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PLANT DIVERSITY: SOCIOCULTURAL DIMENSIONS AND
INTERDISCIPLINARY PROJECTIONS

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ABSTRACT BOOK



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Ivanova Teodora^{1*}, Cristian Banciu², Yulia Bosseva¹, Dessislava Dimitrova¹55

DIVERSITY OF TRADITIONAL PEAR VARIETIES (*Pyrus communis* L.) IN SERBIA, AND THEIR ETHNOBOTANICAL AND ETHNOMEDICINAL USE

Aleksandra Savić^{1*}, Snežana Jarić²

¹ Natural History Museum Belgrade, Njegoševa 51, 11000 Belgrade, Serbia

² University of Belgrade, Institute for Biological Research ‘Siniša Stanković’, Department of Ecology, Bulevar Despota Stefana 142, Belgrade, Serbia

*e-mail: aleksandra.savic@nhmbeo.rs

Fruit farming in Serbia has a long tradition. There are numerous autochthonous and traditional varieties of apples, pears and plums, and their gene pool is under a threat of irreversible disappearance, due to introduction of new commercial varieties. Traditional fruit varieties are also significant as part of a nation’s intangible heritage, its traditions and customs. The great diversity of pear varieties (*Pyrus communis* L.) in Serbia, which have been cultivated for hundreds of years there, is recognized as a significant source of its gene pool, and pears themselves are a healthy food source, and a traditional medicinal remedy. Today there still are over 40 pear varieties in Serbia, predominantly in its central, eastern and western regions, both in private home gardens (mostly as single trees, grown for personal use), but also in orchards. They include: Vidovača, Ječmenjača, Ilinjača, Lubeničarka, Medunak, Zimnjača, Takiša, Karamanka, Lončara, Jeribasma, Jagodarka, Petrovača, Mirisavka, Okruglica, Tamnjanika, Turšijara, Arapka, Sijerak, Ozimača, Mesnjača, Bazva, Tepavac, Lončara, Pološka, Ovčara, Turundžija, Stambolka, Čađavica, etc. Pears are predominantly consumed fresh, or processed into various products: in cakes and pies, compote, juice, jam, brandy, syrup, “slatko”, “vodnjika“, “turšija“, or as dried fruit. For ethnomedicinal purposes, pears are used as remedies in cases of diabetes, hypertension and high cholesterol, and against constipation; as an uroseptic, as well as an antirheumatic, and for lowering of the body mass. Serbian folklore considers the pear to be a tree with ambivalent properties. Pear was once used in chants, magic and traditional ritual practices, it simultaneously represents both the demonic and the holy tree. It is of the greatest importance to protect the gene pool of Serbia's traditional and indigenous varieties of pears by conservation methods in situ and ex situ, as well as by raising awareness among local populations, and by employing government aid.

SALEP – THE FADING AWAY “AMBROSIA” MADE OF TUBEROUS ORCHIDS (ORCHIDACEAE): PAST AND CURRENT TENDENCIES

Andrey Popatanasov^{1*}, Asen Asenov²

¹ Bulgarian Academy of Sciences, Acad. Georgi Bonchev St., Sofia, Bulgaria

² Sofia University, Faculty of Biology, 8 Dragan Tsankov Blvd, Sofia, Bulgaria

*e-mail: and_atanasov@abv.bg

Salep is ground powder made from the dried tubers of many terrestrial orchids from south-central Eurasia which is used mostly for beverages and deserts having the same or similar name. Since ancient times it was widely used not only because of its deliciousness but also due to the beliefs to have aphrodisiac and magic properties and powers. It became the root of the name of the whole Orchidaceae family in many countries where salep is used, such as: in Bulgaria – Salepovi, in Turkey – Salepgiller, in Azerbejdzhan - Səhləbkimilər etc., which resembles the strong association between this food product and ingredient and the source plants in the culture of these countries. Once upon a time salep was one of the most popular beverages not only in the Orient but also in the British Empire, Germany etc. However in the modern industrial era the dramatic loss of the native orchids habitats and the excessive harvesting of the tubers leads not only to extinction of the orchids but also causes the usage of this remarkable beverage and food ingredient to fade away. What the future of this “Ambrosia” may look like?

PLATANThERA RICH. (ORCHIDACEAE) – ETHNOBOTANICAL NOTES THROUGHOUT ITS AREAL OF OCCURRENCE

Andrey Popatanasov^{1*}, Asen Asenov² ...

¹ Bulgarian Academy of Sciences, Acad. Georgi Bonchev St., Sofia, 1000, Bulgaria

² Sofia University, Faculty of Biology, 8 Dragan Tsankov Blvd, Sofia, Bulgaria

*e-mail: and_atanasov@abv.bg

Platanthera Rich. is a genus from the subfamily Orchidoideae of the family Orchidaceae. The genus comprises of nearly hundred species distributed mostly through the temperate zones of the northern hemisphere with fewer species in the neighbor subarctic and subtropical zones. Some of them once upon a time could form relatively abundant populations in the appropriate habitats, thus giving opportunity to the human co-inhabitants to explore better their properties and usefulness and to implement them in their beliefs and medicinal practices and culture. Regardless its vast area of occurrence there are some striking similarities in the usage and the symbolism of these plants in such diverse and remote cultures whose territory they inhabit as Bulgaria, Russia, India, North America etc. Some of these similarities especially the usage in the folk medicine for example in the pain and wound management or as “love-remedy” may be based on the phytochemical similitude between the Platanthera species and therefore they can serve as a fundament for future research of their better usefulness for the humanity and determination which Platanthera species are the most perspective in this regard.

THE VINE AND BLACKBERRY IN BULGARIAN FOLKLORE LEGENDS

Borislava Petkova

University of Plovdiv, 24 Tzar Assen Str., Plovdiv 4000

borislava.p@gmail.com

This paper focuses on the folklore cosmogonic dualistic legends in which the Lord and the Devil co-create the world, and its arrangement is a consequence of the struggle between them. At the center of the analysis is the folklore motif for the appearance of the vine and the blackberry created by the Lord and the devil.

THE ROLE OF CLUSTERS IN AFFIRMATION OF LOCAL ECOLOGICAL KNOWLEDGE AND EXPERIENCE

Branko Mihailović^{1*}, Ivana Radić Jean²

¹ Institute of Agricultural Economics, Volgina Street no. 15, 11060 Belgrade, Serbia

² CIRAD, Agricultural Research for Development, Avenue Agropolis, 34398 Montpellier Cedex 5, France

*e-mail: brankomih@neobee.net, ivana.radicjean@gmail.com

One way to encourage the development and quality of the local environment, that is, the rhomb of national competitiveness in Serbia, are clusters, although the local business environment does not favor this form of association. Clusters can be defined as critical masses of companies and institutions in one place, unusual competitive success in certain fields. Experience has shown that those clusters (initiatives) that have a consensus on common goals and activities, which have a clear framework for cooperation and which have been created on the basis of their own initiative, have the greatest chances of success.

Incentives for the formation of clusters in Serbia exist in the field of ecology. Business members of the Ecological Cluster of Serbia are authorized to take over and recycle certain types of hazardous and non-hazardous waste. It is important to emphasize that all companies of cluster members have all technical conditions, such as documentation for recycling and waste collection. Business cluster members are authorized service providers in the following areas: advisory services in the field of environmental law and policy, preparation of reports on strategic assessment of the impact of plans and programs on the environment, development of integrated local waste management plans in municipalities, development and implementation of local environmental action plans etc.

It is necessary to support the association and cooperation among agricultural producers, especially horizontal cooperation. Horizontal cooperation in agricultural production represents a vital need, though individual producers have no strength neither to negotiate efficiently about prices and other conditions with big distributive companies, nor to invest in innovations and product quality, in order to increase personal competitiveness. Getting the agricultural producers into associations, the synergy in business and critical mass attaining in improving the negotiation aspect would be attained, influencing on improvement of agrarian competitiveness.

ASSESSING PLOIDY LEVEL ON FERNS BY FLOW CYTOMETRY

Cristian Banciu^{1*}, Teodora Ivanova², Florentina Aldea¹, Mihnea Vladimirescu¹, Gabriel-Mihai Maria¹, Ioana Paica¹, Anca Manole¹

¹ Institute of Biology of Romanian Academy, Spl. Independentei, 296, Bucharest, Romania

² Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Science, 2 Gagarin Street, 1113 Sofia, Bulgaria

*e-mail: cristi.banciu@ibiol.ro

The pteridophytes are an important group of plants dating for more than 300 million years. Ferns are spread almost in all climatic regions having a great variety of forms. Most of ferns have optimum habitat in wet shadow areas. Some authors consider that all over the world are around 15000 species. IUCN Red List (2004) contain as endangered around 67% of evaluated fern species. In Romania grows a number of 76 fern species from which 6 are uncertain, 11 are rare according to national red list, 10 are endangered according to the Red Book of Vascular Plants of Romania and 5 species are of community interest according to European Red List, Habitat Directive or Bern Convention.

Vâlsan Valley - located in the center of Romania, in Argeş county - is a protected area habituated by more than 30 fern species. From these *Athyrium filix-femina*, *Polypodium vulgare* and *Asplenium trichomanes* are three valuable ferns species due to their potential as ornamental plants, secondary metabolite production and typical species originate to this protected area.

In order to discriminate the gametophytes and sporophytes regenerated from in vitro culture of the above-mentioned species, ploidy level was determined by flow cytometry using the two-step procedure with Otto I+II buffers and the fluorochrome DAPI

Our results showed that for species *Athyrium filix-femina* and *Asplenium trichomanes* both sporophyte and gametophyte were diploid, while for *Polypodium vulgare* the gametophyte was haploid and sporophyte was diploid. The diploid origin of *Athyrium filix-femina* and *Asplenium trichomanes* gametophytes, could be a result of a false meiosis as an adaptative response to environmental conditions.

