



Section Nuts and Mediterranean Climate Fruits – Commission Plant Genetic Resources

Second Int'l Symposium on Wild Relatives of Subtropical and Temperate Fruit and Nut Crops

Azerbaijan is situated at the intersection of subtropical and temperate climatic zones and contains nine of the eleven global climate zones. The complex relief-climatic-terrain conditions of this region have resulted in rich plant biodiversity. Azerbaijan is one of the major centers of origin of cultivated as well as wild relatives of fruit and nut crops. The history of agriculture and fruit-growing in Azerbaijan spans millennia. One-hundred and forty-nine fruit and berry crop species belonging to 39 genera and 15 families are spread throughout Azerbaijan. The majority belong to the wild ancestors of fruit and nut crops of subtropical and temperate climatic zones.

Almost every year, international and local expeditions are organized to investigate wild ancestors of fruit and nut crops in different regions of Azerbaijan. Most regions have established gene pool gardens. These facts demonstrate that the organizing of the Second International Symposium on Wild Relatives of Subtropical and Temperate Fruit and Nut Crops on April 7-12, 2014 in the Genetic Resources Institute (AGRI) of Azerbaijan National Academy of Sciences (ANAS), Baku, Azerbaijan, was most appropriate.

This important event was organized by AGRI, ANAS and the International Society for Horticulture Science (ISHS), which combines thousands of well-known scientists, scientific organizations, indexed journals, and great experience in organizing international events. The symposium was held in the assembly hall of the

Genetic Resources Institute of ANAS and participants had the opportunity to communicate directly with the scientific staff of the institute and to access collections and laboratories.

The coordinators of the symposium were Dr. Damiano Avanzato (Italy - dam.avan@libero.it), Chair of the Plant Genetic Resources Commission of ISHS, and Dr. Zeynal Akparov (akparov@yahoo.com), Director of AGRI and Head of Scientific-Technical Council (Steering Committee) of Azerbaijan Republic on plant genetic resources (PGR). The scientific committee consisted of 36 prominent scientists: Acad. Garib Mammadov, Acad. Tariyel Talibov, Dr. Aydin Askerov, Prof. Zaur Hasanov, Dr. Dilshad Bayramova, Dr. Mirza Musayev, Dr. Zakir Ibrahimov, Dr. Danny Hunter - Australia, Prof. Nigel Maxted - UK, Dr. Jozef Turok - CGIAR, Prof. Malli Aradhya - USA, Dr. Lamis Chalak - Lebanon, Dr. David Magradze - Georgia, Dr. Stefan Gandev - Bulgaria, Dr. Véronique Decroocq - France, Prof. Bekir Erol Ak - Turkey, Prof. S.N. Gosh - India, and others. In attendance were about 100 scientists representing 18 foreign countries (Italy, Iran, Turkey, USA, Spain, France, Lebanon, Georgia, India, Bulgaria, Uzbekistan, etc.) and several international organizations.

The symposium was dedicated to a globally important topic: the growing needs of the world's population for healthy food and farm products require efficient use of the genetic resources of fruit crops to provide food security in the period of intensification of global climate

changes and degradation of agro ecosystems. Eighty-four abstracts were published in book form before the start of the symposium and reports presented during the symposium covered recent scientific research on preservation, collection, evaluation, breeding and crop improvement programs involving efficient use of plant genetic diversity, especially wild ancestors.

PLENARY SESSION

The head Academic Secretary of the Department of Agrarian Sciences of ANAS, Garib Mammadov, opened the symposium with an introductory speech. He talked about the importance of the event, of science and education, particularly agricultural science, and of the reports that would be heard. He added that the government cares about the progress of science in Azerbaijan, noting that the President of Azerbaijan Republic challenged the nation's scientists with important tasks, especially in agrarian science. It's very important that in order to improve the material and technical base of science, comprehensive revitalization of relevant fields and more intensive involvement of young people in this area are needed.

Next, Dr. Damiano Avanzato talked about projects organized by ISHS. He noted that ISHS was established on a voluntary basis with about seven thousand members. More than 60 countries are represented in the membership of the Society. "I hope that Azerbaijan also will take

Forestry biodiversity: mountain forests in Great Caucasus (Gabala, Gakh, Guba, Khachmaz) that are rich with wild relatives of fruit and nut crops.





