Laboratorium Usług Badawczych

RESEARCH SERVICES LABORATORY

PLANT BREEDING AND ACCLIMATIZATION INSTITUTE
NATIONAL RESEARCH INSTITUTE

Plant Breeding and Acclimatization Institute – National Research Institute offer research and diagnostic ser-vices in the field of:

I. resistance assessment, detection and identification of pathogens,

II. biochemical analysis and evaluation of the quality of plant products,

III. production of prebreeding material by recombination and biotechnological methods,

IV. genetic identification and research on the expression and presence of genes (fingerprinting),

V. agrotechnical and useful value assessment of potato varieties

VI. bioinformatics and statistical analyses,

VII. other services.

The offer of services is addressed to breeding companies, industry enterprises and scientific institutions.

We provide professionalism, customer orientation, reliable and fast service and professional advice.

High scientific qualifications and experience of IHAR-PIB personnel, as well as modern equipment of research laboratories guarantee the services in accordance with your expectations.

We guarantee the security of entrusted materials and confidentiality of the results obtained.

If you are interested, please contact individual institutions specializing in selected areas of research.

WE INVITE YOU TO COOPERATE AND USE OUR SERVICES

OFFER

I. RESISTANCE ASSESSMENT, DETECTION AND IDENTIFICATION OF PATHOGENS

No	Service	Contact
1.	Laboratory assessment of potato resistance to wart disease and pathotype identification of *Synchytrium endobioticum* (Schilb.) Perc..	IHAR – PIB, in Radzików Department of Applied Biology Jarosław Przetakiewicz DSc, assistant professor email: j.przetakiewicz@ihar.edu.pl
2.	Evaluation of potato resistance *to Globodera rostochiensis* and *G. pallida*.	IHAR – PIB, in Radzików Department of Applied Biology Anna Podlewska-Przetakiewicz, PhD, assistant professor email: a.przetakiewicz@ihar.edu.pl
3.	Attestation of resistance of wheat and triticale to Septoria tritici blotch.	IHAR – PIB, in Radzików Department of Applied Biology Paweł Czembor DSc, associate professor email: p.czembor@ihar.edu.pl
4.	Barley testing for resistance at seedling stage to leaf rust and powdery mildew.	
5.	Wheat and triticale testing for resistance at seedling stage to brown (leaf) rust, yellow (stripe) rust and stem rust.	
6.	Attestation of resistance of wheat and triticale to Septoria nodorum blotch and Fusarium head blight.	IHAR – PIB, in Radzików Department of Applied Biology Tomasz Góral, DSc, assistant professor email: t.goral@ihar.edu.pl
7.	Testing of potato plants or tubers for viruses (PVY, PLRV, PVM, PVS, PVA, PVX, TRV) and viroid PSTVd by real-time PCR.	IHAR – PIB, Bonin Research Center Krzysztof Treder DSc, assistant professor email: k.treder@ihar.edu.pl

8.	Detection and identification of plants and tubers potato pathogens.	IHAR – PIB, Bonin Research Center dr inż. Jerzy Osowski email: j.osowski@ihar.edu.pl inż. Hanna Gawińska-Urbanowicz email: h.gawinska-urbanowicz@ihar.edu.pl
9.	Analysis of potato tubers for the presence of viruses: PVY, PVX, PVA, PVM, PVS, PRLV (DAS-ELISA method).	IHAR – PIB, Bonin Research Center MSc. Eng. Kamilla Sadowska email: k.sadowska@ihar.edu.pl
10.	Analysis of potato tubers for the presence of *Clavibacter sepedonicus* and *Ralstonia solanacearum*	IHAR – PIB, Bonin Research Center Department of Potato Protection and Seed Science Włodzimierz Przewodowski, PhD eng. assistant professor email: w.przewodowski@ihar.edu.pl
11.	Detection of *Clavibacter sepedonicus* and *Ralstonia solanacearum* in plants and tubers of potato (IFAS/biological test/ growth on semiselective media.	IHAR – PIB, Bydgoszcz Research Center Department of Integrated Root Crop Cultivation Grzegorz Gryń, PhD eng. email: g.gryn@ihar.edu.pl, phone: (+48) 52 581 69 32
12.	Examination of soil samples for the presence of *Globodera rostochiensis* cysts - potato cyst nematode and *Heterodera schachtii*- beet cyst nematode.	IHAR – PIB, Bydgoszcz Research Center Department of Integrated Root Crop Cultivation Grzegorz Gryń, PhD eng. email: g.gryn@ihar.edu.pl, phone: (+48) 52 581 69 32