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ASSESSMENT OF BIODIVERSITY IN TOMATO (SOLANUM LYCOPERSICUM L.) FOR BREEDING PURPOSES

Daniela Ganeva^{1*}, Stanislava Grozeva²

¹ “Maritsa” vegetable crops research institute, 32 Brezovsko shosse Str., 4003 Plovdiv, Bulgaria

² “Maritsa” vegetable crops research institute, 32 Brezovsko shosse Str., 4003 Plovdiv, Bulgaria

*e-mail: dganeva@abv.bg

The tomato collection (*Solanum lycopersicum* L.) at the “Maritsa” Vegetable Crops Research Institute - Plovdiv contains about 2570 accessions. Genetic diversity is presented by new and old varieties, landrace populations, wild species, breeding lines, mutant forms, segregation populations as well as lines obtained as a result of the modern biotechnology methods. The largest percentage (91%) is occupied by the self-pollinated lines, including 2150 lines with Bulgarian origin and 210 - with foreign origin. The total number of varieties stored in the collection is 206, including local varieties - 31%, and introduced varieties - 69%. Among the wild species it is maintained the accessions of *S. pennellii*, *S. peruvianum*, *S. hirsutum* and *S. pimpinellifolium*. The aim of this study is to analyse the available tomato gene pool by agrobiological and morphological characters. The description and evaluation of germplasm is important for conservation and use of plant genetic resources for phenotypic and genetic improvement of the crop. The success of the tomato breeding programs depends on the correct choice of accessions possessing valuable traits and their intentional use for the needs of the practice.

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TRADITIONAL USES OF WILD EDIBLE PLANTS IN MACEDONIA

Elizabeta Miskoska-Milevska^{1*}, Angelina Stamatovska¹, Suzana Jordanovska²

¹ Ss. Cyril and Methodius University, Faculty of Agricultural Sciences and Food, Str. 16-ta Makedonska Brigada No. 3, 1000 Skopje, Republic of North Macedonia

² Ss. Cyril and Methodius University, Institute of Agriculture, 16th Macedonian Brigade blvd. No 3A, 1000 Skopje, Republic of North Macedonia

*e-mail: miskoska@yahoo.com

The flora of Republic of North Macedonia provides diverse and useful edible species. Wild edible plants are a valuable source of nutrients. This research was conducted from September 2018 to March 2019 to record knowledge concerning the traditional uses of wild edible plants in Macedonia. Data were collected by interviewing 154 informants from Macedonia, using structurally designed questionnaires. 71 % of informants were women and 29 % were men. For each described plant species, botanical family, the Macedonian folk names, the edible parts, culinary use, were recorded and the relative frequency of citation index (RFC) was determined. Interviewed informants cited 39 wild edible plants belonging to 21 different botanical families. The most of the wild edible plant species belong to Rosaceae (10) and Lamiaceae (5). The species with the highest relative frequency of citation index is *Fragaria vesca* L. (0.422), followed by *Mentha longifolia* (L.) Huds. (0.363). Most of the wild edible plants were trees (41 %). The plant parts preferably used were fruits (36 %), leaves (30 %) and flowers (15 %). The plants are most often consumed cooked, as tea and raw. The present study provides basic information for traditional uses of wild edible plants in Macedonia. Also, this research suggests that further ethnobotanical studies should be conducted to be preserved the traditional knowledge associated with wild edible plants for future generations.

A NEW NATURAL HABITAT OF *INULA SPIRAEIFOLIA* L. IN SOUTHWESTERN BULGARIA

Ina Aneva¹, Petar Zhelev², Antoaneta Trendafilova³

¹Department of Plant and Fungal Diversity and Resources, Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria

²University of Forestry, 1797 Sofia, Bulgaria

³Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria

*e-mail: ina.aneva@abv.bg

Genus *Inula* L. (Asteraceae) is represented in the Bulgarian flora by 10 to 12 species, depending on the particular taxonomic concept applied. *Inula spiraeifolia* is the only Bulgarian species of the genus, considered important from conservation point of view. It is listed in the Red Data Book of Bulgaria and is protected by the Biodiversity Act. Even though its putative occurrence in the Bulgarian flora includes three floristic regions, all the localities are considered doubtful and needing a confirmation. A new locality of this rare and endangered species was found in the valley of Struma river. This record confirms the presence of the species in Bulgaria.

The size of the locality is approximately 0,1 ha with about 30-40 individuals scattered across the area and growing on stony and sandy sites, usually without plant cover. There are also few other small (~20 m²) isolated spots within a distance of 300 m. The population of *I. spiraeifolia* is situated at the lowest part of a slope; however, the river is still remote and practically does not affect the soil humidity. The microhabitat where *I. spiraeifolia* occurs is exposed to the north and this circumstance is more important for maintaining the soil humidity than the river proximity. Floristic composition of the locality consists of 73 species, dominated by these with Mediterranean component of origin.

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POPULATION STATUS AND RESOURCE ASSESSMENT OF ALLIUM URSINUM L. IN LOZENSKA MTS.

Ina Aneva, Borjana Sidjimova, Milena Nikolova, Malina Delcheva

Department of Plant and Fungal Diversity and Resources, Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria

*e-mail: ina.aneva@abv.bg

Allium ursinum is a valuable medicinal and edible plant. Currently it is not considered endangered and is allowed for sustainable use. It is collected traditionally by the local people mainly for food. The studied locality is on the northern slope of Polovrak peak, at approximately 1000 m altitude. The proximity of Lozen Monastery causes increased tourist load. Additionally the locality is situated close to Sofia and it is one of the few places easily accessible to the inhabitants of the city. Floristic composition consists of relatively small number of species typical for the mesophytic forest stands – *Mercurialis perennis*, *Isopyrum thalictroides*, *Asarum europaeum*, *Paris quadrifolia*, *Galium odoratum*, *Lilium martagon*. The plant community is a part of habitat 9130 *Asperulo Fagetum* beech forests. The projection cover of *A. ursinum* is 60 – 70% and the population status of the species is still stable despite of anthropogenic pressure. The resources were assessed and the estimated yield was 70 g/m². Continuous monitoring on the population status will provide valuable information for its sustainable use and conservation.

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GENETIC DIVERSITY IN A POPULATION OF IRIS PONTICA AS REVEALED BY ISSR POLYMORPHISM

Ioana Paica^{1*}, Irina Irimia², Mihnea Vladimirescu¹, Cristian Banciu¹, Gabriel Mihai Maria¹, Teodora Ivanova³, Anca Manole¹

¹ Institute of Biology Bucharest of Romanian Academy, 296 Splaiul Independentei, 060031 Bucharest, Romania

² “Alexandru Ioan Cuza” University of Iași, Faculty of Biology, Bd. Carol I, no. 11, Iași - 700506, Romania;

³ Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Science, 2 Gagarin Street, 1113 Sofia, Bulgaria

*e-mail: ioana.mihalache@ibiol.ro

Iris pontica Zapal. is found in the eastern regions of Europe and in Russia, spreading from Transylvania (Romania) to Central and South-Western Asia. In Romania's flora, *I. pontica* is a rare species, and the population targeted in this study was first discovered in 2013 in the botanical reservation Movila lui Burcel (Vaslui county, Moldova, Romania). Genetic diversity parameters based on amplification patterns using five ISSR primers were estimated with the objective to assess the genetic diversity status of this population. The ISSR markers reveal a homogenous distribution of genotypes, implying good gene flow within the population. Based on the results of this study, ISSR fingerprinting can be useful tool in population-level genetic diversity studies. In perspective, the same approach could prove useful in establishing the relationships within and/or between other *I. pontica* populations.

Acknowledgement

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BIOECOLOGICAL PECULIARITIES OF RARE RELICT SPECIES – PINUS PITHYUSA STEV. IN THE NATIONAL BOTANICAL GARDEN OF GEORGIA

Ana Kvlividze^{1*}, Lamara Asieshvili², Marine Siradze³

¹ Address: 12 Bambis Rigi Street, Tbilisi, Georgia

² Address: 1 Botanikuri St., Tbilisi, Georgia

*e-mail: ana.qvlividze@ens.tsu.edu.ge

The principal scientific research strategy of the National Botanic Garden of Georgia aims at estimating the present state of the plant populations, currently affecting threats, methods of conservation and therefore maintaining the plant diversity. In this regard, particular attention should be paid to *Pinus pithyusa* Stev.- an endangered rare endemic relict of Caucasus that is included in the Red Books of Georgia and the former Soviet Union.

In the 70-ies of the 20th century, two 4-5-year old (60-70sm high) samples of *Pinus pithyusa* Stev. were planted in the experimental collective plot of rare and endangered plants of Caucasus which was characterized by a perfect growth and development. Today, the height of the plant reaches 18-20 m. The plant produced its first fruit 21-23 years later.

Under the conditions of Tbilisi the plant produces self-seedings. Offshoots of the plant are numerous quite viable, characterized by strong development. Now, there are 22 samples that were obtained as a result of self-seedings the height of which ranges from 30 cm to 1 m.

Sowing is usually carried out in spring and autumn. Normal growth and development is supported by additional nutrition - biostimulators “Kornevin” that promotes growth and development of the root system. 11 months later, the heigh of the seedlings reaches 3-6 cm.

Sowing in autumn is preferable because in comparison with the plants sown in spring the shoots appear 25-30 days earlier. So before the summer droughts the young seedling are already quite developed and strong.

Therefore, observations showed that *Pinus pithyusa* Stev. in the National Botanical Garden of Georgia is characterized by a good ability to adapt. It is capable to propagate by self-seeding. The offshoots are resistant to various environmental factors (drought, frost, air drying). Perfect seedlings were obtained from the seeds that were sown in autumn. So we can conclude that this species will not be in danger of extinction if appropriate environmental conditions are created for them.

INTERNAL MIGRATION OF PEOPLE AND PLANTS AND THEIR ROLE IN SOCIAL NETWORKING AT DESTINATION AREA

Merita H. Meçe

¹ Address: College of Behavioral, Social and Health Sciences

² Address: Clemson University, USA.

