

DRUŠTVO GENETIČARA SRBIJE  
SEKCIJA ZA OPLEMENJIVANJE ORGANIZAMA

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SERBIAN GENETIC SOCIETY  
SECTION OF THE BREEDING OF ORGANISMS

DRUŠTVO SELEKCIONERA I SEMENARA  
REPUBLIKE SRBIJE

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SERBIAN ASSOCIATION OF PLANT  
BREEDERS AND SEED PRODUCERS

# ZBORNİK APSTRAKATA

X SIMPOZIJUMA DRUŠTVA SELEKCIONERA I SEMENARA  
REPUBLIKE SRBIJE

i

VII SIMPOZIJUMA SEKCIJE ZA OPLEMENJIVANJE ORGANIZAMA  
DRUŠTVA GENETIČARA SRBIJE

VRNJAČKA BANJA, 16.-18. OKTOBAR 2023.

# BOOK OF ABSTRACTS

X SYMPOSIUM OF THE SERBIAN ASSOCIATION OF PLANT  
BREEDERS AND SEED PRODUCERS

AND

VII SYMPOSIUM OF THE SERBIAN GENETIC SOCIETY  
SECTION OF THE BREEDING OF ORGANISMS

VRNJAČKA BANJA - SERBIA, 16-18 OCTOBER 2023

Beograd/Belgrade  
2023.

**Izdavač/Publisher**

Društvo genetičara Srbije, Beograd  
Serbian Genetic Society, Belgrade

Društvo selekcionera i semenara Republike Srbije  
Serbian Association of Plant Breeders and Seed Producers, Belgrade

**Urednici/Editors**

dr Vesna Perić, dr Vojka Babić, dr Sandra Cvejić

**Priprema za štampu i realizacija štampe**

ABRAKA DABRA, Novi Sad

**Tiraž**

150

Ova publikacija je štampana uz finansijsku pomoć Ministarstva nauke, tehnološkog razvoja i inovacija

Simpozijum je organizovan u saradnji sa Institutom za kukuruz "Zemun Polje", Beograd i Institutom za ratarstvo i povrtarstvo, Institutom od nacionalnog značaja za Republiku Srbiju, Novi Sad

**ISBN: ISBN-978-86-87109-17-9**

Beograd/Belgrade

2023.

X SIMPOZIJUM DRUŠTVA SELEKCIONERA I SEMENARA REPUBLIKE SRBIJE i VII  
SIMPOZIJUM SEKCIJE ZA OPLEMENJIVANJE ORGANIZAMA DRUŠTVA GENETIČARA  
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PRODUCERS and VII SYMPOSIUM OF THE SERBIAN GENETIC SOCIETY SECTION OF  
THE BREEDING OF ORGANISMS

Vrnjačka Banja - Serbia, 16-18 October 2023

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## PRIMENA ALTERNATIVNIH METODA ZAŠTITE USEVA U ODRŽIVOJ POLJOPRIVREDI

Marijenka Tabaković<sup>1</sup>, Vesna Dragičević<sup>1</sup>, Ratibor Štrbanović<sup>2</sup>, Ivana Živković<sup>3</sup>, Milan Brankov<sup>1</sup>, Sveto Rakić<sup>4</sup>, Violeta Oro<sup>2</sup>

<sup>1</sup> Institut za kukuruz "Zemun Polje", Slobodana Bajića 1, 11185 Beograd-Zemun, Srbija

<sup>2</sup> Institut za zaštitu bilja i životne sredine, Teodora Drajzera 9, 11040 Belgrade, Srbija

<sup>3</sup> Institut za povrtarstvo, Karađorđeva 71, 11420 Smederevska Palanka

<sup>4</sup> Poljoprivredni fakultet, Univerzitet u Beogradu, Nemanjina 6, 11080 Beograd-Zemun, Srbija  
e-mail: [mtabakovic@mrizp.rs](mailto:mtabakovic@mrizp.rs)

