

MAKÜ

BURDUR MEHMET AKİF ERSOY ÜNİVERSİTESİ

9. INTERNATIONAL CONFERENCE ON AGRICULTURE, ANIMAL SCIENCES AND RURAL DEVELOPMENT

19-20 MARCH, 2022 / BURDUR



**CONFERENCE
PROCEEDINGS BOOK**

EDITOR

Prof. Dr. Hakan ONER

Assoc. Prof. Dr. Seyithan SEYDOSOGLU

ISPEC
**9th INTERNATIONAL CONFERENCE ON AGRICULTURE,
ANIMAL SCIENCE and RURAL DEVELOPMENT**

DATE – PLACE
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ON AGRICULTURE, ANIMAL SCIENCES
AND RURAL DEVELOPMENT**



**BURDUR MEHMET AKIF ERSOY UNIVERSITY, TURKEY
March 19-20, 2022**

CONFERENCE PROGRAM

IMPORTANT, PLEASE READ CAREFULLY

- ❖ To be able to attend a meeting online, login via <https://zoom.us/join> site, enter ID “Meeting ID or Personal Link Name” and solidify the session.
- ❖ The Zoom application is free and no need to create an account.
- ❖ The Zoom application can be used without registration.
- ❖ The application works on tablets, phones and PCs.
- ❖ The participant must be connected to the session 5 minutes before the presentation time.
- ❖ All congress participants can connect live and listen to all sessions.
- ❖ Moderator is responsible for the presentation and scientific discussion (question-answer) section of the session.

Points to Take into Consideration - TECHNICAL INFORMATION

- ◆ Make sure your computer has a microphone and is working.
- ◆ You should be able to use screen sharing feature in Zoom.
- ◆ Attendance certificates will be sent to you as pdf at the end of the congress.
- ◆ Requests such as change of place and time will not be taken into consideration in the congress program.

ÖNEMLİ, DİKKATLE OKUYUNUZ LÜTFEN

- ❖ Kongremizde Yazım Kurallarına uygun gönderilmiş ve bilim kurulundan geçen bildiriler için online (video konferans sistemi üzerinden) sunum imkanı sağlanmıştır.
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- ❖ Zoom uygulaması ücretsizdir ve hesap oluşturmaya gerek yoktur.
- ❖ Zoom uygulaması kaydolmadan kullanılabilir.
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- ❖ Her oturumdaki sunucular, sunum saatinden 5 dk öncesinde oturuma bağlanmış olmaları gerekmektedir.
- ❖ Tüm kongre katılımcıları canlı bağlanarak tüm oturumları dinleyebilir.
- ❖ Moderatör – oturumdaki sunum ve bilimsel tartışma (soru-cevap) kısmından sorumludur.

Dikkat Edilmesi Gerekenler- TEKNİK BİLGİLER

- ◆ Bilgisayarınızda mikrofon olduğuna ve çalıştığına emin olun.
- ◆ Zoom'da ekran paylaşma özelliğine kullanabilmelisiniz.
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- ◆ Katılım belgeleri kongre sonunda tarafınıza pdf olarak gönderilecektir
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exp. H- 1, Lütfi ARSLAN**

CONGRESS LANGUAGES: English and All Turkish Dialects

**ASPECTS OF FUNCTIONING OF NEW MODELS OF BIOGEOCENOSSES OF
MEMBRANES AND ENTOMOPHILIC CULTURES AS AN INDISPENSABLE
COMPONENT**

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ABSTRACT

Bioindication is the assessment of the state of the environment with the help of living objects (cells, organisms, populations, communities) - indicators. They can be used to assess both abiotic factors (temperature, humidity, acidity, salinity, pollutant content, etc.) and biotic (viability of organisms, their populations and groups). Bioindication is based on observation of the composition and number of living animals belonging to the indicator species. A living indicator is a bioindicator is a group of individuals of the same species or community, the presence, condition and behavior of which are judged by changes in the environment, including the presence and concentration of pollutants. Such indicators have a number of advantages: in the conditions of chronic anthropogenic influences they can react even to relatively weak interactions due to the cumulative effect; allow us to draw conclusions about the degree of harmfulness of any substance synthesized by man, for wildlife and for herself; while giving the opportunity to control their influence and others. Under the global environmental changes, the use of bioindicators for the various ecosystems is gaining popularity. One of the most valuable bioindicators of the ecosystems health is the honey bee (*Apis mellifera L.*), as a biological indicator it has important morphological, ecological and behavioral features. Among all membranous insects, the honey bee is recognized as the most valuable pollinator of flowers, which is an important component of biogeocenoses and contributes to the natural reproduction and enrichment of the plant world. Productive activities of bee colonies significantly increase the yield of fruits and seeds of entomophilous crops and increase the level of pollination of plants through a rational combination of beneficial effects of honey bees and other membranous insects. According to the State Program for the Development of Beekeeping in Ukraine, one of the key objectives of the project is to increase the yield of

entomophytic crops and produce sufficient honey, wax, pollen, propolis, royal jelly, bee venom for food, medical, perfumery and other industries. and for export purposes. Insects make a significant contribution to global food security and are key to the conservation of biodiversity on our planet. Intensive agriculture, land use change, monocultures, pesticides and climate change pose problems for bee populations and, as a result, food quality, which can have far-reaching negative consequences for humanity. Therefore, the need for breeding membranous insects, in particular osmium, which can provide a high level of pollination of entomophytic crops under adverse environmental conditions and uncontrolled use of pesticides. But modern climate changes do not contribute to the number of bees increase and their productivity; with the air temperature decrease in compared to optimal during the flowering of winter rapeseed, regardless of the length of its stay in this phase, a decrease in honey production was observed from 23.8 to 76.2% and bee pollen - from 33.3 to 55.5%. The aim of the work was to analyze and summarize information from scientific, journalistic sources and statistics on the peculiarities of the use of insects for bioindication of different environments; in particular, the honey bee (*Apis mellifera* L). The task of research was to analyze scientific publications in the following areas: 1) to characterize the essence, relevance of bioindication; features of the use of indicator insects; determining the advantages, directions and prospects of using the honey bee as a biological indicator; 2) assess the importance and prospects of using the honey bee as a bioindicator of the state of ecosystems in connection with global climate change. The severe droughts have become more frequent and the summer temperatures have risen significantly, the climate is acquiring signs of continentality in Ukraine in recent decades. The duration and nature of the growing season have changed, the spring period is limited by stable transitions of the average daily air temperature through 0 and 15°C; short, no more than 2 months, with the sharp increase in heat. Now, under the Kherson region conditions, the years with an average annual temperature of at least 8.5-9.5°C and 15.0-16.0°C during the growing season are considered cold. Such climate change increases the risk of extinction of insect species and, in particular, the number of honey bees downsizing due to changes in honey plants. With a combination of temperature increase and water stress factors, the total nectar sugars amount decreased by 60.0%, an increase in temperature without water stress caused a decrease in pollen weight by 50% per flower with the pollen polypeptide concentration increase in by 65%. The climate change factor also influenced the bee population indicators in Ukraine; for the period 2005-2019 the bee colonies number decreased from 3369.0 thousand to 2633.2 thousand. Therefore, under the conditions of the South of Ukraine, the honey bee (*A. mellifera*) can be used as a biological indicator of the ecosystem elements situation and climate change

Key words: honey bee, ecosystem, bioindicators, insects.