*e-mail: mmece@g.clemson.edu; mmec001@yahoo.co.uk

Internal migration does not imply a mere physical relocation of people from one administrative unit to another within the political borders of a certain country. Internal migrants are human beings who carry with them local knowledge, culture, tradition, mentality and lifestyle patterns. While they try to adjust themselves in the destination area, they also interact with the locals, exchange with them and share their knowledge. Exchange of plants is perceived as an important instrument of communication, socialization and social capital formation. Internal migration rapidly increased in sub-urban areas of Albania during the years of transition to market economy transforming them in new urbanized ones. One of them is Kamza town located 10 km far from the capital city of Albania. This former state farm is highly transformed and represents one of the areas with the highest population density in the country mostly populated by internal migrants from the northern disadvantageous areas of Albania.

The main purpose of this paper is to explore the role of internal migration of humans and their plants on social capital in Kamza town in Albania during the years of post-socialist transition. This paper will use primary data mainly collected through face-to-face interviews with 40 internal migrant women during the period February – March 2019. Using women's lens, this paper will identify their strategies used in socialization with the locals and the role of plants' exchange during this process. It will conclude that plants exchange among internal migrants and locals bridged them and fostered their interaction. Regardless differences and difficulties faced, they were optimistic about its role in social gathering and smooth adjustment in the host society.

POPULATIONAL GENETIC DIVERSITY OF HALIMIONE VERRUCIFERA (M. BIEB.) AELLEN FROM AN ECOLOGICAL NICHE

Mihnea Vladimirescu¹, Teodora Ivanova², Ioana Paica¹, Cristian Banciu¹, Maria Gabriel-Mihai¹, Anca Manole¹

¹ Address: Institute of Biology - Bucharest of Romanian Academy, 296 Splaiul Independentei, 060031 Bucharest

² Address: Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Science, 2 Gagarin Street, 1113 Sofia, Bulgaria

*e-mail: mihnea.vladimirescu@ibiol.ro

Halimione verrucifera (M. Bieb.) Aellen is an extreme halophyte sunshrub with an Eurasian distribution. In Romania species is reported in few eastern counties, those from Buzău county representing the westernmost limit of species distribution. In order to evaluate conservation status of species in westernmost marginal populations, genetic diversity among and within population was assessed using ISSR markers. Overall results interpreted by means of various genetic diversity parameters revealed a low level of expected heterozygosity within populations, but adequate for a good conservation status. PCoA analysis and generation of a UPGMA dendrogram showed that population are clearly separated. This preliminary study shaped the background for future assessments of representative populations from the entire species geographical range.

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PLANTS AS A SOURCE OF BIOCIDES

Milena Nikolova, Ina Aneva, Elina Yankova-Tsvetkova, Boryanka Traikova, Mariya Yovkova, Tatyana Stefanova, Marina Dimitrova, Strahil Berkov

Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, 23, Acad. G. Bonchev str., 1113 Sofia, Bulgaria

*e-mail: mtihomirova@gmail.com

Biocides include herbicides for destroying weeds, insecticides, for controlling a wide variety of insects, fungicides used to prevent the growth of molds and mildew, disinfectants for preventing the spread of bacteria. The increasing use of synthetic biocides for crop protection in different countries undoubtedly has contributed to a green revolution. Plants are an important source of bioactive natural products. Major advantages of natural based biocides are their low environmental impact, low mammalian toxicity, low residues levels in food, compatibility with Integrated Pest Management (IPM) programs; also they can be specific to the target species. The main markets for biocides are organic agriculture, horticulture, green houses, parks, gardens and households. Therefore, the biocide market is expanding and there is an increasing need for new products. During the period 1997–2010, EPA registered approximately 168 new active ingredient biopesticide registrations.

In the search for biocides of plant origin, the capacity of species of Bulgarian flora for insecticidal, herbicidal and fungicidal properties was studied. The results obtained so far were identified essential oils as promising sources of biocidal activity. Species of Lamiaceae - *Origanum vulgare* subsp. *hirtum* (Link) Ietsw., *Thymus longidentatus* ([Degen & Urum.](#)) [Ronniger.](#), *Thymus moesiacus* [Velen.](#), *Micromeria dalmatica* [Benth.](#); Asteraceae - *Artemisia campestris* L., *Artemisia annua* L., *Artemisia lerchiana* [Weber.](#), *Artemisia santhonicum* L. showed perspective biocidal activity.

For the essential oil of *Origanum vulgare* subsp. *hirtum* (Greek oregano) was established that it is extremely active against a broad range of pests, making it a reliable product with a complex action. The essential oil showed a strong inhibitory activity on seed germination of weeds, destruction and suppression of the growth of already developed weeds, promising activity on the control of aphids on potatoes. It is important to note that when the essential oil was applied on young potato individuals the oil did not show a negative effect on them. Detailed studies of the most appropriate concentration and form of application of essential oil of Greek oregano continue.

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ETHNOBOTANY OF MEDICINAL PLANTS USED IN HERBAL TEA MIXTURES IN COASTAL SYRIA

Naji Sulaiman^{1*}, Zbynek Polesny²

¹ Address: Naji Sulaiman, Faculty of Tropical AgriSciences, Czech University of Life Sciences Prague, Kamýcká 129, 16500 Praha - Suchdol, Czech Republic.

² Address: Zbynek Polesny, Faculty of Tropical AgriSciences, Czech University of Life Sciences Prague, Kamýcká 129, 16500 Praha - Suchdol, Czech Republic.

*e-mail: sulaimann@ftz.czu.cz

Herbal teas form a significant part of beverage culture in the Middle East, it consists of one or more plant species applied as an infusion tea. However, there is lack of ethnobotanical studies on herbal teas and related traditional botanical knowledge, especially from the eastern Mediterranean. Our study was carried out in the coastal region of Syria including plains and highlands in Tartus and Latakia provinces. The study focused on documentation of ethnobotanical knowledge related to medicinal plants used in the form of a tea, with the aim to characterize the herbal tea mixtures in terms of plant species composition and ethnopharmacological indication. In the period from December 2017 to February 2018, 42 informants from 32 villages were interviewed. In total, 49 plant species were reported to be used in the form of an infusion, of which, 31 species were used as ingredients in 26 of different herbal tea mixtures. In total, herbal tea blends were used to treat 20 different health disorders, mostly represented by cough, cold, colic, and heart pressure. The data were analysed through the calculation of the species use value, informant agreement ratio, frequency of citation, and the cultural value index. Through the last mentioned index, we could highlight 7 plant species as an important in the local culture, in which, 6 species are used as main ingredients in the herbal mixtures, those species and blends are strongly recommended for future pharmacological and economical studies.

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PHYLOGEOGRAPHY OF FOREST TREES ON THE BALKANS – OLD TOOLS, NEW CHALLENGES

Petar Zhelev^{1*}, Ina Aneva², Dimiter Ivanov²

¹University of Forestry, 10 Kliment Ohridski Blvd., 1797 Sofia, Bulgaria

²Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, 2 Gagarin Str., 1113 Sofia, Bulgaria

*e-mail: peter_zhelev@abv.bg

Exploring the historical development of distribution range and related migrations of plant species can reveal important facts and trends concerning their adaptation and evolution. Many tree species are particularly suitable for such studies because of their life history characteristics and their importance from environmental and economic point of view. In the classical approach to the subject, phylogeography integrates biogeography and population genetics. In plants, elucidating of biogeography in the past relies exclusively on paleobotany. Palynology, as a part of paleobotany, is especially useful when the studies concern the Holocene period – there is a vast amount of information both at European and Bulgarian levels, and international databases are also available. Even though population genetic data in this respect for Bulgaria are not as abundant as they are for Europe, new information has become available during the last decade, resulting from the work of international and national research projects. Application of appropriate genetic markers (including uniparentally inherited cpDNA and mtDNA) revealed important aspects of post-glacial migrations of many tree species on Balkans and in Bulgaria (e.g., *Abies*, *Quercus*, *Carpinus*). We review the prospect of application of classic “old” phylogeographic tools to some new or still neglected issues – comparative phylogeography and structure of Balkan glacial refugium, with particular reference to the genera *Tilia* and *Ulmus*.

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FLORISTIC COMPOSITION AND CONSERVATION OF NATURAL LOCALITIES OF THE BALKAN ENDEMIC SPECIES THYMUS LONGEDENTATUS (DEGEN & URUM.) RONNIGER

Ina Aneva^{1*}, Petar Zhelev²

¹Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, 2 Gagarin Str., 1113 Sofia, Bulgaria

²University of Forestry, 10 Kliment Ohridski Blvd., 1797 Sofia, Bulgaria

*e-mail: ina.aneva@abv.bg

Thymus longedentatus is considered an important and valuable medicinal plant with a very specific lemon-like odor, due to the prevalence of citral isomers geranial and neral. At the same time, it is a rare species in the Bulgarian flora, which results in necessity of measures for sustainable use and conservation of its natural resources. A study in two natural localities of the species was performed – one in the Thracian plain and one in the Eastern Rhodopes. Full floristic inventory of the localities was performed and the floristic composition was analyzed for phytogeographic origin and biological type of the species. More than 150 species were recorded in the two studied localities and the results confirmed the predominance of species with Mediterranean component in their origin, as expected by the habitat characteristics. The plant communities where the species occurs are diverse and can be classified broadly to the Sub-Mediterranean petrophytic steppes, with different variants, depending on the particular site conditions.

