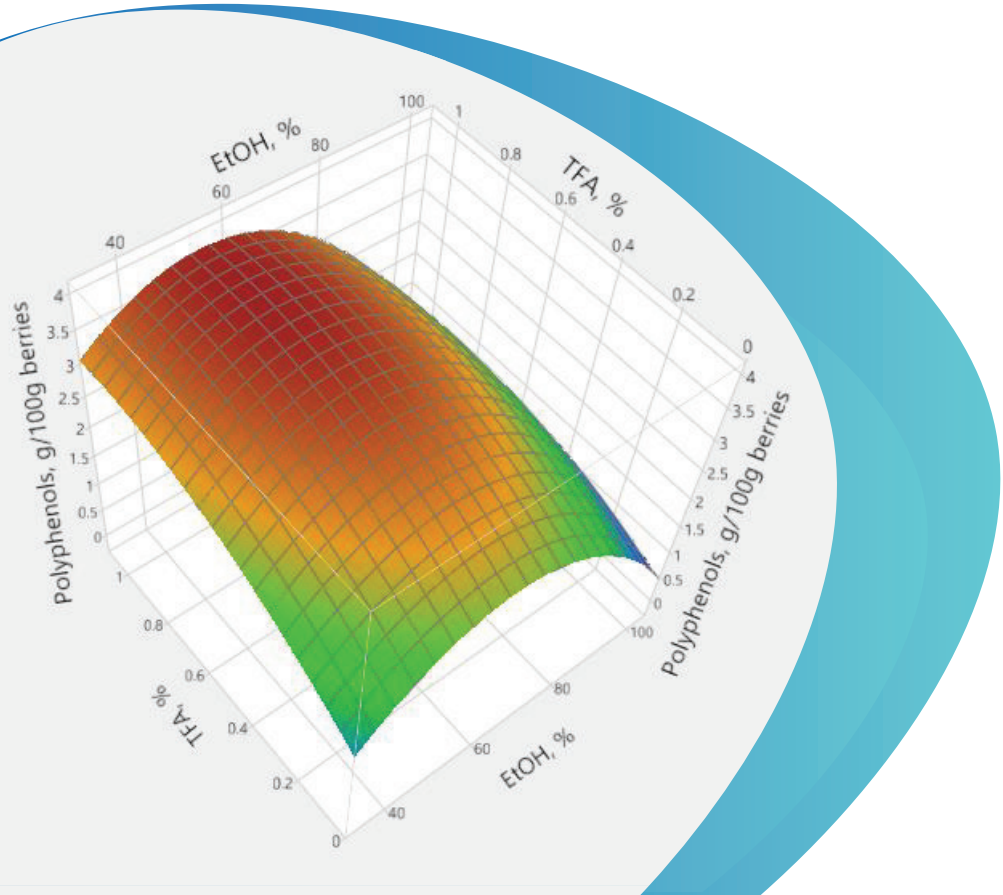
- GAS CHROMATOGRAPHY
  - Mass Spectrometry
  - Mass Spectrometry-Mass Spectrometry
- FOURIER INFRARED SPECTRONOMY
- STABLE ISOTOPE RATIO ANALYSIS
- TOTAL POLYPHENOLICS ANALYSIS
- TOTAL CARBOHYDRATE ANALYSIS
- ULTRA PERFORMANCE LIQUID CHROMATOGRAPHY
  - Mass Spectrometry
  - Ultraviolet Detection
- ELEMENTAL ANALYSIS
- RADICAL SCAVENGING ACTIVITY
- BIOLOGICAL ACTIVITY ANALYSIS
- 3-D FLUORESCENTS SPECTROMETRY




Sterols
Terpenes
Fatty acids
Lipids
Waxes
Poly-saccharides
Anto-cyanines
PLANT MATERIAL
Poly-phenolics
Alkaloids
Flavonols
Phenoxy acids

RESEARCH

The aim of the activities of Laboratory of Natural Product research is to study composition of plants, berries, medical plants, extraction possibilities of biologically active substances as well as characterisation of original materials and obtained extracts. The used approaches concentrates on application of "green chemistry" concepts, wasteless technologies and optimisation of all processes. The ultimate aim – support development of new products and demonstration of their application potential – bioeconomy.



Berries and fruits

Properties, composition of berries and fruits, possibilities to obtain extracts

Plant materials

Composition of medical plants; their extraction possibilities, isolation of individual, biologically active substances

Peat and humic substances

Properties and application possibilities of peat, extraction of peat humic substances and their properties

Development and technologies

Development of technologies for production of plant extracts, active substances

Education

Training and life-long-learning

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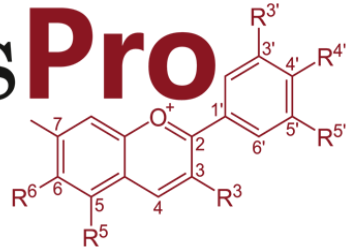

Contact us:

www.lu.lv/berriespro/

Contact Project Leader:

Project leader: maris.klavins@lu.lv

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