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Book of Abstracts

of the

4th International Scientific Conference
Agrobiodiversity for Improve
the Nutrition, Health and Quality
of Human and Bees Life

September 11–13, 2019

Nitra–2019
Co-organizers

Arboretum and Institute of Physiography in Bolestraszyce, Poland

Botanical Garden of Slovak University of Agriculture in Nitra, Slovak Republic

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Institutions and experts were actively involved in the organization of the International Conference

*Agrobiodiversity for Improve the Nutrition, Health 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

**Research Projects**

- ITEBIO ITMS 26220220115
- ECOVA ITMS 26220120015
- ECOVA plus ITMS 26220120032
- AGROBIOTECH ITMS 26220220180
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Research Programs from research stay of participants with financial support from the Agencies and the EU program

Ministry of Education, Science, Research and Sport of the Slovak Republic – Bilateral Agreements

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SUPERFAMILY APOIDEA IN ORGANIC AGROLANDSCAPES OF WINTER WHEAT

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Bees play a key role in pollinating plants and are very sensitive to adverse factors, which is why they are used as indicators of the environment. Biodiversity of agroecosystems is an indicator of the degree of their anthropogenic transformation and stability. In organic farming, unlike conventional, pesticides, agrochemicals and artificial fertilizers, GMOs are not used. It is close to natural conditions, but remains artificially created. Therefore, in such agrolandscapes, the qualitative and quantitative composition of the biocenose and, accordingly, environmental indicators, which include Apoidea, are changing.

The aim of the research was to identify the diversity of superfamily Apoidea in the organic agrolandscapes of winter wheat in the Right-Bank Forest-Steppe of Ukraine.

The research was carried out at the Skvyra Research Station for organic production; its organic fields have been certified since 2013 and are typical for this natural zone. Insects were gathered using the standard entomological aerial insect net (20 waves, 5 repetitions) on the organic fields of winter wheat (phase BBCH 85). Control was the fields of winter wheat with conventional technology. The area of the organic field is 6.12 hectares; studied areas are 100 m². Apoidea representatives were detected in agroecoses, ecotones between fields and forest shelter belts, as well as in forest shelter belts.

Representatives of families Halictidae (3 species / 100 m²) and Colletidae (1 species / 100 m²) were found on the organic field of winter wheat. In the ecotones between the field and the forest shelter belt we found families Crabronidae (1 species / 100 m²) and Megachilidae (2 species / 100 m²). Families Andrenidae (1 species / 100 m²), Halictidae (4 species / 100 m²), Megachilidae (2 species / 100 m²) and Colletidae (1 species / 100 m²) were in the forest shelter belts near the organic field. In the conventional field, families Crabronidae (2 species / 100 m²), Andrenidae (1 species / 100 m²) and Colletidae (1 species / 100 m²) were found.

Bees of these families have a variety of nesting behavioral forms and trophic relations. In the organic agrolandscape there were representatives of genera Philanthus and Cerceris, which have a different food specialization. However, their larvae are entomophagous and harm the bees. Also, there were important pollinators of plants – genera Hylaeus and Andrena. In the forest shelter belt near the organic field with winter wheat, the largest number of families and representatives of bees were found, 50% of which are Halictidae.

Organic farming allows biodiversity to be sustained. However, agroecoses of winter wheat are artificially created by human semi-natural systems, which should contribute to the sustainability and productivity of agroecosystems. Therefore, amount of bees are less there than in the adjoining forest shelter belt with a more complex structure of biotopes.

**Keywords:** Apoidea, organic farming, winter wheat, biodiversity.

**Acknowledgments**
My great thanks to Dr A.V. Puchkov (Schmalhausen Institute of Zoology NAS of Ukraine) for the identification of bees in superfamily Apoidea. My special thanks to Dr V.V. Lavrov, my scientific adviser (Bila Tserkva National Agrarian University) for reviewing this paper.

[https://doi.org/10.15414/2019.9788055220703](https://doi.org/10.15414/2019.9788055220703)