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EVALUATION OF LOCAL TOMATO POPULATIONS (SOLANUM LYCOPERSICUM L.) BY QUANTITATIVE AND QUALITATIVE TRAITS

Stanislava Grozeva*, Daniela Ganeva

¹ “Maritsa” Vegetable Crops Research Institute, 32 Brezovsko shosse Str., 4003 Plovdiv, Bulgaria

*e-mail: stanislava_grozeva@abv.bg

Tomato is one of the most important vegetable crops grown in many countries of the world, including Bulgaria. A variety of local forms are developed, under the influence of the natural and artificial selection, representing populations characterized by great polymorphism. The local tomato gene pool has not been sufficiently studied in terms of phenological, economic, phytopathological, physiological and chemical-technological indicators. In the recent years the main objective in the breeding programs is to perform an agrobiological assessment and a choice of perspective local tomato accessions as valuable initial breeding material. In the "Maritsa" Vegetable Crops Research Institute - Plovdiv the collected local tomato accessions are studied and lines with valuable traits are chosen. The most productive lines are 2159 and 2157 and the fruits from these lines are the largest ones. The average fruit weight ranged from 210.5g to 362.3g and the total yield from 2769 kg to 5594kg, respectively. The number of fruits per plant varies widely between 6 and 12. The fruits are different in shape, size, colour and biochemical composition. The highest values for dry matter content of the fruits were measured in line 2162 (6.5%), and lowest values - in line 2158 (5.3%).

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ABILITY OF CHICKPEA (*CICER ARIETINUM* L.) LANDRACES TO SURVIVE IN MODERATELY DROUGHT CONDITIONS

Suzana Jordanovska^{1*}, Elizabeta Miskoska-Milevska², Dessislava Dimitrova³, Vinko Stanoev¹

¹ Ss. Cyril and Methodius University, Institute of Agriculture, 16th Macedonian Brigade blvd. No 3A, 1000 Skopje, Republic of North Macedonia

² Ss. Cyril and Methodius University, Faculty of Agricultural Sciences and Food, Str. 16-ta Makedonska Brigada No. 3, 1000 Skopje, Republic of North Macedonia

³ Dessislava Dimitrova, Institute of Biodiversity and Ecosystem Research, BAS, Sofia, Bulgaria

*e-mail: suzanakratovalieva@gmail.com

Ten landraces of *Cicer arietinum* L. var. *microspermum* (CAmi1 – CAmi10) and ten of *C. arietinum* L. var. *macrospermum* (CAma1 – CAma10) collected in Republic of North Macedonia were included in the research. Landraces were placed for germination in the sand and the next six morphological parameters were analysed as seed hardness, seed coat colouring, root length, seedling length, width and length of cotyledon leaves. From the physiological point of view were analysed the seed energy, germination, daily germination rate, germination vigor (GE), germination index (GI), vigor index (VI) and activity index (GV). Three treatments were carried to investigate the genotype resistance to the dry conditions after the determination of the seed germination on the 8th day of setting the seeds on 20-30°C. Namely T1 - adding water every 2nd day to the 20th, T2 - adding water every 4th day to the 20th and T3 - adding water every 6th day to the 20th. A control group of germination seeds was also set up in parallel. It was found the seed energy and germination was the highest at CAmi2 (74 %, 95 %) and Cami15 (77 %, 96 %). Seeds are mostly pale yellow colored (CAmi2, CAmi5-6, CAmi8-10) and dark yellow (CAma1-4, CAma6-7, CAma9-10). Even in six genotypes the seeds are very firm (CAmi1-3, CAmi5-6, CAmi9) and seven genotypes are moderately firm (CAma1-3, CAma6, CAma8-10). As a result of the reduced amount of added water, the lag in growth and development is monitored and compared between the control group with T1, T2 and T3 which grows proportionately with the number of days between the water additions. But, according to the physiological parameters, without a major lag in growth and development, several genotypes for breeding and production can be pointed out, which are the following CAmi2-3, CAmi7, CAmi10, CAma1, CAma3 and CAma10.

IMAGES OF PLANTS IN OLD RUSSIAN HERITAGE: MATERIALS OF PHYTOLEX DATABASE

Valeriia Kolosova^{1*},², Kira Kovalenko¹

¹ Tuchkov per. 9, Saint Petersburg, Russia

² Via Torino 155, Venice, Italy

*e-mail: chakra@eu.spb.ru

The paper is prepared on the base of PhytoLex – the database of Russian phytonyms of the 11th-17th centuries (<https://phytonyms.iling.spb.ru>). The database is being filled with the materials of both published (dictionaries, researches) and unpublished sources.

The early Russian texts were mostly translations from Greek, Latin, and Hebrew. They contained plants unknown in Old Rus', and interpreters tried to find some Russian equivalents or used transliteration. Later, Russian authors created their own texts. In the 17th century, after appearance of the Royal pharmacy, later the Apothecary Chamber, and Apothecary Chancery, there appeared medical prescriptions often written in two languages – Russian and Latin, which made the identification of plants somewhat later. Still, Latin nomenclature plant names and pharmaceutical names changed through the centuries. To identify the modern nomenclature plant names, historical botanical and medical dictionaries are being used. We also use the database Catalogue of Life (<http://www.catalogueoflife.org/col/info/about>) to exclude using synonyms.

The main body of the paper concerns “portraits” of several selected plants, widely presented in the sources: Rus. инжир ‘fig *Ficus carica* L.’, Rus. имбирь ‘zinger *Zingiber officinale* Roscoe’, Rus. аир ‘sweet flag *Acorus calamus* L.’, Rus. апельсин ‘orange *Citrus aurantium* L.’, Rus. лавр ‘laurel *Laurus nobilis* L.’, and some others. They contain plant names with phonological and orthographical variants in the texts of various genres, etymology, examples and information about their sources, ideas about plant features, their functions (medicinal, magical, religious, etc.), how they should be grown, legends describing their origin, etc.

The materials from the PhytoLex database are intended to be used for compilation of the Old Russian plant names dictionary. We plan to compile the word entries in Lexonomy (www.lexonomy.eu) - a special platform for writing and publishing dictionaries. The Old Russian plant names dictionary is supposed to be an open resource useful for specialists in the Slavic historical lexicology and for ethnobotanists.

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KARELIAN FOLK MEDICINE: POTENTILLA ERECTA (L.) RAUESCH.

Valeriia Kolosova^{1*, 2}

¹ Via Torino 155, Venice, Italy

² Tuchkov per. 9, Saint Petersburg, Russia

*e-mail: chakra@eu.spb.ru

The paper is based on the field materials collected in the summer of 2018 in the Republic of Karelia, Russian Federation. Most respondents mentioned the root of the plant called in Russian калган '(common) tormentil *Potentilla erecta* (L.) Raeusch' as a widely-used medicine.

The paper contains analysis of field data about *Potentilla erecta*. The respondents mentioned it as a remedy for a wide variety of diseases: diarrhea and stomach disorders in general, radiculitis, pain in joints, skin problems, and even dysentery and staphylococcus. They also described details of collecting, preparing, and storage of the plant, as well as the peculiarities of its use for adult patients and for children. Another sphere of plant use is folk veterinary. It is especially interesting that among the users of the plant there are professional medical workers who both use it themselves and advise to their patients.

Many of our respondents spent their early years in remote villages, where state medicine and veterinary were not easily accessible, and medicinal plants played an important role in maintaining health. Still, many people continued to use medicinal herbs during the Soviet period and have been doing it nowadays. The reason may lay in the habit to rely mostly on one's own resources as well as in the abrupt decrease of the medical care availability after the collapse of the Soviet Union, with the supporting role of the modern turn to natural remedies as a part of bio- and eco- life style.

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РАСТЕНИЯТА В ТРАДИЦИОННАТА КУЛТУРА НА ТУРЦИ СУНИТИ ОТ СЕВЕРОИЗТОЧНА БЪЛГАРИЯ – СИМВОЛИКА И ОБРЕДНИ ПРАКТИКИ

Бехрин Шопова

¹ Адрес: ИЕФЕМ – БАН, България

*e-mail: behrin@abv.bg

Текстът разглежда символиката на растенията, които се използват в различни ритуални практики от календарната и семейната обредност при турци сунити от Североизточна България. В ислямската култура лалето е символ на Аллах, а розатата се възприема като символ на Пророка. В Корана и в хадисите се срещат многобройни препратки към тези цветя. Друго цвете, на което се отдава голяма почит е карамфилът. Той, заедно с лалето и розата, е неизменна част от флоралните елементи при изписването на джамиите. Възприемането им като цветя – символи определя и използването им в определени моменти от календарната и поменалната обредност. Наред с това в текста се описват и растения, които са част от символното пространство на празника – Хъдъреллез и традиционна турска сватба.

СОЦИАЛНИ ПРОЕКЦИИ НА БЪЛГАРСКОТО ГРАДИНАРСТВО В УНГАРИЯ

Венета Янкова^{1*}, Йордан Тютюнков²

¹ Адрес: Университет ЕЛТЕ, Будапеща, Унгария

² Адрес:

*e-mail: veneta_yankova@abv.bg

Докладът се спира на следните основни въпроси: Създаване на градина в чужбина: начини на обработка на земята, поливни техники, организация на работата. Обмен на земеделски култури: избор и пренасяне на семена и сортове. Обмен на градинарски опит: влияние върху унгарската земеделска култура, създаване на унгарски градини по български образец. Влияние върху вкусовите предпочитания на унгарците. Възникване на български градинарски символи в унгарската култура: „българско колело“, „пипер от Сентеш“ и др. Материалите по изложението са резултат от теренни проучвания и интервюта с наследници на български градинари в унгарските градове: Будапеща, Сентеш, Кечкемет и Печ.

ПОСТНИТЕ БЛЮДА ВЪВ ВИЗАНТИЙСКАТА КУХНЯ X-XV ВЕК

Йоанна Бенчева

София 1504, бул. „Цар Освободител“ 15, Исторически факултет, СУ „Св. Климент Охридски“, кабинет 25

*e-mail: jbencheva@uni-sofia.bg

Съдържанието на византийската кухня се определя от християнската религия, която постановява около 200 дни в годината храната да изключва месо и месни продукти. Затова зеленчуците, плодовете и морските дарове са от първостепенна важност в диетата на населението. Какво е разнообразието от постни ястия, как се приготвят, как се запазват и консервират суровините за тях, за да са достъпни целогодишно? На тези въпроси ще бъде търсен отговор в настоящото съобщение.

