



Slovak University of Agriculture in Nitra
Faculty of Agrobiolgy and Food Resources
Institute of Biodiversity Conservation and Biosafety
Department of Genetics an Plant Breeding
Excellent Centre for the Conservation and Sustainable Use
of Agrobiodiversity
Research Centre AgroBioTech

and



M.M. Gryshko National Botanical Garden of National
Academy of Sciences of Ukraine, Kyiv, Ukraine
Department of Fruit Plants Acclimatization

Book of Abstracts

of the

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Conference

Agrobiodiversity for Improve
the Nutrition, Health and Quality
of Human and Bees Life

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Arboretum and Institute of Physiography
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**Institutions and experts were actively involved in the organization
of the International Conference**

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and Quality of Human and Bees Life**

in the framework of

AgroBioNet

International Network

within the implementation of the International Program

'Agrobiodiversity for Improve the Nutrition, Health and Quality of Life'

in the form of solved research, education and development projects and research stays

Authors and author collectives present at the international conference in lectures,
posters and publications also results and knowledge obtained from the solution

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Dear Participants

For us, the organizers of the 4th International Conference 'Agrobiodiversity to Improve Nutrition, Health and Quality of Human and Bees Life', it is a great pleasure and as well as a great honour to welcome you to Slovakia, the ancient city Nitra and on the Slovak University of Agriculture in Nitra.

The Congress Centre of the Slovak University of Agriculture in Nitra will be the venue of scientific and academic discussions, presentations, interventions, confrontation of opinions, exchange of knowledge and experience, initialing new contacts and meetings of cooperating members of AgroBioNet International network.

The Slovak University of Agriculture in Nitra, represented by the Institute of Biodiversity Conservation and Biosafety and the M.M. Gryscho National Botanical Garden at the National Academy of Sciences of Ukraine in Kyiv, represented by the Department of Plant Introduction, initiated in 2013 the international conferences about biodiversity and agrobiodiversity and they want to continue and develop them.

The reason is very simple. The theme of International Conferences focused on the conservation and usage of agrobiodiversity to improve nutrition, health and quality of life is the foundation of the present civilization. Therefore, the issue brings together not only all-conference participants but also other botanists, researchers, breeders, seedsmen, growers, processors and other professions they recognize, using not only traditional plant species but also forgotten, less-used and less-known species for food security, food safety and resolving the other needs of civilization.

This is evidenced by the very extensive focus of the presented knowledge and results achieved in the solution of research and development projects of research and academic institutions processed in the form of abstracts in the submitted publication of this year's international conferences.

Researchers' efforts to conduct experiments aimed at preserving, identifying, evaluating, expanding and exploiting the unique phenomenon of biodiversity and the still undervalued use of agri-biodiversity are also evidence that, despite the lack of fund, technical equipment, and national governments understanding, researchers present extensive original knowledge and results.

On behalf of the organizers of this conference, we wish all participants a pleasant stay in Slovakia, in the city Nitra and at the Slovak University of Agriculture in Nitra. I wish to all authors and co-authors of the presented scientific publications a successful presentation in a creative atmosphere.

The International Conference organizers also thank all the other co-organizers of the international conference for their help and support!

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AMINO ACID COMPOSITION OF LEAVES, FRUITS, SEEDS AND CALYX OF AMERICAN PERSIMMON (*DIOSPYROS VIRGINIANA* L.)**Yulia Zhabrovets¹, Yevhen Kustovskiy¹, Alla Kustovska¹, Olga Grygorieva², Zuzana Schubertová³**¹National Pedagogical Dragomanov University, Kyiv, Ukraine; E-mail: additive@ukr.net²M.M. Gryshko National Botanical Garden of the National Academy of Sciences of Ukraine, Kyiv, Ukraine³Institute of Biological Conservation and Biosafety, Slovak University of Agriculture in Nitra, Slovak Republic

Diospyros virginiana L. (American persimmon) since ancient times are used in folk medicine. The fruit has been used medicinally as antiseptic and for the treatment of burns, diphtheria, dropsy, diarrhea, gonorrhoea, candidiasis, dysentery, fevers, thrush, fungal and bacterial infections, gastrointestinal bleeding, sore throats, exhibit antimicrobial and antifungal activities. Also, the persimmon fruit can be considered as a highly nutritional product because of its strong antioxidant capacity induced by a high content of flavonoids, vitamin C, beta-carotene. Biologically active compounds are located not only in fruits but in different parts of the plant: bark, wood, leaves, roots. The bark has antiseptic properties, hepatoprotective and antipyretic activity, the leaves showed antimycobacterial effect, the roots of American persimmon showed antifungal effect. Powder of dry leaves has been used for a long time in folk medicine. The leaves of *Diospyros virginiana* found lupeol, betulin, betulinic acids – components that are famous with their antitumor properties.

The aim of this study was to investigate qualitative and quantitative content of amino acids compounds of leaves, fruits, seeds and calyx of *Diospyros virginiana* from which are growing in Forest-Steppe of Ukraine in M.M. Gryshko National Botanical Garden of NAS of Ukraine (NBG). The content and composition of amino acids determined on automatic amino acid analyzer AAA 339 M (MIKROTECHNA, Czech Republic).

As a result of the research, it has been found that the fruits amino acids (alanine, asparagine, cysteine, glycine, glutamine, proline, serine, tyrosine) in an amount from 0.1 to 1.4 g/kg⁻¹. Seeds contained from 0.6 to 5.6 g/kg⁻¹, leaves from 2.2 to 17.4 g/kg⁻¹ and calyx from 2.9 to 12.6 g/kg⁻¹. Also, the content of essential amino acids arginine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, valine was distributed as it follows: in fruits from 0.2 to 2.1 g/kg⁻¹, in seeds from 0.01 to 3.5 g/kg⁻¹, in leaves from 2.3 to 12.3 g/kg⁻¹, in calyx from 1.3 to 23.5 g/kg⁻¹. The result of the research allows us to state that the highest level of amino acids can be found in leaves and calyxes. Among the essential amino acids (g/kg⁻¹), the highest content in leaves was 12.3 (arginine), 10.1 (leucine), 8.1 (valine), among non-essential amino acids 17.4 (glutamine), 10 (asparagine), 6.8 (alanine). In the calyxes, the highest content was 23.5 (histidine), 12.6 (glutamine), 11.3 (asparagine), 9.6 (leucine), 8.4 (valine), 7.3 (alanine).

Obtained results of this study indicated about high and diversified content of amino acids and allow to suggest the availability of wide specter of pharmacological activity of leaves, fruits, seeds, and calyx *Diospyros virginiana*. This indicates on the perspective of the use of investigated raw (particularly, leaves и calyx) as a source of essential and non-essential amino acids, and also can be used for in-depth study of *Diospyros virginiana* as a source of other biologically active compounds.

Keywords: *Diospyros virginiana*, amino acids, leaves, fruits, seeds, calyx.

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