

General overview

The National Research&Development Institute for Food Bioresources, IBA Bucharest has been established in 2010 with the reorganisation of the Institute of Food Bioresources, as laid down by the Government Decision No 546/9.06.2010. The Institute of Food Bioresources was established in 2000, in administrative coordination of the Ministry of Agriculture and Rural Development. IBA Bucharest is a non-academic public-owned self-financing research organisation conducting food and nutritional research, product and technology development but also food S&T services including small-scale production of special foods. It also operates under scientific coordination of the Academy of Agricultural and Forestry Sciences.



Fig. 1 IBA Bucharest headquarter

Mission

- to meet the societal challenges by elaboration, implementation and dissemination of knowledge through research, education and services in the agrifood field;
- to increase the quality of life and wellbeing of people through offering healthy food and number of employees increasing within Romanian agrifood industry;
- to have strong connexion with industry and society and the support for national policy in the field development;
- to have a continue professional training for increasing of IBA researcher's skills.

Vision

- to increase its visibility at national, European and international level;

- to be part of the international research community;
- to understand the determinants of the diet for ensuring the healthy choice is the easy choice for consumers;
- to develop high-quality, healthy, safe and sustainable food products.

IBA holds ISO17025 accreditation for assessing quality and safety of foodstuffs, functions as a national reference laboratory on several food safety and quality issues (e.g. GMOs, annual wheat crop rating, cereals quality so on) and as a notification body on others (e.g. food supplements), is one of the most prominent RTD entities within the country and plays an important role in developing national food policies, as it provides the Ministry of Agriculture and the food safety authority (ANSVSA) with expert advice. Moreover, IBA Bucharest had been active as a National Contact Point having the ability to reach every important player in the field of food research, and as expert member in the Committee Programmes for FP6 and the KBBE FP7.

Being 100% self-financed, IBA Bucharest had to develop into an industry-oriented research organisation, accessing both public funding, *via* grant competitions, and private funding, through industry-funded product/technology development projects.

Therefore, IBA Bucharest has gained a solid experience in knowledge and technology transfer. Moreover, IBA Bucharest develops and produces foods for people with special nutritional needs (coeliac and phenylketonuria diseases) in its micro-production plant. In 2008 IBA Bucharest was awarded a prize by the National Authority for Scientific Research for its formulae for diabetics.

IBA Bucharest provides also laboratory accredited tests for industry and authorities, consultancy and technical assistance, professional trainings and competence

evaluation for industry, proficiency tests, pilot scale tests and assure according the Ministry of Agriculture and Rural Development policies the surveying and certifying food supplements for trading.

IBA Bucharest is the sole non-academic public owned food research organisation in Romania, one of the most prominent RTD entities within the country, and a recognized centre of scientific excellence. IBA Bucharest is very active in approaching and putting together food sector stakeholders for various projects and events, as it coordinates the National Technological Platform *Food for Life*, has successfully implemented and took part in several networking european FP6 and FP7 projects and is a member of several professional associations (e.g. **Foodforce** group, www.foodforce.org, **SafeConsortium** European Association, www.safeconsortium.org, **Iseki Food Ass.**, www.iseki-food.net, **International Association for Cereal Science and Technology**, www.icc.or.at, ROMPAN, Romanian Milling and Baking Industry Association, ASIAR, Association of Romanian Food Industry Specialists, ASMP, Association of Romanian Milling and Baking Industry Specialists, ROMALIMENTA, Romanian Food Industry Association).

IBA Bucharest is member of EUROAGRI Food Chain Umbrella within Eureka Programme and was chairing for 2 years (2007-2009) EUROAGRI+ Umbrella and more, IBA Bucharest is involved in COST Action "Food and Agriculture".

Researchers from IBA Bucharest, most of them being trained in prestigious European research organizations, are representing as experts Ministry of National Education in different European structures as: Mirror Groups of European Technology Platform Food For Life and 2 JPIs: Agriculture, Food Security and Climate Change (FACCE) and Healthy Diet for a Healthy Life (HDHL)

In 2013, IBA Bucharest has coordinated the teams for elaboration the food research strategy for Ministry of Agriculture and Rural

Development and agrifood research strategy for Ministry of National Education.