ГРАДИНКТА В ГРАДА – СЪСЕДСТВО И ФОРМИ НА КУЛТУРНО ВЗАИМОДЕЙСТВИЕ

Меглена Златкова

ПУ „Паисий Хилендарски“, Катедра „Етнология“, ул. „Цар Асен“ 24, Пловдив 4000
e-mail: m_zlatkova@yahoo.com

В доклада се дискутират формите на разделение на пространството на публично и частно в постсоциалистическия град като всекидневни практики на обитаване и апроприране на общите пространства в градската периферия. Антропологическото изследване обхваща дългорочен период от 15 годишно теренно наблюдение и работа с архивни материали. Въз основа на наблюдението на отношението към градското градинарство се дискутират: града на социализма и града на прехода и съвременния Пловдив като се проследява линията на промяна на границите между публично и частно пространство, общото и индивидуалното. Градинката в града е част от този преход, който продължава линията на трансформации в града и чрез няколко нейни форми, ще се дискутират по-широки теоретични въпроси като: преминаване на физически и социални граници, сменящи се идентичности, социални йерархии, властови отношения, но също така и форми на солидарност, инвестиране в социални мрежи и социален капитал и др. Анализът е въз основа на няколко конструирани случая, наречени: „градинката около блока“, „балконът“, „вертикалната градинка“, „ранчото“.

The paper discusses the forms of public-private space division in a post-socialist Bulgarian city as everyday practices of inhabiting and appropriation of common spaces in one neighborhood of Plovdiv. The author's anthropological research of urban spaces has included long-term observation of everyday practices in the city of socialism, the city in transition and the changed cities nowadays, following the line of the changing boundaries, distinction and expression of the public and the private, the common and the individual. Of particular interest in my research are the forms of transgression of the physical borders and social boundaries and of establishing new ones, according to the changing identities, social hierarchies, power relations, as well as forms of social solidarity, networking and investment in social capital. The paper presents cases of blurring borders and boundaries as urban discourses – of the socialist city, the city in transition and the city after 2007, when Bulgaria joined the EU. These cases are studied on the base of everyday practices of urban gardening in common spaces – around blocks of flats, on the windowed balconies, and in small gardens (vegetable plots) in the town outskirts.

HEALING PLANTS USED FOR TREATMENT OF“IGNIS SACER” FROM 1ST CENTURY BC TO 11TH CENTURY AD

Kalina Boseva¹

¹ Sofia University “St. Kliment Ohridski”, Department of Medicine, ul. Kozyak 1

*e-mail: kalbo@abv.bg

In the Latin scientific literature from the Antiquity to the Medieval Ages “ignis sacer” was a name used to denote variety of skin symptoms with different etiology that in outer appearance resemble burned flesh – redness of the skin, burned like blisters, charcoal blackening of limbs, etc. Around 1st century BC, the term appeared for the first time in didactic poems as a description of deadly epidemics or epizooties (presumably measles, typhoid fever or anthrax). All of them among other symptoms had typical skin eruptions and were so devastating for the population that a divine force was suspected as a cause of it – ignis (fire) and sacer (sacred, divine, cursed). Afterwards for a very long period in the medical literature this phrase was used as a Latin equivalent to the Greek term ἐρυσίπελας (streptococcal skin infection), zona (i.e. herpes zoster or herpes circinatus) and eczema. Around 9th century AD more and more diseases were piled to the list hiding behind the phrase “ignis sacer” and at some point around 11th century the term started to disintegrate in more specialized names until finally in 16th century it was used translated in French as a curse more in fictional meaning than as a medical term. This study traces through the ages the treatment methods based on healing plants. An attempt is made to identify the modern plant names, to outline the most commonly applied plant ingredients (like rose oil, beet, rue, plantain, coriander, etc.) and to look for some scientific explanation for their usage.

SPECIES OF THE GENUS ARTEMISIA IN MACER FLORIDUS (11TH - 12TH CENTURY AD)

Kalina Boseva

Sofia University “St. Kliment Ohridski”, Department of Medicine, ul. Kozyak 1

*e-mail: kalbo@abv.bg

The Mediaeval Latin poem „De viribus herbarium“ (On the Powers of Herbs) is one of the most popular botanical treatises up until the Renaissance. Over several centuries, it remained a required reading for those who studied medicine. A wide range of surviving copies serves as a testament to its enduring significance.

The poem is broadly dated to the 11-12th century, so it is believed that the author’s name, Macer Floridus, does not stand for the noted Ancient poet and naturalist Aemilius Macer, but is rather a pseudonym intended to imbue the work with the authority of the Antiquity. It is thought that the real name of the author is Odo of Meung (a town on the river Loire in contemporary France). Odo was most probably a doctor and he used sources like Plinius the Elder, Dioscorides, Pseudoapuleius, Oribasius, Galen and Hippocrates to compose his work.

We offer the first Bulgarian translation of the poem’s three initial chapters, which focus on the healing properties of the genus Artemisia – artemisia (*Artemisia vulgaris* L.), absinthium (*Artemisia absinthium* L.) и abrotanum (*Artemisia abrotanum* L.). We trace the therapeutic applications of these species as featured in the Western literary tradition from Antiquity to Macer’s time, so as to establish the sources which exerted the most significant influence on Macer’s compilation.

ELECTRONIC ACCESS TO THE CONSERVED PLANT DIVERSITY OF BULGARIA

Nikolaya Velcheva

Institute of Plant Genetic Resources “K. Malkov”, Sadovo, Bulgaria

e-mail: nikolaya_velcheva@abv.bg

Plant diversity is a public resource, the benefits of which have to be used in the interest of society. In this context, information activities are at the core of ensuring a comprehensive approach and interaction among all stakeholders. During the period 1982-2019 the fund of National Genebank in IPGR Sadovo is enriched with 52,105 seed accessions. Documentation system Phyto 2000 optimizes the management of plant genetic resources in order to their targeted storage, study, reproduction, free exchange and use. 9,838 accessions are collected from expeditions, included local varieties and populations of private gardens and small farms and wild forms from their natural habitats. There are 36,392 genotypes, introduced from abroad by international free exchange. 5,875 breeding materials – lines and varieties, are registered. Collections from cereals, leguminous, technical and fodder crops, vegetables, medicinal and aromatic plants are created. All seed samples are recorded, according to the international standards of FAO and Bioversity International. Passport data includes taxonomic descriptions, biological status and eco-geographical origin of the accessions. Existing European cooperation in the ECPGR allows better coordination between genebanks and the users of conserved germplasm. The EURISCO electronic catalogue provides free access to the stored ex situ collections in Europe.

ИКОНОМИЧЕСКИ ПОТЕНЦИАЛ НА СОРТОВОТО РАЗНООБРАЗИЕ В ЛОЗАРСТВОТО

Даниела Димитрова^{*}, Илиян Симеонов

5800, Плевен, Институт по лозарство и винарство, ул. „Кала тепе“ №1

*e-mail: vachevska_d@abv.bg, iliannsimeonov@gmail.com

През последните няколко десетилетия производството на грозде и вино в глобален план се развива изключително динамично. Освен промяна в географската концентрация на лозарството, продиктувана от навлизането на нови държави-производители, се наблюдава и изменение на потребителския модел на поведение, който излиза извън традиционната си рамка. Трите водещи принципа на устойчивостта – екологичен, социален и икономически, придобиват определящо значение за развитието на лозаро-винарския сектор в перспектива, както на световно, така и на национално ниво. Сортовото разнообразие в лозарството, като съвкупност от местни, интродуцирани и селектирани в страната сортове лози, е важен елемент в контекста на устойчивото развитие на производството на грозде и вино. Освен като носители на генетичен (адаптивен и иновативен) потенциал, цялата гама от отглежданите в страната сортове може да се разглежда и като източник на конкурентно предимство, основано на продуктовата диференциация. Особено важно е значението на местните сортове лози, като обекти на генетично и екологично наследство, познание и културна идентичност. Въпросът за съхранението на сортовото разнообразие в лозарството става все по-актуален, предвид растящата концентрация в производството на грозде от няколко основни сорта, под влияние на пазарните тенденции.

Целта на изследването е да се очертаят възможностите за икономическа валоризация на съществуващото разнообразие от винени и десертни сортове лози в страната, като подход, осигуряващ неговото съхранение. Посредством приложението на методите за ситуационен и динамичен анализ е разгледано състоянието и са проследени тенденциите в изменението на сортовия състав при винените и десертни лозови насаждения в страната. В структурата на площите с лозя доминиращо място заемат интродуцираните сортове, като делът им постоянно се увеличава. Посочени са основните проблеми, които възпрепятстват по-широкото разпространение на местните и селектираните в страната сортове. Дискутирани са възможните икономически модели за валоризация на сортовото разнообразие, генериращи синергизъм в екологично, социално и културно отношение.

DIVERSITY OF COMMON BEAN LANDRACES (PHASEOLUS SPP.) MAINTAINED IN HOME GARDENS OF MOUNTAIN REGIONS IN BULGARIA

Tsvetelina Stoilova^{1*}, Petar Chavdarov¹, Ginka Antova²

¹ Institute of Plant Genetic Resources, 4122 Sadovo, 2 Drugba Str.

² Department of Chemical Technology, University of Plovdiv "Paisii Hilendarski", 24 Tzar Assen Str., 4000 Plovdiv, Bulgaria

*e-mail: tz_st@abv.bg;

Dry bean is considered as one of the major legume crop with big number of landraces grown in Bulgaria. Local forms of *Phaseolus* spp. are conserved on farm in different geographical regions and show a wide morphological diversity.