13.	Evaluation of resistance breeding materials of oilseed rape (*B. napus*) on the most dangerous pathogens *in vitro* and *in vivo*.	HAR – PIB, Poznań Research Center Department of Oilseed Plants Elżbieta Starzycka-Korbas, PhD eng. e-mail: e.starzycka-korbas@ihar.edu.pl phone: (+48) 61 846 42 03
14.	Expertise and training in the occurrence and assessment ofoilseed rape diseases.	

II. BIOCHEMICAL ANALYSIS AND EVALUATION OF THE QUALITY OF PLANT PRODUCTS

No	Service	Contact
1.	Antioxidant activity.	IHAR – PIB, in Radzików Department of Bioenergetics, Quality Analysis and Seed Science Anna Fraś, , PhD eng. email: a.fras@ihar.edu.pl Magdalena Wiśniewska, PhD eng. email: m.wisniewska@ihar.edu.pl
2.	Xylanase and β -glucanase activity.	
3.	Alkylresorcinols.	
4.	Amino acids - full composition without tryptophan.	
5.	Amylose.	
6.	NIRS analysis – moisture, protein, starch.	
7.	β-glucan.	
8.	Protein analysis by Kjeldahl method.	
9.	Total dietary fibre by enzymatic-chemical method (Uppsala method).	

10.	Cellulose.
11.	Free sugars by chromatographic method.
12.	*In vivo* balance experiment on laboratory rats.
13.	Phytates.
14.	The amount of wet gluten.
15.	Tripsin inhibitor.
16.	Phenolic acids by chromatographic method.
17.	Uronic acids.
18.	Water and acid grain extracts viscosity.
19.	Falling numer.
20.	Lignin.
21.	Total lipids.
22.	Thousand kernel weight.
23.	Hectolitre weight.
24.	Non-cellulosic polysaccharides by chromatographic method.
25.	Non-starch polysaccharides by chromatographic method – total and divided into insoluble and soluble fractions.
26.	Determination of brewing value of barley.
27.	Degreasing the material by the Soxhlet method.
28.	Oligosaccharides by chromatographic method.

29.	Ash.	
30.	Resistant starch.	
31.	Avaliable starch.	
32.	Dry matter.	
33.	Tannins.	
34.	Dietary fibre by gravimetric method.	
35.	Zeleny sedimentation index.	
36.	Total phenolic content.	
37.	Analysis of plant and fungal metabolites (mycotoxins and others) in cereal and maize grain by ELISA, GC, HPLC and LC/MS methods.	IHAR – PIB, in Radzików Department of Applied Biology Piotr Ochodzki, PhD, assistant professor email: p.ochodzki@ihar.edu.pl
38.	Evaluation of bactericidal activity of disinfectants (chemical and plant extracts) and physical methods in eradication of *Clavibacter sepedonicus* and *Ralstonia solanacearum*.	IHAR – PIB, Bydgoszcz Research Center Department of Integrated Root Crop Cultivation Grzegorz Gryń, PhD eng. email: g.gryn@ihar.edu.pl, phone: (+48) 52 581 69 32
39.	Testing of biomass samples for the content of macronutrients; in the case of sugar beet, the use of the Venema autoanalyzer.	IHAR – PIB, Bydgoszcz Research Center Department of Integrated Root Crop Cultivation Mirosław Nowakowski, PhD email: m.nowakowski@ihar.edu.pl phone: (+48) 52 581 69 59