Research & Development activity

IBA Bucharest has invested massively in research infrastructure during the last five years, accessing nearly 10 million EUR in European funds, *via* the SAPARD programme and the Structural and Cohesion Fund. The existing laboratories, i.e. Microbiology-ELISA, Molecular Biology Analyses, Food Packaging, Food chemistry, NMR, Sensorial and pilot plants (for cereal, meat and fruits and vegetables processing), etc., have suitable infrastructures and appropriate conditions for conducting research.



Fig. 2 Cereal extrusion equipment

IBA Bucharest has had 4 main research fields with the following topics:

- Food safety: food preservation, food contaminants, food packaging**
 - Detecting and reducing the level of food contaminants (chemical and microbiological);



Fig 3. ICP-MS

- Food microecology;
- Innovative preservation methods.

- Food authenticity (quality and origin);



Fig. 4 Nuclear Magnetic Resonance

2. Food nutrition: influence of diet on health, food intolerance (coeliac disease and phenylketonuria), functional food.

- New food matrixes improved in bioactive compounds for different consumers categories and improved sensorial attributes;
- Functional food;
- Understanding the role of whole meal in health and well-being.

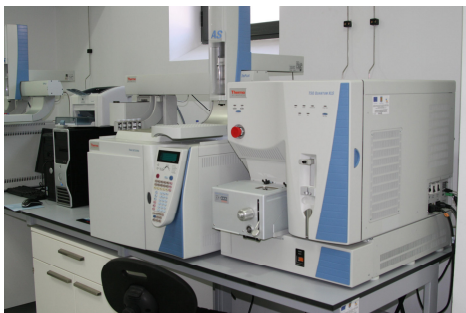


Fig. 5 GC-MS-MS

3. Food (bio)technologies.

- The influence of technology and food matrix in nutrients bioavailability;



Fig. 6 Bioreactor

- Ecological food technologies;

- Decreasing the level of additives in food;

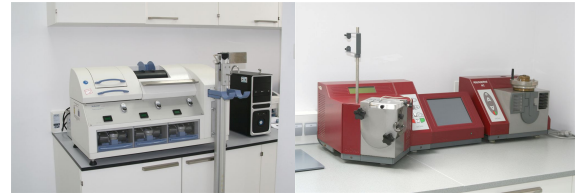


Fig. 7 Dough rheology equipments

- Mild food technologies keeping the initial level of nutrients in raw materials;
- Clean technologies;
- Technologies with low energy consumption;
- Increase the diversity of vegetal raw materials in food.

4. Consumer sciences

- Understanding the attitude of consumers related to food choices;



Fig. 8 Instron equipment - sensorial Analysis Laboratory

- Understanding the Romanian consumer behaviour;
- Identify the determinants of food to be chosen as part of diet;

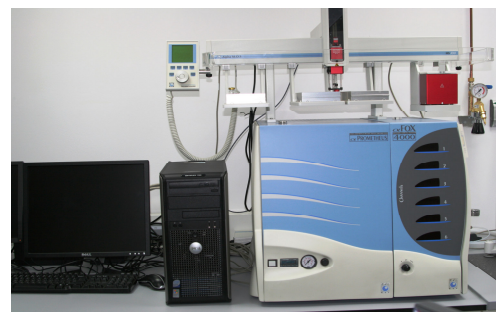


Fig 9. E-nose

- Relation between consumer and food market availability;
- Relation about labelling and health and nutrition claims.

The ongoing research topics are covering the 3 main food research fields - cereals, fruits and vegetables and meat:

- Structure of food (ex. using lactic bacteria, yeast extracts, enzymes..);
- Nutritional improvements in food (fermentation, mycoproteins, others);
- Sensorial properties;
- Organic food;
- (Bio) disponibility of nutrients through fermentation (Ca, Fe);
- Increasing food self life (bioactive package, lactic bacteria, enzymes, etc.);
- Bioactive compounds in food;
- Traditional food;
- Prevention by healthy food.

The over written topics projects were adressed to different consumer categories taking into account the following hot issues: ageing, obesity, diabetes, celiac disease, phenylketonuria, cardiovascular diseases and osteoporosis. The projects were developed in very specialized consortia having, every time industry as partner, but also, academia or health organizations.

The project results are scientific articles, brochures, books, patents, so on, but, what is the most important as outputs are many of new food and related technologies developed that are available on Romanian market.



Fig. 10 Fruits and vegetables processing equipment

Another important outcome from the research projects but also from services that IBA Bucharest provides to food chain stakeholders is a good partnership buit together with Romanian food industry.

Since year 2000 IBA Bucharest was involved in over 100 national projects and 30 European projects.