The aim of our study was to collect, conserve and characterize local populations of *Phaseolus vulgaris* L. and *Phaseolus coccineus* L. typically grown in Smilyan, Troyan and Velingrad regions. Studied *Phaseolus* spp. landraces were selected according to their importance for traditions and culture of local populations. The most popular local forms were characterized using different approaches. In this paper we will present results from morphological characterization, phythopathological evaluation and biochemical analyses. Qualitative and quantitative traits were assessed on 37 accessions of *Phaseolus* spp. during vegetation cycle. The main morphological characters were: growth habit; plant height; size of pods; number of pods/plant; number of seeds/pod and per plant; size, color and shape of seed; 100 seed weight; yield/plant. The majority of observed landraces possess indeterminate growth habit with long duration of vegetation cycle, range between 80 and 140 days. *Phaseolus* landraces showed high seed diversity, in terms of size, shape and color. Seed size was analyzed by 100 seed weight and it varies from 55g to 220g. Seeds were uniform with different baized color red, beige, violet and different patterns, striped or mottled. Results of phythopathology testing under field and laboratory conditions showed different level of sensitive reaction to the main bacterial diseases (*Xanthomonas campestris* pv. *Phaseoli*). Most of the studied accessions were scored with sensitive reaction to bacterial diseases and only four accessions (A9E1185, A9E1243, A9E1248 and A9E1249) were identified with middle sensitive reaction.

Six local accessions were involved in biochemical analyses included lipids content, saturated and unsaturated fatty acids, cholesterol content and vitamin E.

Acknowledgment

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We also acknowledge to the National programme of "Healthy food for strong bio economy and quality of life" to support our study on local plant diversity and its importance for quality of life.

ASSESSMENT GENETIC DIVERSITY OF EINKORN GENOTYPES (TRITICUM MONOCOCCUM L.) BY GLIADIN ELECTROPHORESIS

Gergana Desheva, Bozhidar Kyosev, Manol Deshev

Institute of Plant Genetic Resources “Konstantin Malkov”, 2 Druzhiba Str., 4122 Sadovo, Bulgaria

*e-mail: gergana_desheva@abv.bg

Twenty two einkorn accessions preserved under long-term seed storage in the National gene bank of Bulgaria are evaluated by gliadin electrophoresis. For identification of genotypes is used ISTA method. Modification of A-PAGE of alcohol-soluble proteins (prolamins) is applied for seed analyses of *Triticum monococcum* L. Specialized software is used to create databases with gliadin spectra of the studied genotypes on the bases of the mobility, the intensity of coloring of the protein components and their number. These databases are used to perform a cluster analysis to determine the genetic similarity / distance between the evaluated genotypes. The results of this study indicated that the einkorn genotypes are in different degree similar by gliadin spectrum. Larger variations were observed in ω - and γ -gliadins and less significantly in α - and β -gliadins. Genetically most distant by the gliadin spectrum are BGR 19079 and BGR 19069.

Key words: einkorn, A-PAGE electrophoresis, genetic diversity

GENUS ALLIUM IN ORNAMENTAL HORTICULTURE IN BULGARIA

Rossen Sokolov

Institute of Ornamental and Medicinal Plants, Sofia

e-mail: rossen_sokolov@abv.bg

Representatives of the genus *Allium* (Onion) have long enjoyed the attention of gardeners in many places around the world. They are characterized by a wide variety of shapes and sizes of plants and inflorescences. Decorative onions find application not only as perennial ornamentals in gardens, but also as cultures for obtaining cut flowers. These species have become more serious in our garden landscapes over the past decade thanks mainly to the import of bulbs from well-established species and varieties. In recent years, bulbs and seeds of more than 40 varieties of ornamental onions have been found periodically or annually. After all, 18 not native for Bulgaria species have been cultivated in our country, which in the past were either not known in the horticulture or were only available to specialized plant collections. In addition to our gardening there are 7 complex hybrids and 8 varieties, 4 of them belonging to species occurring in our flora. Interesting is the fact that on the Bulgarian market are offered bulbs (produced abroad) from at least 6 species found in our flora. Depending on the taxonomic approach in Bulgaria, between 40 and 50 onion species are described as at least 20 species or some of their forms have decorative qualities. However, little is done by both scientific institutions and propagating material producers, that these species and their diversity of forms in nature to be explored and attempts to commercialize them. At least 4 onion species are grown in Bulgaria with dual purpose as food and ornamental plants.

SPECIES COMPOSITION OF ROADSIDE PLANTATIONS IN BULGARIA, DYNAMICS AND RISKS FOR BIODIVERSITY

Rossen Sokolov

Institute of Ornamental and Medicinal Plants, Sofia

e-mail: rossen_sokolov@abv.bg

Растителността, опасваща междуселищните пътища и магистралите има многостранен положителен ефект. Доказан е благоприятният ефект върху намаляване на нагряването на пътните настилки, намалява скоростта на вятъра и предпазване от снегонавяване, укрепва крайпътните откоси и насипи. Важен също така е и естетическият ефект, който се постига чрез растенията. В България крайпътните насаждения са с над 100 годишна история което е довело до наличието на значително видово разнообразие в тях, ние идентифицирахме 32 вида дървета и 33 вида храсти, които са широко използвани (на територията на цялата страна или в отделни региони). Преобладаващата част от видовете е с не местен произход (17 вида дървета и 27 вида храсти). От не местните видове съобщени като инвазивни или потенциално инвазивни са 14 дървесни и 7 храстови вида. Установихме, че видовият състав на крайпътните насаждения и близките им околности е динамичен. Увеличаването на числеността на растенията и заеманата площ на едни от използваните видове за сметка на други е често наблюдавано, появата на елементи на крайпътните насаждения извън тях или силното разрастване на насажденията по семенен или вегетативен път също може да се види. От друга страна има тенденция много местни дървесни и храстови видове да се появяват в крайпътните насаждения. Най- често се самонастаняват 17 вида и различни представители на 5 рода (*Chamaecytisus*, *Genista*, *Rosa*, *Rubus*, *Salix*).

ВИДОВО РАЗНООБРАЗИЕ В ПАРКА НА ДВОРЕЦА „КРИЧИМ” И НЕГОВИЯТ ПРИНОС ЗА ОБОГАТЯВАНЕТО НА АСОРТИМЕНТА ОТ ДЕКОРАТИВНИ РАСТЕНИЯ В ЮЖНА БЪЛГАРИЯ ПРЕЗ ВТОРАТА ПОЛОВИНА НА 20-ТИ ВЕК

Владимир Маринов

Държавно ловно стопанство „Кричим”

marinov.vladimir@gmail.com

Дворецът „Кричим” е създаден като ловно имение за българските владетели през 1902 г. След 1905 г. е обособена площ с декоративни и украсни растения. Принос за развитие на парка към Двореца „Кричим” имат Йохан Келерер, Бернхард Курциус, Люсиен Шевалас, Алерикус Делмард. Към 1969 г. колекцията от декоративни растения, отглеждани в парка, достига 294 вида и декоративни форми. През 20-ти век паркът е използван като източник на размножителни материали от голям брой ценни, но все още редки за страната видове като гинко, магнолия, метасеквоя. Декоративният разсадник към двореца предоставя декоративна растителност от различни екзотични видове за озеленяването на различни обществени зелени площи. Като особено знакови обекти в Пловдив и околността, озеленени с растителност, предоставена от разсадника на Двореца „Кричим”, могат да бъдат посочени бул. «Цар Борис III Обединител», Бачковския манастир, манастира «Св.Кирик», Етнографския музей и дворове на къщи в Стария град.

AGROBIOLOGICAL AND PHYSIOLOGICAL EVALUATION OF THE ACCESSIONS OF THE *LATHYRUS* SP. COLLECTION FROM THE GENBANK IN SADOVO

Sofia Petrova* and Radoslav Chipilski

Institute for Plant Genetic Resources “K. Malkov”, 2 Druzhiba str. 4122 Sadovo, Plovdiv Distr., Bulgaria

*e-mail: soniapetrova123@abv.bg

Cultivation of certain forage crops such as grasspea (*Lathyrus* sp.) for green fodder and grain in areas where other species of this group (peas, common vetch) do not develop successfully is a good alternative for farmers. Twelve genotypes are examined from four botanical species (*Lathyrus sativus* L. - 9 accessions, *Lathyrus clymenum* L. - 1 accession, *Lathyrus nissola* L. - 1 accession, *Lathyrus tingitanus* L. – 1 accession). The physiological evaluation of the accessions was done using a CCM 200+ to determine the relative amount of chlorophyll in the leaves. The highest value of the Chlorophyll content index is measured for the accessions - BGR 6291, BGR 2935 and BGR 2966, as the first one the difference is statistically significant. It is from species *L. tingitanus* and feature with the largest average height of the plant and height to the first pod. The two accessions with BGR 2942 and 2989 of the species *Lathyrus sativum* have the highest seed yield per plant. They are distinguished by a larger number of seeds in one pod and a number of pods per plant.

The aim of this study is to analyze drought resistance and seed yield of accessions of grasspea (*Lathyrus* sp.) from the collection maintained in the National genebank at the Institute of Plant Genetic Resources, Sadovo.

Key words: *Lathyrus* sp., drought tolerance, agrobiological evaluation

MORPHOLOGY OF SEED COVER OF CROCUS L. (IRIDACEAE) IN BULGARIA.

Katya Uzundzhalieva

¹ Address: 4122, Sadovo, Plovdiv region, Institute of Plant Genetic Resources

*e-mail: k_spassova@abv.bg

Scanning electron microscopic analysis of the seed cover of the Bulgarian species from the genus *Crocus* L. was done. The submicroscopic surface relief was observed. The scanning electron microscopic observation was made on dry *Crocus* seeds, without any preliminary treatments for physical or chemical dehydration. It was established that according to the ultrastructural marks of the spermoderm Bulgarian species from genus *Crocus* L. are one heterogenous group. They show vivid differences in the character of the indumentum and the sunmicroscopic sculpture of the basic epidermal cells.

