

SERVICES OFFERED BY RESEARCH & DEVELOPMENT LABORATORY OF IFB UG & MUG

The activity of the Research & Development Laboratory of IFB UG & MUG focuses on the development of phytopathology, plant protection, population microbiology, environmental microbiology, industrial microbiology, bacterial genetics and genomics fields.

Services offered by the laboratory are mainly directed to producers of plants of economic importance (e.g. arable crops, vegetables, decorative plants), as well as to units that need specialized laboratory facilities, knowledge and experience of trained scientific staff and to entities that need development, verification or validation of methods.

All services are performed in accordance with the quality management system acc. to ISO 17025 standards.

ANALYTIC SERVICES

- Analyses of the effectiveness of sterilization methods
- Drug resistance analyses
- Qualitative-quantitative analyses based on gas chromatography and mass spectrometry
- Validation of research methods
- Isolation of nucleic acids from bacteria
- Isolation and identification of bacterial plant pathogens with use of the molecular methods (including quarantine microorganisms)
- Qualitative analyses of purified DNA and diagnostics of this material

DIAGNOSTIC SERVICES

- Detection and identification to species / type of bacteria using molecular, immunological and biochemical methods
- Detection and identification of microorganisms present in plant material, in soil or propagated on culture media
- Analysis of genetic diversity of bacteria belonging to the same species (e.g. by using PCR-RFLP, rep-PCR, sequencing, NGS methods)
- Sequence analyses of basic metabolism genes (*recA*, *gyrA*, *rpoS*, *dnaX* etc.)
- Diagnostic tests tailored to the customer's needs
- Specific tests according to customer requirements

The Laboratory also provides a wide range of didactic services such as: courses on the use of molecular techniques for identification and differentiation of bacteria, training in good laboratory practices in accordance with ISO 17025 standards, theoretical training in biotechnology, microbiology, phytopathology, molecular diagnostics, as well as popular science or thematically profiled classes for students.

Identification and detection to species bacteria *Pectobacterium and Dickeya*

One of the services offered by the Laboratory is the detection and identification of phytopathogenic bacteria *Pectobacterium* and *Dickeya* causing potato diseases called "black leg" and "wet rot". The solution is based on the PCR multiplex reaction using primers specific for these bacterial groups. Subsequent identification of PCR reaction products is obtained through their electrophoretic separation in an agarose gel. The method is distinguished by high sensitivity and specificity and allows, in combination with species-specific PCR tests, to detect and identify bacteria from the species *Dickeya solani*, *Pectobacterium atrosepticum*, *Pectobacterium carotovorum* and *Pectobacterium parmentieri* in infected plant tissue showing no disease symptoms. The offered method is an innovative solution that allows for the detection of the above mentioned pathogens. Early detection of bacteria causing "black leg" and "wet rot" allows domestic producers and exporters of seed potatoes to provide the highest quality plant material with a health certificate. Application of the proposed method allow for obtaining of quick diagnosis what has a direct influence for the decrease of the risk of potato crop loss.

Research Team

The laboratory research team consists of experts and specialists from: biotechnology, microbiology, genetics and phytopathology:

Prof. Ewa Łojkowska
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Services

Analytic
Diagnostic
Didactic




Full scope of services available on
<https://rd-lab.ug.edu.pl/en/main-page/>

IP Status



Patent protection
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