40.	Quantitative analysis of glucosinolates content by gas chromatography.	HAR – PIB, Poznań Research Center Department of Oilseed Plants Mariola Ebertowska e-mail: m.ebertowska@ihar.edu.pl phone: (+48) 61 846 42 11
41.	Qualitative analysis of fatty acid content by gas chromatography.	
42.	Analysis of fat content in oilseeds by Soxhlet extraction.	
43.	Near Infra-Red Spectroscopy analysis of glucosinolates, protein, fibre, fat, and water.	
44.	Fibre analysis by van Soest method.	
45.	Protein analysis by Kjeldahl method.	
46.	Spectrometric analysis of morphine in poppycapsules.	

III. PRODUCTION OF PREBREEDING MATERIAL BY RECOMBINATION AND BIOTECHNOLOGICAL METHODS

No	Service	Contact
1.	Marker Assisted Selection (MAS) using molecular markers closely linked to selected disease resistance genes in cereals (wheat, triticale and barley).	IHAR – PIB, in Radzików Department of Applied Biology Paweł Czembor DSc, associate professor email: p.czembor@ihar.edu.pl
2.	Induction of maize maternal haploids and production of doubled haploid lines.	IHAR – PIB, in Radzików Department of Applied Biology Roman Warzecha, PhD, assistant professor email: r.warzecha@ihar.edu.pl
3.	Field testing of maize hybrid varieties (F1) for different end-use.	
4.	Field testing of breeding materials and varieties of wheat and triticale for yield and other agronomic traitc	

	under conventional and ecological conditions.	
5.	Micropropagation of various potato species in the form of *in vitro* plants.	IHAR – PIB, Bonin Research Center Department of Potato Protection and Seed Science/Potato Gene Bank at Bonin Dorota Michałowska, MSc eng. email: d.michalowska@ihar.edu.pl
6.	Production of potato minitubers from *in vitro* plants.	
7.	Development of DH lines from winter oilseed rape (*Brassica napus* L.) genotypes delivered at place.	HAR – PIB, Poznań Research Center Department of Oilseed Plants Laurencja Szała, PhD e-mail: l.szala@ihar.edu.pl phone: (+48) 61 846 42 37

IV. GENETIC IDENTIFICATION AND RESEARCH ON THE EXPRESSION AND PRESENCE OF GENES (FINGERPRINTING)

No	Service	Contact
1.	*Potato cultivar identification service based on known referenced cultivars using molecular markers (ISSR, ISAP).*	IHAR – PIB, Bonin Research Center Krzysztof Treder DSc, assistant professor email: k.treder@ihar.edu.pl
2.	*Differentiation of potato virus Y strains by multiplex RT-PCR*	
4.	Genetic identification (fingerprinting) of varieties and species of root crops, perennial energy grasses or others using molecular markers (RAPD, ISSR, SSR)	IHAR – PIB, Bydgoszcz Research Center Department of Root Crop Breeding Fundamentals Sandra Cichorz, PhD email: s.cichorz@ihar.edu.pl phone: (+48) 52 581 69 37

5.	Screening for the presence of the *Rfo* restorer gene and the *ogura* male-sterile cytoplasm among the F1 hybrids, the *Rfo* restorer lines, and the *ogura* CMS oilseed rape lines using the 'Multiplex PCR' assay for the *ogura*-INRA CMS.	HAR – PIB, Poznań Research Center Department of Oilseed Plants Katarzyna Mikołajczyk, PhD e-mail: k.mikolajczyk@ihar.edu.pl phone: (+48) 61 846 42 21
6.	Monitoring the presence of the homo- and heterozygous genotypes of oilseed rape with the *Rfo* restorer gene using the 'qPCR_Rfo' assay.	
7.	Detection of the mutated alleles of the oilseed rape *BnaA.FAD3* and *BnaC.FAD3* genes resulting in the low linolenic acid content in seed oil by using the SNaPshot assay.	
8.	Determining the genetic diversity among oilseed rape breeding lines with the use of microsatellite markers, SSR.	
9.	Detection of the mutated alleles of the rapeseed *BnaA.FAD2* gene (HOR3 and HOR4 type), resulting in the high oleic acid content in seeds – using the CAPS marker	HAR – PIB, Poznań Research Center Department of Oilseed Plants Marcin Matuszczak, PhD e-mail: m.matuszczak@ihar.edu.pl phone: (+48) 61 846 42 22