РАБОТИЛНИЦА „КОПРИВЕНИ ИСТОРИИ“ (STORYTELLING)

Мария Кисикова, Елица Стоилова, Красимира Кръстанова

Адрес: ПУ „Паисий Хилендарски“, Пловдив

email: mariakissikova@yahoo.com, krkrastanova@uni-plovdiv.net

Разказването на истории представлява социална и културна дейност, свързана със споделянето на истории и импровизирани представления. Всяка култура има собствени истории и разкази, които се разказват за забавление, с образователни и възпитателни цели, за предаване на културата. Устните истории продължават да се създават във връзка с предаването на паметта и наследството от поколение на поколение.

Работилницата "Копривени истории" се опира на метода "разказване на истории" (Storytelling), за да предложи различна гледна точка към копривата. Също както и в известната приказка на Андерсен (където копривата е медиатор, който трансформира "дивите лебеди" в хора и връща истинския им облик), така и в историята, която ще се разказва на работилницата, ще акцентираме върху специфичната роля на копривата в нашата култура (традиционна и модерна) и разностранните ѝ приложения (в кулинарията, козметиката, лечебните практики, тъкачеството и пр.). Целта ни е чрез историите да кажем нещо важно не само за ползите от копривата, но и за ценностите и нормите, които споделяме в нашето общество.

ЛЕЧЕБНИТЕ РАСТЕНИЯ - ДАР ОТ ПРИРОДАТА И УПОТРЕБАТА ИМ В НАРОДНАТА МЕДИЦИНА

(Лингвокултурологичен аспект)

Надежда Николова

Институт за български език „Проф. Л. Андрейчин“ – БАН, бул. „Шипченски проход“, 52,
бл. 17

*e-mail: nvnikolova@abv.bg

През последните години интересът към проучване на лечебните растения както в целия свят, така и у нас бързо нараства. Растенията са универсални символи на духовната култура на човека. Те образуват своеобразен растителен код, въз основа на който се изграждат и предават цели съобщения. Растенията имат различни признаци: форма, цвят, мирис, вкус и пр. Ролята на растенията в народните обичаи се определя преди всичко от наличието на особен растителен код, с който е свързано участието им в многобройни квалификационни системи. Израз на растителният код е символиката, която те носят, свързана с плодородие, цъфтеж, богатство, нов живот.

Народното ни билколечение има своите корени в народната медицина на траки, славяни и прабългари, и привлича вниманието на изследователи с живите си извори. Народният опит е предаван от поколение на поколение устно или - съхранен в народни лекарственици.

В доклада се разглеждат лечебните растения, като се прави лингвокултурологичен анализ. Посочва се употребата на билките в българската народна медицина.

Ключови думи: лечебни растения, българска народна медицина, лингвокултурология

ГРАДСКИТЕ СПОДЕЛЕНИ ГРАДИНИ: МЯСТО ЗА СОЦИАЛНО И АГРОТЕХНИЧЕСКО ЕКСПЕРИМЕНТИРАНЕ

Дона Пикард^{*}, Галина Колева^{**}

Адрес: Московска, 13-А, София 1000

*e-mail: dona.pickard@gmail.com

** e-mail: galyak@gmail.com

Упражняването на земеделски дейности в границите на урбанизираните пространства има дълга история и се развива под различни форми както по света, така и в България. У нас, обаче, от няколко години се заражда и развива нетрадиционно градско земеделие – споделените градски градини, което по своята социална форма и агротехнически практики внася иновативни елементи в градското градинарство.

Докладът представя резултати от интердисциплинарен изследователски проект „Градското земеделие като стратегия за повишаване на качеството на живот на градските общности“, финансиран от Фонд „Научни изследвания“. В рамките на проекта се изследват няколко градски зеленчукови градини в София, създадени с цел както да създават нови форми на социално общуване, така и да прилагат алтернативни на конвенционалното производство технологии за отглеждане на хранителна продукция.

Получените до момента данни в резултат от проведени интервюта, фокус групи и експертни оценки сочат, че и в социален, и в агротехнически аспект, субектите (актьорите), създаващи градските споделени градини, са ориентирани към устойчиви практики. Чрез дейности, които предполагат и стимулират взаимопомощ, обмяна на опит и знания и предаване на здравословни и екологични нагласи на най-малките, стремежът е да се изграждат алтернативни социални мрежи, които да компенсират социалната изолираност и отдалечаването на хората от процеса на производство на храната им, характерни за големите градове. От друга страна, прилагайки екологосъобразни методи на производство (биологични, биодинамични, пермакултурни и т.н.), се експериментира с възможности за по-хармонично съжителство на градските общности с природата и по-устойчиви модели на производство и потребление.

Преплитането на социалния и агротехническия аспекти на новите форми на градското земеделие в изследваните споделени градини в София е интересна отправна точка за изследване на възможностите градинарството да се разглежда като феномен, отразяващ предизвикателствата и перспективите пред задвижваната отдолу-нагоре промяна в посока на по-здравословен и природосъобразен начин на хранително производство и потребление.

МЕЖДУ ПОЛЕТО И ДВОРНТО МЯСТО: ТРАНСФОРМАЦИИ НА ГРАДИНСКИТЕ ПРАКТИКИ В ЕДНО ПОЛУПЛАНИНСКО СЕЛО (ТУРОКОВЦИ, ТРЪНСКО)

Ивайло Марков, ИЕФЕМ – БАН

Резюме: В доклада ще бъдат разгледани трансформациите, които настъпват в градинските практики от 40-те години на XX в. насетне в с. Туроковци, Трънско. Селото е полупланинско (787 м. н.в.), разположено в котловината Знеполе, в подножието на Руй планина. Климатът е умереноконтинентален с големи температурни амплитуди между деня и нощта, а продължителността на вегетационния период 145 дни, което е твърде неблагоприятно за развитие на растениевъдството и зеленчукопроизводството като основен поминък на населението. Земеделието обаче винаги е имало спомагателен характер и всяко домакинство е имало в миналото (а и днес) зеленчукова градина за задоволяване на собствени нужди Във фокуса на изследователското внимание ще бъдат факторите, определящи къде се засажда зеленчуковата градина, какви култури се засаждаат и какви са практиките по отглеждането им, как се променя пейзажът в землището на селото в течение на времето. Ще бъдат коментирани и социалните отношения, произтичащи от организирането и отглеждането на градината.

GEORAPHICAL INDICATIONS – ECONOMIC EFFECTS AND IMPACT TO THE AGRICULTURAL PRODUCTS AND FOOD

Mariya Peneva^{1*}

¹ University of National and World Economy (UNWE), Department of Natural Resources Economics, Sofia

*e-mail: peneva_mm@yahoo.co.uk

Currently, more than 3 330 Geographical Indications (GIs) are registered in the EU, encompassing all types of agriculture and food products. The GIs links a product, its unique characteristics and its area of geographical origin with associated characteristics (quality, taste, habits, etc.). The economic rationale for their protection relates on the economics of information and reputation and its protection reflects both consumers' protection and producers' protection. Additionally, the economy of GIs is emphasized by both European policies and the literature taking into account their potential to improve rural livelihoods based on local resources and contribution to overall rural development. The economic importance of GIs products is presented by the market size and the potential to increase the sectorial' competitiveness and viability. Therefore, the paper collects and estimates available data to assess the market size for EU GI agricultural products and foods based on the datasets and reports of the official statistics combined with systematic literature review on the academic findings related to the understanding of the key determinants in consumption decision. The results reveal the high level of concentration of GI products in terms of origin (country) and the most important GI market is the domestic market of the EU with very diverse economic value of agri-food GIs in each member state. Important finding is that, on average, the implementation of GI schemes leads to an increase of local value added supporting rural communities. The research acknowledges the complexity of the consumer behaviour and changes needed in products promotion, pricing and communication based on the territorial origin as a strategic tool for differentiation in agri-food markets. Promising economic and policy implications are identified.

APPROACHES TO THE GARDEN AS A BIOCULTURAL TOPOS

Valentina Ganeva-Raycheva¹, Teodora Ivanova², Petar Petrov¹, Yulia Bosseva², Yana Yancheva¹,
Dessislava Dimitrova²

¹ Institute of Ethnology and Folklore Studies with Ethnographic Museum, Bulgarian Academy of Sciences

² Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences

*e-mail: dessidim3010@gmail.com

The lecture presents the research project “The Garden: Site of Biocultural Diversity and Interdisciplinary Junction”, DN10/1 funded by the National Science Fund and implemented by an interdisciplinary team from two institutes of the Bulgarian academy of Sciences. The project aims at unveiling the role of plants cultivated in the home gardens for the establishment and maintenance of social relationships, cultural values and models, every-day practices, symbols and perceptions of local communities. In the same time our research has demonstrated the impact of local knowledge and experience, information from books and internet, social interrelations, agricultural and gastronomic practices on plant genetic resources maintained locally and has outlined the drivers for their preservation and/or loss. The theoretical framework of the study is shaped by the concept of biocultural diversity and further developed by the concept of cultural biography and social life of things and landscapes and supported by the knowledge of natural habitats and ecosystem services.

Field studies were focused in mountain and semi-mountain settlements but also in some places in the Bulgarian lowlands. Our interest was drawn also to places famous for a specific local plant variety, e.g. Upper Arda river valley for the Smilyan beans, Kurtovo Konare for the diversity of tomatoes and peppers, Reselet, Banichan and Pesterna for their water onions. The majority of interviewed men and women were between 40 and 85 years old. Women were over 65% of the total number of respondents. To better understand the local context we interviewed mayors, local agronomists, members of local NGOs and employees of the community cultural centres (chitaliste) additionally to the respondents directly involved in the maintenance of the home gardens.

The multifaceted image of the garden reveals different aspects of the garden: a source of economic activities; a place for social interactions within and beyond family; an experimental plot and in the same time a biocultural refugium; a “story” and a place for “cultivation” of memories (tendering of specific plants that are part of the family history); an in situ gene bank for local resources and a starting point for further valorization and construction of local identities.

