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Although Bulgaria is small in area it is one of the richest countries of living biodiversity consisting of more than: 94 species of mammals, 383 birds, 36 reptiles, 16 amphibians, 207 Black Sea and freshwater fish, around 27 000 insects and other invertebrates, between 3500 and 3750 higher plant species and more than 6500 lower plants and fungi. Thus, Bulgaria is among the countries having the greatest biological diversity in Europe with a high potential to develop competitive bio-economy. However, the rich natural resources are in contrast with the current poor situation of the Bulgarian agriculture and bio-economy as a whole and the lack of effective technology transfer and generation of intellectual property necessary for the production of high quality and high added value products.

The Bulgarian foreign trade suffers from the low competitiveness of the created products. The technological product in Bulgaria is some 50% below the level of the EU-10. Bulgaria lags behind the leaders among the new EU Members States (Hungary, the Czech Republic and Estonia) five-fold in terms of the share of high-tech Exports. R&D expenditures in Bulgaria are four times lower than the average EU-15 level. Bulgaria is faced with the serious threat of remaining outside the global technological flows and faces the risk of limiting its long-term innovation capacity.

Responding to the new challenges the National Science Fund (NSF), Ministry of Education and Science of Bulgaria, opened in 2008 calls for infrastructural projects “Development of the Research Infrastructure”. It was well focused and very timely initiative allowing to start-up and to develop specialized research infrastructures in key R&D areas including bio-economics. The project ‘Center for sustainable development of plant and animal genomics.’ /Contract No ДО02-105; period: 2009 – 2012; Project leader: Prof. Atanas Atanassov submitted by the AgroBioInstitute /ABI/ have been funded by the NSF within the above call. The project consists of two modules: Module 1, ‘Sustainable development Joint Genome Centre’, partners: ABI, Faculty of Biology, Sofia University “St. Kl. Ohridski” and Institute of Genetics, Bulgarian Academy of Sciences and Module 2, ‘Centre for sustainable development of plant genomics’, (ABI is a single applicant of this project module). A large part of the project is directed to development of research infrastructure sufficient to carry out modern genomics and metabolomics research. Two lab facilities were established during first stage of the project after purchasing of the following main apparatus: 1/ Genomics facility: automatic capilary DNA sequencer, PCR machines, microarray hybridization oven and manual spotter, system for automatic purification of DNA and RNA, fluorescent microscope with digital camera and advanced image processing software, spectrophotometer for analysis of samples in small volumes, photodocumentation system, ultra low temperature horizontal deep freezer, laboratory centrifuges, system for pure and ultra pure water, dewars; Metabolomics facility: upgrading of the GC/MS system with autosampler and headspace module, laboratory ball mills, laboratory lyophilizer, rotation vacuum concentrator and thermomixer.

Beside the establishment of modern infrastructure the project involve nine research subprojects directed to key areas of the national bio-economy including:

1. Crops with increased drought resistance;
2. *Haberlea rhodopensis* – a model plant to understand water stress deficiency;
3. Pyramiding fungal pathogen resistance genes in elite wheat cultivars;
4. Development of sunflower lines with improved tolerance to fungal diseases. Mapping of QTLs for disease resistance in sunflower lines derived from interspecies hybrids;
5. Towards development of new grapevine lines with improved agronomical characteristics;
6. Development of new oil bearing rose lines with improved agronomic characteristics;
7. Development of legumes genomics in Bulgaria;
8. Metabolomic quantification and biodiversity description of small berries fruits and
9. Metabolomics of Bulgarian grape and wine.

Here we present minireviews on current stage of research related to the above mentioned sub-projects included in the NSF: ДО0-105 project.

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