V. AGROTECHNICAL AND USEFUL VALUE ASSESSMENT OF POTATO VARIETIES

No	Service	Contact
1.	Usefulness of the potato variety for the farming system used in agriculture (ecological, IP, specialist).	IHAR – PIB, Jadwisin Research Center Department of Potato Agronomy Cezary Trawczyński, PhD email: c.trawczynski@ihar.edu.pl
2.	Determining the fertilization requirements of the varieties and evaluation of the effectiveness of new fertilizers in potato cultivation.	
3.	Evaluation of the chemical composition of tubers of potato varieties (dry matter content, starch, vitamin C, nitrates).	
4.	Assessment of storage stability of potato varieties (natural losses, storage period diseases, germination).	

5.	Evaluation of the effectiveness of herbicides, fungicides, insecticides and growth regulators in potato cultivation.	IHAR – PIB, Jadwisin Research Center Department of Potato Agronomy Piotr Barbaś, PhD email: p.barbas@ihar.edu.pl
6.	Sensitivity of potato varieties to metribuzin.	
7.	Evaluation of the effectiveness of microbiological preparations in ecological potato production.	IHAR – PIB, Jadwisin Research Center Department of Potato Agronomy Beata Wasilewska-Nascimento, PhD email: b.nascimento@ihar.edu.pl
8.	Assessment of morphological and physiological features of plants (e.g. LAI, SPAD index) and the yielding potential of potato cultivars.	IHAR – PIB, Jadwisin Research Center Department of Potato Agronomy Milena Pietraszko, MSc e-mail: m.pietraszko@ihar.edu.pl
9.	Out-of-season assessment of the sensitivity of tubers of potato varieties to the occurrence of skin diseases (common scab, rizoctonia, silver scab).	
10.	Post-harvest assessment of the occurrence of physiological defects in potato tuber cultures (tuber deformation, rust spots, hollow heart).	
11.	Assessment of potato cultivar tolerance to drought and high temperature stress in greenhouse and field tests - assessment of yield and plant productivity indices (LAI, SPAD index, RWC, chlorophyll fluorescence parameters).	IHAR – PIB, Jadwisin Research Center Department of Potato Agronomy Dominika Boguszewska-Mańkowska, PhD e-mail: d.boguszewska-mankowska@ihar.edu.pl
12.	Determining the water requirements of the potato.	
13.	Assessment of the size and effectiveness of the root system of potato plants.	

VI. BIOINFORMATICS AND STATISTICAL ANALYSES

No	Service	Contact
1.	Identification of molecular marker linked to agronomic traits of crops in hybrid populations by using genetic linkage analysis or panels of varieties by using association mapping methods.	IHAR – PIB, in Radzików Department of Applied Biology Paweł Czembor DSc, associate professor e-mail: p.czembor@ihar.edu.pl

VII. OTHER SERVICES

No	Service	Contact
1.	Testing the effectiveness of plant protection products for the purposes of the registration procedure.	IHAR – PIB, Bonin Research Center dr inż. Jerzy Osowski email: j.osowski@ihar.edu.pl dr inż. Janusz Urbanowicz email: j.urbanowicz@ihar.edu.pl
2.	Preparation of virus-infected plant material and pure potato virus preparations for research purposes.	IHAR – PIB, Bonin Research Center Krzysztof Treder DSc, assistant professor email: k.treder@ihar.edu.pl
3.	Investigation of the impact of catch crops on sanitary (antinematode effect) and physicochemical properties of soils.	IHAR – PIB, Bydgoszcz Research Center Department of Integrated Root Crop Cultivation Mirosław Nowakowski, PhD e-mail: m.nowakowski@ihar.edu.pl phone: (+48) 52 581 69 59