Globalno zagrevanje, zagađenje životne sredine, gubitak biološke raznolikosti biljnih vrsta su pojave koje pokreću nove trendove i debate o ljudskom društvu. Održivi razvoj je novi koncept u svetu koji treba da zadovolji potrebe ljudskog društva uz očuvanje i unapređenje prirodnih resursa. Indikatori održivog razvoja su glavni alati u sprovođenju mera očuvanja prirodnih resursa. U poljoprivredi jedan od indikatora su štete nastale primenom sintetičkih sredstava. Primena novih tehnologija bez upotrebe hemijskih agenasa u zaštiti useva je mera koja treba da umanjuje nastale ekološke gubitke. Etarska ulja su jedan od najznačajniji prirodnih metabolita, sekundarni produkti aromatičnih biljaka koji se uspešno koriste kao biopesticidi. Biološka aktivnost etarskih ulja u poljoprivredi ima antimikrobno i herbicidno dejstvo. Efekti ulja zavise od pojedinačnih bioaktivnih komponenti. U prirodi igraju važnu ulogu u zaštiti biljaka kao antibakterijski, antivirusni, antifungalni, insekticidni agensi. Kod većine korova, ulja kao tipični lipofili, prolaze kroz ćelijski zid citoplazmatske membrane, remete strukturu njihovih različitih slojeva polisaharida, masnih kiselina i fosfolipida i permeabiliziraju ih. Štete od primene eteričnih ulja (EU) na biljkama ogledaju se kroz hloroze, nekroze i inhibicije rasta. Značaj upotrebe ulja i drugih prirodnih metabolita ukazuje na njihovu upotrebnu vrednost u održivoj poljoprivredi iako fiziološka aktivnost ulja još uvek nije dovoljno istražena.

**Ključne reči:** aromatične biljke, metaboliti, biološka aktivnost.

**Zahvalnica:** Rad je podržalo Ministarstvo nauke, tehnološkog razvoja i inovacija Republike Srbije, ugovor broj 451-03-9/2021-14/200040 i Evropska komisija kroz projekat TWINNING GREEN-EDITING VIBES FOR FOOD, broj 101059942.

## APPLICATION OF ALTERNATIVE METHODS OF CROP PROTECTION IN SUSTAINABLE AGRICULTURE

Marijenka Tabaković<sup>1</sup>, Vesna Dragičević<sup>1</sup>, Ratibor Štrbanović<sup>2</sup>, Živković Ivana<sup>3</sup>, Milan Brankov<sup>1</sup>,  
Sveto Rakić<sup>4</sup>, Violeta Oro<sup>2</sup>

<sup>1</sup>Maize Research Institute "Zemun Polje", Slobodana Bajića 1, 11185 Beograd-Zemun, Srbija

<sup>2</sup>Institute for Plant and Environmental Protection, Teodora Drajzera 9, 11040 Belgrade, Srbija

<sup>3</sup>Institute of Vegetable Growing, Karađorđeva 71, 11420 Smederevska Palanka

<sup>4</sup>Faculty of Agriculture, Univerzitet u Beogradu, Nemanjina 6, 11080 Beograd-Zemun, Srbija

e-mail: [mtabakovic@mrizp.rs](mailto:mtabakovic@mrizp.rs)

Environmental problems such as global warming, pollution, and the decline of plant species biodiversity are leading to new social trends and discussions. A relatively new idea of global sustainable development aims to meet societal demands while protecting and enhancing natural resources. The main tools used in the implementation of natural resource protection measures are sustainable development indicators. One of these indicators is the damage caused by the use of synthetic chemicals in agriculture. In Serbia, agriculture is an important sector of the economy with different levels of technological progress, from extensive to intensive. The degree of pollution and its impact on the environment varies according to agricultural production. The challenges faced by modern agricultural production in conditions of technological progress have led to the intensification of production, but have also caused concern about maintaining the natural balance of cultivated land and product quality. The application of innovative technologies for crop protection without the use of chemical agents is a step that should reduce the environmental damage caused. Among the most important natural metabolites and secondary products of aromatic plants used as biopesticides are essential oils. The biological activities of essential oils in agriculture have antimicrobial and herbicidal effects. The various bioactive components of the oil determine its action. In nature, they play an important role in protecting plants from bacteria, fungi, viruses and insects. In most weeds, the oils penetrate the cytoplasmic membrane of the cell as typical lipophiles and cause its multilayers of polysaccharides, fatty acids and phospholipids to lose their structure and become permeable. Chlorosis, necrosis, and growth inhibition are symptoms of damage caused by the application of essential oils to plants.

Although the physiological effects of the oil are not yet well studied, the importance of its use and other natural metabolites indicates its value for sustainable agriculture.

**Key words:** aromatic plants, metabolites, biological activity

**Acknowledgments:** Results obtained in the present study are a part of the Project 451-03-9/2021-14/200040 that was financed by the Ministry of Science and Technological Development of the Republic of Serbia and European Commission through the Project TWINNING GREEN-EDITING VIBES FOR FOOD, number 101059942.