Open discussion led by selected foreign experts from (left to right) USA, Azerbaijan, Lebanon, Azerbaijan, Spain, Iran.

its honored place in the ranks of ISHS. This organization has made a valuable contribution to the world of science since it was established. At ISHS we highly appreciate the research of scientists and collect, publish and make available their scientific research results and works in the form of books, journals, etc. There is no doubt, the Baku symposium will play an important role in the creation of new scientific works." He added that the first symposium in this series had been organized at the University of California, Davis, USA, and that it was both commendable and well-advised that the next event was organized in Azerbaijan. Dr. Damiano Avanzato conveyed a message of thanks and presented a medal to the director of the Genetic Resources Institute, Dr. Zeynal Akparov, for organizing the symposium and collaborating with the ISHS.

Dr. Damiano Avanzato, ISHS representative, presenting the ISHS medal award to the Convener Dr. Zeynal Akparov.



Dr. Zeynal Akparov then spoke about work carried out by the head academic, C. Aliev's past works at the Genetic Resources Institute as a National Coordinator on PGR, research and scientific achievements. He informed the participants about the rich plant genetic resources of Azerbaijan, their recent condition, research, preservation and effective use measures, research institutions operating in this field and their main collections, and talked about the ancient heritage of horticulture and its development perspectives.

SESSION GENETIC, MOLECULAR, AND GENOMIC APPROACHES TO CHARACTERIZE TRAITS RELATED TO BIOTIC AND ABIOTIC STRESSES

Three presentations in this session should be noted. Dr. Gabriella De Lorenzis from Italy spoke in her presentation about the results of investigations on genetic diversity in *V. vinifera* wild compartment of Azerbaijan and Georgia. Prof. Aydin Askerov from Azerbaijan spoke about aspects of wild crop relatives in Azerbaijan and their study for adaptive traits. The presentation of Prof. Malli Aradhya from USA was about genetic characterization and utilization of wild relatives of fruit and nut crops at the USDA Germplasm Repository in Davis, California.

SESSION MOLECULAR AND TRADITIONAL BREEDING STRATEGIES

During this session there were interesting speeches and discussions on marker-based strategies for the fast introgression of genes from *Prunus* species into peach (Pere Arús from Spain), and conventional and molecular breeding strategies for resistance to sharka disease in stone fruit trees (Véronique Decroocq from France).

SESSION CURRENT STATUS OF CONSERVATION, MANAGEMENT, AND UTILIZATION OF FRUIT AND NUT CROP WILD RELATIVES

Ebrahim Latifikhah (Iran) talked about the identification, collection and evaluation of almond species and cultivars for conservation and uses in Iran. One of the best speeches was given by Ali Gharaghani from Iran. He compared the quantitative and chemical properties of the fruit of wild blackberry accessions (*Rubus sanctus*) from the north and south of Iran. Véronique Decroocq in her second presentation drew attention to the world-wide genetic diversity analysis of resistance sources to sharka in apricot. Mirza Musayev spoke about genetic resources of landraces and wild relatives of fruit crops in Azerbaijan. In this session the following presentations were also greeted with interest: 'Distribution of wild almonds in Lebanon and related uses,' by Prof. Lamis Chalak; 'Distribution of *Pistacia* spp. in Turkey and their importance for pistachio production,' by Prof. Bekir Erol; and 'Ecological and economic basis for the development of fruit plants in dry subtropical regions of Azerbaijan,' by Zaur Hasanov.

SESSION POPULATION AND PHYLOGENETIC APPROACHES IN SETTING CONSERVATION AND MANAGEMENT PRIORITIES

Main research results during this session were presented by Sadiye Gozlekci from Turkey (Some physical and chemical properties of two jujube (*Ziziphus jujube* Mill.) genotypes grown in western Turkey), Abdikhalil Kayimov from Uzbekistan (Wild nut bearing crops in Uzbekistan), Mirza Musayev (Genetic resources of grapes in Azerbaijan), Stefan Gandev (Selection and cultivation of local wild walnut type in Bulgaria), Zakir Ibrahimov (Persian walnut in Azerbaijan: spreading, biodiversity and sustainable uses of its genepool), Ebrahim Latifikhah (Identification, collection and evaluation of local sour cherry germplasm for finding suitable rootstock and cultivars), and Anahita Mizani from Iran (Genetic stability assessment of apple mutants "Fuji kiku 8" and "GalaSchniga" during adaptation trial).