A total inventory of the plant diversity of 51 home gardens revealed that 230 species of wild and cultivated species are grown in the studied plots. The food and ornamental plants prevailed – 42% and 44% respectively. The diversity is further described by medicinal plants (4%), spices (9%), forage (1%), technical (1%), and insecticide (1%) plants.

We present a case study on the Banichan onion – a variety of water onion from the village of Banichan, SW Bulgaria. It illustrates explicitly our observations and allows us to complete our conclusions.

TRADITIONAL ECOLOGICAL KNOWLEDGE AND CONSTRUCTION OF BIOCULTURAL IDENTITIES

Dessislava Dimitrova¹, Valentina Ganeva-Raycheva², Teodora Ivanova¹, Yulia Bosseva¹

¹ Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences

² Institute of Ethnology and Folklore Studies with Ethnographic Museum, BAS

*e-mail: valrai@abv.bg

The home of the present-day traditional ecological knowledge are rural areas of Bulgaria, while its guardians are the farmers and plant growers who tender the land today. Bulgarian rural areas have passed through several, sometimes opposite, stages of development – from predominantly rural country until 1940s, through nationalization of land (over 95%) during the communist regime to land restitution and privatization of assets after the political changes in Bulgaria in 1989. Most recent major driver of rural development is the Common Agricultural Policy and related subsidies. Despite the strong negative trends that exist today in rural areas of Bulgaria such as high rate of depopulation, polarization of agriculture and in the same low expertise of the majority of farmers, re-wildening and ruderalization of abandoned grasslands and fields, replacement of local landraces with foreign varieties, rural areas are still the home of a large variety of local plant genetic resources and the related traditional knowledge for their cultivation and utilization.

In mountain and semi-mountain areas home gardens are the major source of food diversity and sovereignty. Home gardens vary in size – 100-12000 m², depending on terrain and mode of previous collectivization. The activities in the garden are seasonal and most often involve traditional agricultural practices. However, we registered lack of consistent knowledge and (over)use of pesticides and herbicides. The crops cultivated in home gardens vary from local landraces to imported varieties depending on the taste preferences of the owners and economic goals. We did not register clear recognition of the importance of local land races and responsibility for their preservation.

We present several case studies from different parts of the country demonstrating the potential of plant diversity and related traditional ecological knowledge for local development. We present two modes of valorization and construction of biocultural identity that occur today in rural areas – food related festivals and products with geographical reference.

Celebration of local food at various festivities in rural areas has become popular in the recent years. The organizational approach and contents of the events differ largely – from a festival dedicated to well-established local crop like Smilyan beans to a festival dedicated to a crop that no longer is cultivated in the area like the water melon festival in Petrevene. These festivals reveal the level of understanding and recognition of plant genetic resources and what are the perceptions of the local communities about them.

EU quality schemes are relatively new to Bulgaria and the identification of products with geographical reference is in its beginning. Local plant varieties deeply rooted in their place of origin can be a promising starting point for such products. However, the entrepreneurial mentality and the low level of cooperation among farmers hinders the effective implementation of the promotional schemes.

CULTURAL ASPECTS OF ARCHAEOPHYTE AND NEOPHYTE CROP SPECIES FROM BULGARIAN GARDENS

Ganeva-Raycheva Valentina^{1*}, Teodora Ivanova², Yulia Bosseva², Dessislava Dimitrova²

¹Institute of Ethnology and Folklore Studies with Ethnographic Museum, Bulgarian Academy of Sciences, 6 Acad. G. Bonchev St., 1113 Sofia

²Institute of Biodiversity and Ecosystem Research, BAS, 23 Acad. G. Bonchev St., 1113 Sofia, Bulgaria

*e-mail: valrai@abv.bg

Home garden is unique interspace between humans and nature that accommodates diverse spectrum of plant species providing multiple services to the households. Mutually, humans intensively have invested considerable efforts and resources to construct and maintain a favorable environment for growing and breeding of crop species. Naturally, this ancient and almost universal connection between humans and plants have found its reflection in the human culture and probably one of the most comprehensible case are the ornamental crops. We focus on the cultural aspects of two of the most popular garden plants introduced in Bulgaria with a time difference of about a millennium - the sweet basil (*Ocimum basilicum* L.) and the marigolds (*Tagetes* L.). Traditional and modern usage of *Ocimum* and *Tagetes* in Bulgaria are presented and changes in cultural significance of these taxa are discussed. Representations in the folklore are contrasted to the modern perceptions of basil and marigolds recorded during ongoing field study in Bulgarian rural home gardens (2017-2019).

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ROSACEAE SPECIES IN BULGARIAN FOLK SONGS

Ivanova Teodora^{1*}, Yulia Bosseva¹, Dessislava Dimitrova¹, Valentina Ganeva-Raycheva²

¹Institute of Biodiversity and Ecosystem Research, BAS, 23 Acad. G. Bonchev St., 1113 Sofia, Bulgaria

²Institute of Ethnology and Folklore Studies with Ethnographic Museum, Bulgarian Academy of Sciences, 6 Acad. G. Bonchev St., 1113 Sofia

*e-mail: tai@bio.bas.bg

Bulgarian musical heritage has attracted considerable attention throughout the years and for many people around the world it is the first gateway to Bulgarian culture. However, traditional ecological knowledge transmitted through Bulgarian folklore is scarcely assessed. We have conducted an ethnobiological study on the diversity of wild and cultivated *Rosaceae* taxa appearing in Bulgarian folk songs and explored the link between their biological characteristics and the role they play in the folk songs. Lyrics were excerpted from major academic collections published from the mid-nineteenth century onwards and from a set of unpublished songs. *Rosaceae* species were most frequently mentioned species (1093 times) in 10113 studied songs and were found nearly twice and four-times more frequently than *Poaceae* and *Vitaceae*, respectively. Plants from 16 *Rosaceae* taxa were found valued both for the nutritive qualities of their fruits and for the ritual and/or symbolic connotations of the whole plant and/or some of its parts. *Rosaceae* mentionings did not describe the plant or its parts per se, but rather reflected the interrelation between humans and nature, presenting numerous contributions of plants to subsistence, cultural and social aspects of human life. Nevertheless, in the majority of cases symbolic functions of plants are underpinned by very detailed ethnobiological knowledge about the biology and morphology of plants, their seasonality and even distribution patterns in their wild habitats.

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RURAL GARDENS IN BULGARIA – PLANT CONSERVATION AND FOOD SOVEREIGNTY HOT-SPOTS?

Dimitrova Dessislava^{1*}, Teodora Ivanova¹, Yulia Bosseva¹, Cristian Banciu²

¹Institute of Biodiversity and Ecosystem Research, BAS, 23 Acad. G. Bonchev St., 1113 Sofia, Bulgaria

²Institute of Biology Bucharest of Romanian Academy, 296 Splaiul Independentei, 060031 Bucharest, Romania

*e-mail: dessidim3010@gmail.com

Home gardening have contributed substantially for the food self-provision of Bulgarians in the past and still ensures (economically and culturally) important share of the local diet. Another important aspect of this practice is maintaining of old varieties and local landraces that are distributed off the market which is in the foundation of the target 9 of the Global Strategy for Plant Conservation (GSPC) - 70% of the genetic diversity of crops including their wild relatives and other socio-economically valuable plant species conserved, while respecting, preserving and maintaining associated indigenous and local knowledge. In the last decade the number of studies on European gardens, landraces and related traditional knowledge increase. Still, data for Southeast European countries is quite limited. Current study focuses on home gardens in rural regions of Bulgaria as places of self provision of food and as in situ gene banks for local plant genetic resources. Inventories of garden plant diversity and semi-structured interviews were conducted in 42 settlements. Collected data revealed that local communities, mostly seniors, still maintain local landraces, old varieties together with the related knowledge to save seeds, to breed desired features and to tend important wild plants in the gardens. Previous experience of the locals with the Socialist collective farms and the following land privatization were recognized as important factors the shape the home gardens and the maintained crop diversity. Additionally, the import of foreign varieties, hybrids and plants with invasive potential were recorded even in remote settlements with limited access.

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NEED FOR “WEED” – INTRODUCTION AND TOLERANCE OF WILD PLANT SPECIES IN THE GARDENS

Ivanova Teodora^{1*}, Cristian Banciu², Yulia Bosseva¹, Dessislava Dimitrova¹

¹Institute of Biodiversity and Ecosystem Research, BAS, 23 Acad. G. Bonchev St., 1113 Sofia, Bulgaria

²Institute of Biology Bucharest of Romanian Academy, 296 Splaiul Independentei, 060031 Bucharest, Romania

*e-mail: tai@bio.bas.bg

Studies, carried out in the last 20 years, track the negligence and gradual disappearance of the European traditional ecological knowledge and hence recommend its urgent documentation and preservation. This is partially related to the growing urbanization and industrialization of agriculture. Home gardens remained one of the few grounds in which humans still could actively interact and benefit with/of plants. Current study focuses on wild plants tended in home yards in 35 rural settlements in South and Northwest Bulgaria. Inventories and semi-structured interviews were conducted among women and men between 35-84 years in the period 2017-2019. Wild tended plants from 64 taxa found to provide both provisional and/or cultural services. Ornamentals were most frequently recorded (35) followed by medicinal (28), food plants (15), spices and flavouring (8) and few dyes (3). Mostly perennial plants were associated with cultural ecosystem services i.e. memorabilia, aesthetic enjoyment, physical and mental health benefits and some ritual practices. Interestingly, annual and herbaceous perennial plants were considered important and had reserved spots in the garden but often referred to as “weed” or “grass” as no or very little care is provided for them. These were more often associated with traditional knowledge on edible greens and folk medicine. Intentionally introduced individuals were associated with certain memorable event and/or person in the past.

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