European cooperation and research projects

The cooperation at European level is consisting in the following:

FP5

Flair Flow 4 Europe: Disseminating the results of EU food research projects to small and medium sized food industries, health professionals and consumer groups through a 24-country dynamic system, Contract QLK1-CT-2000-00040 (2001-2005);

EU ICC Cereals research in ERA, 2002.

FP6

Food Link: Linking Associated Candidate Countries and EU Member States food sectors with a view to higher level of participation in the FP6 projects, 003321/2004;

TrainNet Future: Training network for National Contact Points and support organisation with a focus on Candidate Countries in areas of food quality and safety, 506518/2004; **CEC Animal Science:** Support to Animal Science Organisation from Central Europe Candidate Countries, 506087/2003;

EU AGRIMAPPING: "Mapping and foresight of the EU agricultural research policy", 022801/2006;

HENVINET: "Health and Environment Network", 037019/2006;

MEDA GO TO EUROPE: „Enhancing the participation of Mediterranean countries in the area of Food, Agriculture and Biotechnology in Framework Programme 7", 031713/2006;

FunctionalFoodNet: Exploitation of functional food science by creating a European network of food industries, 2006.

FP7

BIO Network NCP: A Network of National Contact Points providing cutting-edge NCP

services to the Knowledge Based Bio-Economy research community, 2113637/2008

AgriFoodResults: European initiative for a better use of the results of agri-food research

FACCE CSA: Agriculture, Food Security, and Climate Change Coordination and Support Action, 2008.

EUREKA

EUREKA, E!3038-EUROAGRI+ Umbrella:

Innovative and Advanced Technologies For Agriculture, Food And Feed Industries, 2003-2009

E! 4914-EUROAGRI FOODCHAIN Umbrella, 2009-2013

E! 4944 - Baking products with functional ingredients for the market niche of the Healthy Food

Bilateral projects

Introduction of advanced technology for continuous production of multi grain products for nutrition of children, PSOO/RM/1/27

BFN: Creation of a network for application of a multidisciplinary approach to sustainable development and management of organic farming in Romania and Bulgaria

Breadmaking of gluten-free rice bread using hydrophobically substituted cellulose derivatives and barley b-glucan, C18313/10.12.2002

BIOEXTRACT: Development of CO2 extraction procedures for biologically active compounds from wheat germs, C417 / 02.06.2010

BOLETUS: Using of *Boletus edulis* for production of conventional and organic functional foods enriched with selenium, 450 CB/11.10.2010

BEYOUNG: Bread enriched in bioactive compounds (minerals, fiber, antioxidants, vitamins) for elderly, 456 CB/20.10.2010

Leonardo da Vinci

Sensorial: Eurocompetences transfer in vocational guidance for specialists in food sensorial analysis field, RO/2004/93046/EX

FoodSafe: Food Safety for teachers: training package, PT/04/B/F/PP-159055/2004

Tol4Food: Transfer of knowledge and training for European traditional food producers related to innovative quality control methodologies

Qbake Qualifications for the European Bakery Industry

Socrates (ERASMUS 3) Thematic Network

ISEKI_Food 2: Integrating Safety and Environment Knowledge In Food towards European Sustainable Development, 226032-CP-1-2005-1-PT-TN

ISEKI_Food 3: Innovative Developments and Sustainability of ISEKI_Food, 142822-LLP-1-2008-PT-ERASMUS-ENW

ISEKI_Food 4: Development of a framework of stake holders to lead innovation in Food studies education and training fitting enterprises'needs, promoting innovation in the FS&T academic sector, and supporting the EU Food studies internalization

South East Europe Transnational Cooperation Programme

CAPINFOOD: Improving the enabling environment and public awareness for innovation in the South-East-European food sector through transnational collaboration

Inno-Food SEE: Setting up the innovation support mechanisms and increasing awareness on the potential of Food Innovation and RTD in the South-East Europe area

NO-BLE Ideas: Young Innovators Network for Sustainable Ideas in the Agro-Food Sector

GuardEn: Guardians of Environment Framework:an integrated approach of strategies for prevention of soil pollution and rehabilitation of harmed territories

EAHC – Health Programme

Salux: A European network to follow-up the reformulation of food. Identification and exchange of good practices for SMEs and consumers

COST Action FA 1001:

The application of innovative fundamental food-structure property relationships to the design of foods for health, wellness and pleasure.