Daniel Kluepfel's (USA) presentation was about identification of crown gall resistant *Juglans* species for use as commercial rootstocks. Dilshad Bayramova from Azerbaijan spoke about old local varieties of stone fruits released through folk selection. Ali Gharaghani showed *Prunus scoparia* as a potentially multipurpose wild almond species in Iran.

Each session of the symposium was chaired by one local and one foreign scientist. The sessions



■ Visit to fruit germplasm collection in Guba district. Collections included 350 accessions of seedy fruits, 295 of nut crops, 239 of subtropical crops, 133 of stone fruit crops, and 14 of citrus plants.

were provided with simultaneous translation. The symposium passed in very vibrant and dynamic conditions. Each report was accompanied by extensive discussion. In total, 38 oral presentations and 30 posters were delivered by the participants.

A field trip was organized for 9 April to the Subtropical Horticultural Experimental Station in Guba district, situated 170 km north of Baku in the foothills of the Greater Caucasus Mountains, which have a great tradition in the field of horticulture. The director of the institute, Dr. Ilham Gurbanov, and other scientific staff welcomed the participants of the symposium, who were told about the institute, its collections, laboratories, breeding research selections, and new fruit varieties. Participants visited the field collections of fruit species germplasm, discussed and asked questions.

A banquet was organized in a restaurant situated in the nut crop forest. During the banquet, participants noted that this kind of event provides the opportunity to create and devel-

op communication among scientists and they thanked the organizers for that. In the evening, participants returned to Baku. At the final session of the symposium, it was decided that the third symposium would be held in Bulgaria in 2018, under the coordination of Dr. Stefan Gandev. In the end, Dr. Zeynal Akparov thanked Dr. Damiano Avanzato for organizing the event. In his turn, Dr. Avanzato thanked Dr. Z. Akparov and the organizing group, and stated his desire to hold other events in Baku in the future. He also thanked Dr. Afif Mammadov, the head of the International Relations, Information and Coordination Department of AGRI, for his organizing work.

The cultural program of the symposium was very interesting to participants. They became acquainted with the sights and historical places of Baku. They were in the oldest part of Baku, which is called "Ichari Shahar", and tasted national foods, listened to national music, etc. The excursion on 12 April to the Gobustan National Mesolithic-Historical-Artistic Reserve,

which is rich in rock paintings and stone inscriptions, was very interesting for the participants. With a length (north to south) of 100 km, and width of about 80 km, the ancient settlement of Gobustan began with the gathering of people in the upper Paleolithic era, i.e. 35-34 thousand years BC. The rock paintings of the Mesolithic period are very informative historical evidence. The pomegranates and other fruits in these ancient drawings show that since ancient times these plants have been cultivated here.

The comments of participants during and after the symposium showed clearly that the discussions, speeches, presentations, meetings, and cultural program of the symposium will not disappear from memories for a long time. This symposium will play an important role in the relevant fields for the integration of world science, stimulation of young scientists, and for establishing and strengthening new scientific cooperation.

Zeynal Akparov and Afif Mammadov

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Symposium website: http://wildcrops-2014.dev.az/wordpress/?page_id=19

Int'l Symposium on Physiological Principles and Their Application to Fruit Production

Fruit scientists from around the world met in Geneva, New York State, USA, March 26-28, 2014, for an International Symposium on Physiological Principles and Their Application to Fruit Production. The meeting was sponsored by the Environmental Physiology of Fruit Crops Working Group, which is part of the Pome and

Stone Fruits Section of ISHS. The symposium focused on the physiological principles of fruit crops that have been discovered in the last 40 years including the complex interaction of rootstock, canopy architecture, training and pruning system, and environmental physiology – and how the understanding of physiological

principles guides modern orchard management. The symposium was designed to honor eight retiring fruit scientists who have been world leaders of fruit physiology for the last 35-40 years (alphabetically):

■ Theodore DeJong, University of California-Davis, USA;